Harriman

Dorothea Dix Psychiatric Campus
IF&W Building Envelope Repairs
Bangor, Maine

Project No. 23113
BGS No: 3666

January 18, 2024

Construction Documents

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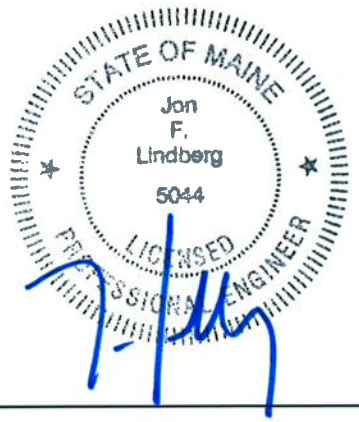
PROFESSIONAL SEAL PAGE

GALE ASSOCIATES, INC.



DOROTHEA DIX PSYCHIATRIC CAMPUS
IF&W BUILDING
ENVELOPE REPAIRS
BANGOR, MAINE

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LIST OF DRAWINGS

SECTION 000200 - INFORMATION AVAILABLE TO BIDDERS

PART 1 GENERAL

1.1 INFORMATION FOR BIDDERS

A. Existing Drawings

1. A digital copy of the existing building drawings can be furnished by the Owner for reference.

END OF SECTION 000200

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00 11 13
Notice to Contractors

DDPC - IF&W Envelope Repairs BGS Project #3666

The Bureau of General Services (BGS) is conducting a competitive bid process for the Envelope Repairs Project at the IF&W Building in Bangor, Maine.

The former "IF&W" building is located on the western edge of the Dorothea Dix Psychiatric Center Campus in Bangor. The building comprises 22,720 GSF and four stories with a brick façade and brick and steel structure. Currently vacant, the "IF&W" building is being considered for future occupants and requires exterior envelope improvements. The associated Scope includes concrete, masonry and associated roof repairs.

The cost of the work is approximately $ 125,000. The contract shall designate the Substantial Completion Date on or before *(6) six months after contract is awarded*, and the Contract Final Completion Date on or before *(9) months after contract is awarded*.

1. Submit bids on a completed Contractor Bid Form, plus bid security when required, all scanned and included as an attachment to an email with the subject line marked "**Bid for *DDPC - IF&W Envelope Repairs*** " and addressed to the Bid Administrator at: BGS.Architect@Maine.gov, so as to be received no later than **2:00 p.m.** on ***Tuesday February 20, 2024 opening***.

   Bid submissions will be opened and read aloud at the time and date noted above at the Bureau of General Services office, accessible as a video conference call. Those who wish to participate in the call must submit a request for access to BGS.Architect@Maine.gov.

   Any bid received after the noted time will not be considered a valid bid and will remain unopened. Any bid submitted by any other means will not be considered a valid bid. The Bid Administrator may require the Bidder to surrender a valid paper copy of the bid form or the bid security document in certain circumstances.

   Questions on the bid opening process shall be addressed to the Bid Administrator: Joseph H. Ostwald, Director, Division of Planning, Design & Construction, Bureau of General Services, 77 State House Station, Augusta, Maine 04333-0077, BGS.Architect@Maine.gov. Questions are due by noon on Tuesday January 30, 2024 and will be answered on Friday February 2, 2024.

2. The bid shall be submitted on the Contractor Bid Form (section 00 41 13) provided in the Bid Documents. The Owner reserves the right to accept or reject any or all bids as may best serve the interest of the Owner.

3. Bid security *is required* on this project.
   If noted above as required, the Bidder shall include a satisfactory Bid Bond (section 00 43 13) or a certified or cashier's check for 5% of the bid amount with the completed bid form submitted to the Owner. The Bid Bond form is available on the BGS website.

4. Performance and Payment Bonds *are required* on this project.
   If noted above as required, or if any combination of Base Bid and Alternate Bids amounts selected in the award of the contract exceeds $125,000.00, the selected Contractor shall furnish a 100% contract Performance Bond (section 00 61 13.13) and a 100% contract Payment Bond (section 00 61 13.16) in

the contract amount to cover the execution of the Work. Bond forms are available on the BGS website.

5. Filed Sub-bids *are not required* on this project.

6. There *are no* Pre-qualified General Contractors on this project.
   If Pre-qualified General Contractors are identified for this project, the name of each company, with their city and state, are listed below.

7. An on-site pre-bid conference *will* be conducted for this project.
   If a pre-bid conference is scheduled, it is *mandatory* for General Contractors and optional for Subcontractors and suppliers. Contractors who arrive late or leave early for a mandatory meeting may be prohibited from participating in this meeting and bidding. *The on-site walk-through is scheduled for 10:00 a.m on Friday January 26, 2024 at 650 State Street, Bangor Maine*.

8. Bid Documents - full sets only - will be available on or about *Friday January 12, 2024* and may be obtained *at a cost of $100.00 non-refundable for each complete set of plans and specifications before they are shipped. No sets will be issued until payment is received. PDF files are also available for download at no cost on the BGS website. Hard copy Bid documents are available* from:
   Harriman
   Attention: Michael Dixon
   46 Harriman Drive
   Auburn, ME 04210
   mdixon@harriman.com
   207-784-5100

9. Bid Documents may be examined at:
   AGC Maine
   188 Whitten Road
   Augusta, ME 04330
   Phone 207-622-4741 Fax 207-622-1625

   Construction Summary
   734 Chestnut Street
   Manchester, NH 03104
   Phone 603-627-8856 Fax 603-627-4524

00 21 13
Instructions to Bidders

1. Bidder Requirements

1.1 A bidder is a Contractor which is evidently qualified, or has been specifically pre-qualified by the Bureau of General Services, to bid on the proposed project described in the Bid Documents.

1.2 Contractors and Subcontractors bidding on projects that utilize Filed Sub-bids shall follow the requirements outlined in these Bid Documents for such projects. See Section 00 22 13 for additional information.

1.3 Contractors and Subcontractors are not eligible to bid on the project when their access to project design documents prior to the bid period distribution of documents creates an unfair bidding advantage. Prohibited access includes consultation with the Owner or with design professionals engaged by the Owner regarding cost estimating, constructability review, or project scheduling. This prohibition to bid applies to open, competitive bidding or pre-qualified contractor bidding or Filed Sub-bidding. The Bureau may require additional information to determine if the activities of a Contractor constitute an unfair bidding advantage.

1.4 Each bidder is responsible for becoming thoroughly familiar with the Bid Documents prior to submitting a bid. The failure of a bidder to review evident site conditions, to attend available pre-bid conferences, or to receive, examine, or act on addenda to the Bid Documents shall not relieve that bidder from any obligation with respect to their bid or the execution of the work as a Contractor.

1.5 Prior to the award of the contract, General Contractor bidders or Filed Sub-bidders may be required to provide documented evidence to the Owner or the Bureau showing compliance with the provisions of this section, their business experience, financial capability, or performance on previous projects.

1.6 The selected General Contractor bidder will be required to provide proof of insurance before a contract can be executed.

1.7 Contracts developed from this bid shall not be assigned, sublet or transferred without the written consent of the Owner.

1.8 By submitting a bid the Contractor attests that it has not been declared ineligible to bid on State of Maine projects. The Director of the Bureau of General Services may disallow award of this contract to any Contractor if there is evidence that the Contractor or any of its Subcontractors, through their own fault, have been terminated, suspended for cause, debarred from bidding, agreed to refrain from bidding as part of a settlement, have defaulted on a contract, or had a contract completed by another party.

1.9 The Contractor attests that it is not presently indicted for or otherwise criminally or civilly charged by a Federal, State or local government entity with commission of any of the following offenses and has not within a three-year period preceding this bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction, or contract under a public transaction, violation of Federal or State anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

1.10 The Contractor shall not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs or State of Maine projects.

2. Authority of Owner

2.1 The Owner reserves the right to accept or reject any or all bids as may best serve the interest of the Owner.

2.2 Subject to the Owner's stated right to accept or reject any or all bids, the Contractor shall be selected on the basis of the lowest dollar value of an acceptable Base Bid, or any combination of Base Bid plus Alternate Bids, as well as other limited cost modifications the Owner determines may best serve the interests of the Owner. An acceptable bid is a duly submitted bid from a responsive and responsible bidder.

2.3 The Owner reserves the right to require Bid Bonds or Performance and Payment Bonds for any project of any contract value.

3. Submitting Bids and Bid Requirements

3.1 Each bid shall be submitted on the forms provided in the Bid Documents.

3.2 Each bid shall be valid for a period of thirty calendar days following the Project bid closing date and time. The bid expiration date may be extended in unusual circumstances by mutual consent of the Bidder and the Owner. The bid amount shall not be modified due to the bid expiration date extension.

3.3 Any provision contained in a bid which shows cost escalation, or any modification of schedule or other requirements shall not be accepted. Such a provision causes the bid to be invalid, or, at the discretion of the Owner and BGS, that element of the bid submission may be disregarded for the purpose of awarding the contract without that provision.

3.4 Bidders shall include a Bid Bond or other approved bid security with the bid form submitted to the Owner when the bid form indicates such bid security is required. The bond value shall be 5% of the bid amount. The form of bond is shown in section 00 43 13.

3.5 Bidders recognize that inclusion of contract bonds and the cost of those bonds is dependent on the awarded contract dollar value. Therefore, a Base Bid, or any combination of Base Bid plus Alternate Bids, as well as other limited cost modifications, resulting in a contract award shall include the cost of Performance and Payment Bonds in the submitted bid amount when the construction contract value is over $125,000.00. Similarly, the cost of Performance and Payment Bonds is excluded in the submitted bid amount when the construction contract value is $125,000.00 or less unless bonds are specifically required by the Bid Documents. When required for the project, the selected Contractor shall provide these bonds before a contract can be executed, pursuant to 14 M.R.S.A., Section 871, Public Works Contractors' Surety Bond Law of 1971, subsection 3. The form of bonds is shown in section 00 61 13.13 and 00 61 13.16.

3.6 Bidders may modify bids in writing, by the same means as the original bid submission, prior to the bid closing time. Such written amendments shall not disclose the amount of the initial bid. If so disclosed, the entire bid is considered invalid.

3.7 Bidders implicitly acknowledge all Addenda issued when they submit the bid form. By usual practice the Consultant shall not issue Addenda less than 72 hours prior to the bid closing time, to allow ample time for bidders to incorporate the information. However, some information, such as extending the bid due date and time, may be issued with shorter notice. Addenda shall be issued to all companies who are registered holders of Bid Documents.

3.8 A bid may be withdrawn without penalty if a written request by the bidder is presented to the Owner prior to the bid closing time. Such written withdrawal requests are subject to verification as required by the Bureau.

A bid may be withdrawn without penalty after the bid closing time if, in the determination of the Bureau, evidence provided by the Contractor shows an apparent unintended error such as a miscalculation, or an erroneous number on estimating documents, was the cause of an inaccurate bid. The Bureau may allow withdrawal in consideration of the bid bond or, without utilizing a bid bond, if the Bureau considers documented evidence provided by the Contractor shows factual errors had been made on the bid form.

3.9 In the event State of Maine Offices unexpectedly close on the published date of a public bid opening in the location of that bid opening, prior to the time of the scheduled deadline, the new deadline for the public bid opening will be the following business day at the originally scheduled hour of the day, at the original location. Official closings are posted on the State of Maine government website.

3.10 The Owner may require, in a Notice of Intent to Award letter to the apparent low bidder, a Schedule of Values, Project Schedule, and List of Subcontractors and Suppliers as both a demonstration of capability of the Bidder and as a condition of award.

3.11 Projects which require a State of Maine wage determination will include that schedule as part of the Bid Documents. See section 00 73 46, if such rates are required.

3.12 Projects which require compliance with the Davis-Bacon Act are subject to the regulations contained the Code for Federal Regulations and the federal wage determination which is made a part of the Bid Documents. See section 00 73 46, if such rates are required.

3.13 The Owner is exempt from the payment of Maine State sales and use taxes as provided in 36 M.R.S. §1760 (1). The Contractor and Subcontractors shall not include taxes on exempt items in the construction contract.

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00 41 13
Contractor Bid Form

DDPC - IF&W Envelope Repairs BGS Project #3666

Bid Form submitted by: *email only to email address below*

Bid Administrator:

Joseph H. Ostwald, Director, Division of Planning, Design & Construction
Maine Bureau of General Services
77 State House Station
Augusta, ME 04333
joseph.ostwald@maine.gov

Bidder:

Signature: _____

Printed name and title: _____

Company name: _____

Mailing address: _____

City, state, zip code: _____

Phone number: _____

Email address: _____

State of incorporation, if a corporation: _____

List of all partners, if a partnership: _____

The Bidder agrees, if the Owner offers to award the contract, to provide any and all bonds and certificates of insurance, as well as Schedule of Values, Project Schedule, and List of Subcontractors and Suppliers if required by the Owner, and to sign the designated Construction Contract within twelve calendar days after the date of notification of such acceptance, except if the twelfth day falls on a State of Maine government holiday or other closure day, or a Saturday, or a Sunday, in which case the aforementioned documents must be received before 12:00 noon on the first available business day following the holiday, other closure day, Saturday, or Sunday.

As a guarantee thereof, the Bidder submits, together with this bid, a bid bond or other acceptable instrument as and if required by the Bid Documents.

00 41 13
Contractor Bid Form

1. The Bidder, having carefully examined the *DDPC - IF&W Envelope Repairs* Project Manual dated *January 18, 2024* , prepared by *Harriman*, as well as Specifications, Drawings, and any Addenda, the form of contract, and the premises and conditions relating to the work, proposes to furnish all labor, equipment and materials necessary for and reasonably incidental to the construction and completion of this project for the **Base Bid** amount of:

   $ _____ .00

2. Allowances *are not included* on this project.
   No Allowances
   e $ *0*.00

3. Alternate Bids *are not included* on this project.
   No Alternate Bids
   Any dollar amount line below that is left blank by the Bidder shall be read as a bid of **$0.00**.

   1 Not Used $ _____ .00

   2 Not Used $ _____ .00

   3 Not Used $ _____ .00

   4 Not Used $ _____ .00

4. Bid security *is required* on this project.
   If noted above as required, or if the Base Bid amount exceeds $125,000.00, the Bidder shall include with this bid form a satisfactory Bid Bond (section 00 43 13) or a certified or cashier's check for 5% of the bid amount with this completed bid form submitted to the Owner.

5. Filed Sub-bids *are not required* on this project.
   If noted above as required, the Bidder shall include with this bid form a list of each Filed Sub-bidder selected by the Bidder on the form provided (section 00 41 13F).

00 43 13
Contractor Bid Bond

Bond No.: **insert bond number**

We, the undersigned, ***insert company name of Contractor***, ***select type of entity*** of ***insert name of municipality*** in the State of ***insert name of state*** as principal, and ***insert name of surety*** as Surety, are hereby held and firmly bound unto ***select title of obligee*** in the penal sum of ***five percent of the bid amount***, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns, signed this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the same date as that of the first specified bid due date, or subsequent bid due date revised by addendum.

The condition of the above obligation is such that whereas the principal has submitted to the Owner, or State of Maine, to a certain bid, attached hereto and hereby made a part hereof, to enter into a contract in writing, for the construction of ***insert name of project as designated in the contract documents***

Now therefore:

If said bid shall be rejected, or, in the alternate,

If said bid shall be accepted and the principal shall execute and deliver a contract in the form of contract attached hereto, properly completed in accordance with said bid, and shall furnish a bond for the faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, 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 penal amount of this obligation as herein stated.

The Surety, for value received hereby stipulates and agrees that the obligation of said Surety and its bonds shall be in no way impaired or affected by any extension of the time within which the Obligee may accept such bid and said Surety does hereby waive notice of any such extension.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

00 43 13
Contractor Bid Bond

In witness whereof, the principal and the Surety have hereunto set their hands and seals, 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 above.

Signed and sealed this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the first specified bid due date, or subsequent bid due date revised by addendum.

Contractor

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

Surety

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

If Contractor is a partnership, all partners shall execute the bond. A power of attorney document indicating that it still is in full force and effect shall be provided by the person executing this bond.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

AdvantageME CT# _____

State of Maine
CONSTRUCTION CONTRACT

Large Construction Project

This form is used when the Contract value is $50,000 or greater.
The Project Manual, Specifications and Drawings, and any Addenda are considered part of this Contract.

Agreement entered into by and between the ***contracting entity name*** hereinafter called the ***Owner*** and ***Contractor company name*** hereinafter called the ***Contractor***.

BGS Project No.: ***number assigned by BGS*** Other Project No.: _____

For the following Project: ***title of project as shown on bid documents*** at ***facility or campus name***, ***municipality***, Maine.

The Specifications and the Drawings have been prepared by ***Consultant firm name***, acting as Professional-of-Record and named in the documents as the Consultant Architect or Engineer.

The *Owner* and *Contractor* agree as follows:

ARTICLE 1 COMPENSATION AND PAYMENTS

1.1 The Owner shall pay the Contractor to furnish all labor, equipment, materials and incidentals necessary for the construction of the Work described in the Specifications and shown on the Drawings the Contract Amount as shown below.

Base Bid	*$0.00*
Alternate Bid number and name or "no Alternates"	*$0.00*
Alternate Bid number and name or "no Alternates"	*$0.00*
Alternate Bid number and name or "no Alternates"	*$0.00*
Alternate Bid number and name or "no Alternates"	*$0.00*
Alternate Bid number and name or "no Alternates"	*$0.00*
Total Contract Amount	***$0.00***

1.2 The Contractor's requisition shall contain sufficient detail and supporting information for the Owner to evaluate and support the payment requested.

1.2.1 Payments are due and payable twenty-five working days from the date of receipt of a Contractor requisition which is approved by the Owner.

1.2.2 Provisions for late payments are governed by 5 M.R.S. Chapter 144, *Payment of Invoices Received from Business Concerns*, and interest shall be calculated at 1% per month.

ARTICLE 2 COMMENCEMENT AND COMPLETION DATES

2.1 The Work of this Contract shall commence no sooner than the date this document is executed by the approval authority, or a subsequent date designated in the contract documents.

2.2 The Substantial Completion Date shall be _____.

2.3 The Work of this Contract shall be completed on or before the Contract Final Completion Date of _____.

2.4 The Contract Expiration Date shall be _____. (This date is the Owner's deadline for internal management of contract accounts. The Contract Expiration Date does not directly relate to any contract obligation of the Contractor.)

ARTICLE 3 INELIGIBLE BIDDER

3.1 By signing this contract the Contractor attests that it has not been declared ineligible to bid on State of Maine projects. The Bureau of General Services may disallow award of this contract to any Contractor if there is evidence that the Contractor or any of its Subcontractors, through their own fault, have been terminated, suspended for cause, debarred from bidding, agreed to refrain from bidding as part of a settlement, have defaulted on a contract, or had a contract completed by another party.

3.2 By signing this contract the Contractor attests that it is not presently indicted for or otherwise criminally or civilly charged by a Federal, State or local government entity with commission of any of the following offenses and has not within a three-year period preceding this bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction, or contract under a public transaction, violation of Federal or State anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

3.3 The Contractor shall not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs or State of Maine projects.

ARTICLE 4 CONTRACTOR'S RESPONSIBILITIES

4.1 On this project, the Contractor ***shall*** furnish the Owner the appropriate contract bonds in the amount of 100% of the Contract Sum. Contract bonds are mandated if the Contract Sum exceeds $125,000, or if bonds are specifically required by the Contract Documents.

4.2 The Contractor shall comply with all laws, codes and regulations applicable to the Work.

4.3 The Contractor shall acquire all permits and third-party approvals applicable to the Work not specifically identified as provided by the Owner. Costs for Contractor-provided permits and third-party approvals shall be included in the Contract Sum identified in Section 1.1 above.

4.4 The Contractor shall remain an independent agent for the duration of this Contract, shall not become an employee of the State of Maine, and shall assure that no State employee will be compensated by, or otherwise benefit from, this Contract.

4.5 The Contractor shall be responsible for any design cost, construction cost, or other cost incurred on the Project to the extent caused by the negligent acts, errors or omissions of the Contractor or their Subcontractors in the performance of Work under this Contract.

ARTICLE 5 OWNER'S RESPONSIBILITIES

5.1 The Owner shall provide full information about the objectives, schedule, constraints and existing conditions of the project. The Owner has established a budget with reasonable contingencies that meets the project requirements.

5.2 By signing this contract, the Owner attests that all State of Maine procurement requirements for this contract have been met, including the solicitation of competitive bids.

ARTICLE 6 INSTRUMENTS OF SERVICE

6.1 The Contractor's use of the drawings, specifications and other documents known as the Consultant's Instruments of Service is limited to the execution of the Contractor's scope of work of this project unless the Contractor receives the written consent of the Owner and Consultant for use elsewhere.

ARTICLE 7 MISCELLANEOUS PROVISIONS

7.1 This Contract shall be governed by the laws of the State of Maine.

7.2 The Owner and Contractor, respectively, bind themselves, their partners, successors, assigns and legal representatives to this Contract. Neither party to this Contract shall assign the Contract as a whole without written consent of the other party, which consent the Owner may withhold without cause.

7.3 Notwithstanding any other provision of this Agreement, if the Owner does not receive sufficient funds to fund this Agreement or funds are de-appropriated, or if the Owner does not receive legal authority from the Maine State Legislature or Maine Courts to expend funds intended for this Agreement, then the Owner is not obligated to make payment under this Agreement; provided, however, the Owner shall be obligated to pay for services satisfactorily performed prior to any such non-appropriation in accordance with the termination provisions of this Agreement. The Owner shall timely notify the Contractor of any non-appropriation and the effective date of the non-appropriation.

ARTICLE 8 CONTRACT DOCUMENTS

8.1 The Project Manual, Specifications and Drawings, and any Addenda, together with this agreement, form the contract. Each element is as fully a part of the Contract as if hereto attached or herein repeated.

8.2 Specifications: ***indicate date of issuance of project manual***

8.3 Drawings: ***note here or attach each sheet number and title***

8.4 Addenda: ***note each addenda number and date, or "none"***

BGS Project No.: _____

The Contract is effective as of the date executed by the approval authority.

OWNER	CONTRACTOR
Signature *Date* *name and title* *name of contracting entity* *address* *telephone* *email address*	*Signature* *Date* *name and title* *name of contractor company* *address* *telephone* *email address* *Vendor Number*

Indicate the names of the review and approval individuals appropriate to the approval authority.

select proper approval authority	
Reviewed by:	Approved by:
Signature *Date* *insert name*	*Signature* *Date* *Joseph H. Ostwald*
Project Manager/ Contract Administrator	*Director, Planning, Design & Construction*

00 61 13.13
Contractor Performance Bond

Bond No.: **insert bond number**

We, the undersigned, ***insert company name of Contractor***, ***select type of entity*** of ***insert name of municipality*** in the State of ***insert name of state*** as principal, and ***insert name of surety*** as Surety, are hereby held and firmly bound unto ***select title of obligee*** in the penal sum of the Contract Price $ ***insert the Contract Price in numbers*** for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that if the principal shall promptly and faithfully perform the contract entered into this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the same date as that of the notice of intent to award letter, or in the absence of such a letter, not later than the date the Owner signs the construction contract, for the construction of ***insert name of project as designated in the contract documents***, then this obligation shall be null and 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 penal amount of this obligation as herein stated.

The Surety, for value received hereby stipulates and agrees that the obligation of said Surety and its bonds shall be in no way impaired or affected by any extension of the time which the Obligee may accept during the performance of the contract and said Surety does hereby waive notice of any such extension.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

00 61 13.13
Contractor Performance Bond

In witness whereof, the principal and the Surety have hereunto set their hands and seals, 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 above.

Signed and sealed this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the same date as that of the notice of intent to award letter, or in the absence of such a letter, not later than the date the Owner signs the construction contract.

Contractor

_____

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

Surety

_____

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

If Contractor is a partnership, all partners shall execute the bond. A power of attorney document indicating that it still is in full force and effect shall be provided by the person executing this bond.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

00 61 13.16
Contractor Payment Bond

Bond No.: **insert bond number**

We, the undersigned, ***insert company name of Contractor***, ***select type of entity*** of ***insert name of municipality*** in the State of ***insert name of state*** as principal, and ***insert name of surety*** as Surety, are hereby held and firmly bound unto ***select title of obligee*** in the penal sum of the Contract Price $ ***insert the Contract Price in numbers*** for the use and benefit of claimants, defined as an entity having a contract with the principal or with a subcontractor of the principal for labor, materials, or both labor and materials, used or reasonably required for use in the performance of the contract, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that if the principal shall promptly satisfy all claims and demands incurred for all labor and materials, used or required by the principal in connection with the work described in the contract entered into this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the same date as that of the notice of intent to award letter, or in the absence of such a letter, not later than the date the Owner signs the construction contract, for the construction of ***insert name of project as designated in the contract documents***, and shall fully reimburse the obligee for all outlay and expense with said obligee may incur in making good any default of said principal, then this obligation shall be null and 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 penal amount of this obligation as herein stated.

The Surety, for value received hereby stipulates and agrees that the obligation of said Surety and its bonds shall be in no way impaired or affected by any extension of the time which the Obligee may accept during the performance of the contract and said Surety does hereby waive notice of any such extension.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

00 61 13.16
Contractor Payment Bond

In witness whereof, the principal and the Surety have hereunto set their hands and seals, 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 above.

Signed and sealed this ***insert date, i.e.: 8th*** day of ***select month***, ***select year***, which is the same date as that of the notice of intent to award letter, or in the absence of such a letter, not later than the date the Owner signs the construction contract.

Contractor

_____

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

Surety

_____

(Signature)

insert name and title

insert company name

insert address
insert city state zip code

If Contractor is a partnership, all partners shall execute the bond. A power of attorney document indicating that it still is in full force and effect shall be provided by the person executing this bond.

[Fillable bond forms may be downloaded from the Bureau of General Services website.]

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Definitions

1. Definitions

1.1 *Addendum*: A document issued by the Consultant that amends the Bid Documents. Addenda shall not be issued less than seventy-two hours prior to the specified bid opening time.

1.2 *Allowance*: A specified dollar amount for a particular scope of work or service included in the Work that is identified in the Bid Documents and included in each Bidder's Bid. The Contractor shall document expenditures for an Allowance during the Project. Any unused balance shall be credited to the Owner. The Contractor is responsible for notifying the Owner of anticipated expenses greater than the specified amount and the Owner is responsible for those additional expenses.

1.3 *Alternate Bid*: The Contractor's written offer of a specified dollar amount, submitted on the Bid Form, for the performance of a particular scope of work described in the Bid Documents. The Owner determines the low bidder based on the sum of the base Bid and any combination of Alternate Bids that the Owner selects.

1.4 *Architect*: A Consultant acting as, or supporting, the Professional-of-Record who is responsible for the design of the Project. Equivalent to "Consultant" in State of Maine contract forms.

1.5 *Architectural Supplemental Instruction (ASI)*: A written instruction from the Architect for the purpose of clarification of the Contract Documents. An ASI does not alter the Contract Price or Contract Time. ASIs may be responses to RFIs and shall be issued by the Architect in a timely manner to avoid any negative impact on the Schedule of the Work.

1.6 *Bid*: The Contractor's written offer of a specified dollar amount or amounts, submitted on a form included in the Bid Documents, for the performance of the Work. A Bid may include bonds or other requirements. A base Bid is separate and distinct from Alternate Bids, being the only cost component necessary for the award of the contract, and representing the minimum amount of Work that is essential for the functioning of the Project.

1.7 *Bid Bond*: The security designated in the Bid Documents, furnished by Bidders as a guaranty of good faith to enter into a contract with the Owner, should a contract be awarded to that Bidder.

1.8 *Bidder*: Any business entity, individual or corporation that submits a bid for the performance of the work described in the Bid Documents, acting directly or through a duly authorized representative. See also *Responsive and Responsible Bidder*.

1.9 *Bid Documents*: The drawings, procurement and contracting requirements, general requirements, and the written specifications -including all addenda, that a bidder is required to reference in the submission of a bid.

1.10 *Bureau*: The State of Maine Bureau of General Services, or BGS, in the Department of Administrative and Financial Services.

1.11 *Calendar days*: Consecutive days, as occurring on a calendar, taking into account each day of the week, month, year, and any religious, national or local holidays. Calendar days are used for changes in Contract Time.

1.12 *Certificate of Substantial Completion*: A document developed by the Consultant that describes the final status of the Work and establishes the date that the Owner may use the facility for its intended purpose. The Certificate of Substantial Completion may also include a provisional list of items - a "punch list" - remaining to be completed by the Contractor. The Certificate of Substantial Completion identifies the date from which the project warranty period commences.

1.13 *Certificate of Occupancy*: A document developed by a local jurisdiction such as the Code Enforcement Officer that grants permission to the Owner to occupy a building.

1.14 *Change Order (CO)*: A document that modifies the contract and establishes the basis of a specific adjustment to the Contract Price or the Contract Time, or both. Change Orders may address correction of omissions, errors, and document discrepancies, or additional requirements. Change Orders should include all labor, materials and incidentals required to complete the work described. A Change Order is not valid until signed by the Contractor, Owner and Consultant and approved by the Bureau.

1.15 *Change Order Proposal (COP) (see also Proposal)*: Contract change proposed by the Contractor regarding the contract amount, requirements, or time. The Contractor implements the work of a COP after it is accepted by all parties. Accepted COPs are incorporated into the contract by Change Order.

1.16 *Clerk of the Works*: The authorized representative of the Consultant on the job site. Clerk of the Works is sometimes called the Architect's representative.

1.17 *Construction Change Directive (CCD)*: A written order prepared by the Consultant and signed by the Owner and Consultant, directing a change in the Work prior to final agreement with the Contractor on adjustment, if any, in the Contract Price or Contract Time, or both.

1.18 *Contract*: A written agreement between the Owner and the successful bidder which obligates the Contractor to perform the work specified in the Contract Documents and obligates the Owner to compensate the Contractor at the mutually accepted sum, rates or prices.

1.19 *Contract Bonds (also known as Payment and Performance Bonds)*: The approved forms of security, furnished by the Contractor and their surety, which guarantee the faithful performance of all the terms of the contract and the payment of all bills for labor, materials and equipment by the Contractor.

1.20 *Contract Documents*: The drawings and written specifications (including all addenda), Standard General Conditions, and the contract (including all Change Orders subsequently incorporated in the documents).

1.21 *Contract Expiration Date*: Date determined by the Owner as a deadline for internal management of contract accounts. This allows time after the Contract Final Completion Date for processing the final Requisition for Payment. The Contract Expiration Date does not directly relate to any contract obligation of the Contractor.

1.22 *Contract Final Completion Date*: Point of time when the Work is fully completed in compliance with the Contract Documents, as certified by the Consultant. Final payment to the Contractor is due upon Final Completion of the Project.

1.23 *Contract Price*: The dollar amount of the construction contract, also called *Contract Sum*.

1.24 *Contract Time*: The designated duration of time to execute the Work of the contract, with a specific date for completion.

1.25 *Contractor*: Also called the "General Contractor" or "GC" the individual or entity undertaking the execution of the general contract work under the terms of the contract with the Owner, acting directly or through a duly authorized representative. The Contractor is responsible for the means, methods and materials utilized in the execution and completion of the Work.

1.26 *Consultant*: The Architect or Engineer acting as Professional-of-Record for the Project. The Consultant is responsible for the design of the Project.

1.27 *Drawings*: The graphic and pictorial portion of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

1.28 *Engineer*: A Consultant acting as, or supporting, the Professional-of-Record who is responsible for the design of the Project. Equivalent to “Consultant” in State of Maine contract forms.

1.29 *Filed Sub-bid*: The designated major Subcontractor's (or, in some cases, Contractor’s) written offer of a specified dollar amount or amounts, submitted on a form included in the Bid Documents, for the performance of a particular portion of the Work. A Filed Sub-bid may include bonds or other requirements.

1.30 *General Requirements*: The on-site overhead expense items the Contractor provides for the Project, typically including, but not limited to, building permits, construction supervision, Contract Bonds, insurance, field office, temporary utilities, rubbish removal, and site fencing. Overhead expenses of the Contractor's general operation are not included. Sometimes referred to as the Contractor's General Conditions.

1.31 *Owner*: The State agency which is represented by duly authorized individuals. The Owner is responsible for defining the scope of the Project and compensation to the Consultant and Contractor.

1.32 *Owner’s Representative*: The individual or entity contracted by the Owner to be an advisor and information conduit regarding the Project.

1.33 *Overhead*: General and administrative expenses of the Contractor’s principal and branch offices, including payroll costs and other compensation of Contractor employees, deductibles paid on any insurance policy, charges against the Contractor for delinquent payments, and costs related to the correction of defective work, and the Contractor’s capital expenses, including interest on capital used for the work.

1.34 *Performance and Payment Bonds (also known as Contract Bonds)*: The approved forms of security, furnished by the Contractor and their surety, which guarantee the faithful performance of all the terms of the contract and the payment of all bills for labor, materials and equipment by the Contractor.

1.35 *Post-Bid Addendum*: Document issued by the Consultant that defines a potential Change Order prior to signing of the construction contract. The Post-Bid Addendum allows the Owner to negotiate

contract changes with the Bidder submitting the lowest valid bid, only if the negotiated changes to the Bid Documents result in no change or no increase in the bid price.

A Post-Bid Addendum may also be issued after a competitive construction Bid opening to those Bidders who submitted a Bid initially, for the purpose of rebidding the Project work without re-advertising.

1.36 *Project*: The construction project proposed by the Owner to be constructed according to the Contract Documents. The Project, a public improvement, may be tied logistically to other public improvements and other activities conducted by the Owner or other contractors.

1.37 *Proposal (see also Change Order Proposal)*: The Contractor's written offer submitted to the Owner for consideration containing a specified dollar amount or rate, for a specific scope of work, and including a schedule impact, if any. A proposal shall include all costs for overhead and profit. The Contractor implements the work of a Proposal after it is accepted by all parties. Accepted Proposals are incorporated into the contract by Change Order.

1.38 *Proposal Request (PR)*: An Owner's written request to the Contractor for a Change Order Proposal.

1.39 *Punch List*: A document that identifies the items of work remaining to be done by the Contractor at the Close Out of a Project. The Punch List is created as a result of a final inspection of the work only after the Contractor attests that all of the Work is in its complete and permanent status.

1.40 *Request For Information (RFI)*: A Contractor's written request to the Consultant for clarification, definition or description of the Work. RFIs shall be presented by the Contractor in a timely manner to avoid any negative impact on the Schedule of the Work.

1.41 *Request For Proposal (RFP)*: An Owner's written request to the Contractor for a Change Order Proposal.

1.42 *Requisition for Payment*: The document in which the Contractor certifies that the Work described is, to the best of the Contractor's knowledge, information and belief, complete and that all previous payments have been paid by the Contractor to Subcontractors and suppliers, and that the current requested payment is now due. See *Schedule of Values.*

1.43 *Responsive and Responsible Bidder*: A bidder who complies, when submitting a bid on a given project, with the following *responsive* standards, as required by the Bid Documents:
- submits specific qualifications to bid the project, if required;
- attends mandatory pre-bid conferences, if required;
- submits a bid prior to the close of the bid period;
- submits a complete bid form;
- submits a bid without indications of intent contrary to the stated requirements;
- submits other materials and information, such as bid security, as required;

and, meets the following minimums regarding these *responsible* standards:
- sustains a satisfactory record of project performance;
- maintains a permanent place of business in a known physical location;
- possesses the financial means for short- and long-term operations;
- possesses the appropriate technical experience and capabilities;
- employs adequate personnel and subcontractor resources;

maintains the equipment needed to perform the work;
complies with the proposed implementation schedule;
complies with the insurance and bonding requirements;
provides post-construction warranty coverage;
and other criteria which can be considered relevant to the contract.

1.44 *Retainage*: The amount, calculated at five percent (5%) of the contract value or a scheduled value, that the Owner shall withhold from the Contractor until the work or portion of work is declared substantially complete or otherwise accepted by the Owner. The Owner may, if requested, reduce the amount withheld if the Owner deems it desirable and prudent to do so. (See Title 5 M.R.S.A., Section 1746.)

1.45 *Sample*: A physical example provided by the Contractor which illustrates materials, equipment or workmanship and establishes standards by which the Work will be judged.

1.46 *Schedule of the Work*: The document prepared by the Contractor and approved by the Owner that specifies the dates on which the Contractor plans to begin and complete various parts of the Work, including dates on which information and approvals are required from the Owner.

1.47 *Schedule of Values*: The document prepared by the Contractor and approved by the Owner before the commencement of the Work that specifies the dollar values of discrete portions of the Work equal in sum to the contract amount. The Schedule of Values is used to document progress payments of the Work in regular (usually monthly) requisitions for payment. See *Requisition for Payment*.

1.48 *Shop Drawings*: The drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

1.49 *Specifications*: The portion of the Contract Documents consisting of the written requirements of the Work for materials, equipment, systems, standards, workmanship, and performance of related services.

1.50 *Subcontractor*: An individual or entity undertaking the execution of any part of the Work by virtue of a written agreement with the Contractor or any other Subcontractor. Also, an individual or entity retained by the Contractor or any other Subcontractor as an independent contractor to provide the labor, materials, equipment or services necessary to complete a specific portion of the Work.

1.51 *Substantial Completion Date*: Point of time when the Work or a designated portion of the Work is sufficiently complete in compliance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended purpose without unscheduled disruption. Substantial Completion is documented by the date of the Certificate of Substantial Completion signed by the Owner and the Contractor.

1.52 *Superintendent*: The representative of the Contractor on the job site, authorized by the Contractor to receive and fulfill instructions from the Consultant.

1.53 *Surety*: The individual or entity that is legally bound with the Contractor and Subcontractor to insure the faithful performance of the contract and for the payment of the bills for labor, materials and equipment by the Contractor and Subcontractors.

1.54 *Work*: The construction and services, whether completed or partially completed, including all labor, materials, equipment and services provided or to be provided by the Contractor and Subcontractors to fulfill the requirements of the Project as described in the Contract Documents.

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General Conditions

Table of Contents of this General Conditions Section

1. Preconstruction Conference

1.1 The Contractor shall, upon acceptance of a contract and prior to commencing work, schedule a preconstruction conference with the Owner and Consultant. The purpose of this conference is as follows.

1.1.1 Introduce all parties who have a significant role in the Project, including:
Owner (State agency or other contracting entity)
Owner's Representative
Consultant (Architect or Engineer)
Subconsultants
Clerk-of-the-works
Contractor (GC)
Superintendent
Subcontractors
Other State agencies
Construction testing company
Commissioning agent
Special Inspections agent
Bureau of General Services (BGS);

1.1.2 Review the responsibilities of each party;

1.1.3 Review any previously-identified special provisions of the Project;

1.1.4 Review the Schedule of the Work calendar submitted by the Contractor to be approved by the Owner and Consultant;

1.1.5 Review the Schedule of Values form submitted by the Contractor to be approved by the Owner and Consultant;

1.1.6 Establish routines for Shop Drawing approval, contract changes, requisitions, et cetera;

1.1.7 discuss jobsite issues;

1.1.8 Discuss Project close-out procedures;

1.1.9 Provide an opportunity for clarification of Contract Documents before work begins; and

1.1.10 Schedule regular meetings at appropriate intervals for the review of the progress of the Work.

2. Intent and Correlation of Contract Documents

2.1 The intent of the Contract Documents is to describe the complete Project. The Contract Documents consist of various components; each component complements the others. What is shown as a requirement by any one component shall be inferred as a requirement on all corresponding components.

2.2 The Contractor shall furnish all labor, equipment and materials, tools, transportation, insurance, services, supplies, operations and methods necessary for, and reasonably incidental to, the construction and completion of the Project. Any work that deviates from the Contract Documents which appears to be required by the exigencies of construction or by inconsistencies in the Contract Documents, will be determined by the Consultant and authorized in writing by the Consultant, Owner and the Bureau prior to execution. The Contractor shall be responsible for requesting clarifying information where the intent of the Contract Documents is uncertain.

2.3 The Contractor shall not utilize any apparent error or omission in the Contract Documents to the disadvantage of the Owner. The Contractor shall promptly notify the Consultant in writing of such errors or omissions. The Consultant shall make any corrections or clarifications necessary in such a situation to document the true intent of the Contract Documents.

3. Additional Drawings and Specifications

3.1 Upon the written request of the Contractor, the Owner shall provide, at no expense to the Contractor, up to five sets of printed Drawings and Specifications for the execution of the Work.

3.2 The Consultant shall promptly furnish to the Contractor revised Drawings and Specifications, for the area of the documents where those revisions apply, when corrections or clarifications are made by the Consultant. All such information shall be consistent with, and reasonably inferred from, the Contract Documents. The Contractor shall do no work without the proper Drawings and Specifications.

4. Ownership of Contract Documents

4.1 The designs represented on the Contract Documents are the property of the Consultant. The Drawings and Specifications shall not be used on other work without consent of the Consultant.

5. Permits, Laws, and Regulations

5.1 The Owner is responsible for obtaining any zoning approvals or other similar local project approvals necessary to complete the Work, unless otherwise specified in the Contract Documents.

5.2 The Owner is responsible for obtaining Maine Department of Environmental Protection, Maine Department of Transportation, or other similar state government project approvals necessary to complete the Work, unless otherwise indicated in the Contract Documents.

5.3 The Owner is responsible for obtaining any federal agency project approvals necessary to complete the Work, unless otherwise indicated in the Contract Documents.

5.4 The Owner is responsible for obtaining all easements for permanent structures or permanent changes in existing facilities.

5.5 The Contractor is responsible for obtaining and paying for all permits and licenses necessary for the implementation of the Work. The Contractor shall notify the Owner of any delays, variance or restrictions that may result from the issuing of permits and licenses.

5.6 The Contractor shall comply with all ordinances, laws, rules and regulations and make all required notices bearing on the implementation of the Work. In the event the Contractor observes disagreement between the Drawings and Specifications and any ordinances, laws, rules and regulations, the Contractor shall promptly notify the Consultant in writing. Any necessary changes shall be made as provided in the contract for changes in the work. The Contractor shall not perform any work knowing it to be contrary to such ordinances, laws, rules and regulations.

5.7 The Contractor shall comply with local, state and federal regulations regarding construction safety and all other aspects of the Work.

5.8 The Contractor shall comply with the Maine Code of Fair Practices and Affirmative Action, 5 M.R.S. §784 (2).

6. Taxes

6.1 The Owner is exempt from the payment of Maine State sales and use taxes as provided in 36 M.R.S. §1760 (1). The Contractor and Subcontractors shall not include taxes on exempt items in the construction contract.

6.2 Section 1760 further provides in subsection 61 that sales to a construction contractor or its subcontractor of tangible personal property that is to be physically incorporated in, and become a permanent part of, real property for sale to or owned by the Owner, are exempt from Maine State sales and use taxes. Tangible personal property is defined in 36 M.R.S. §1752 (17).

6.3 The Contractor may contact Maine Revenue Services, 24 State House Station, Augusta, Maine 04333 for guidance on tax exempt regulations authorized by 36 M.R.S. §1760 and detailed in Rule 302 (18-125 CMR 302).

7. Labor and Wages

7.1 The Contractor shall conform to the labor laws of the State of Maine, and all other laws, ordinances, and legal requirements affecting the work in Maine.

7.2 The Consultant shall include a wage determination document prepared by the Maine Department of Labor in the Contract Documents for state-funded contracts in excess of $50,000. The document shows the minimum wages required to be paid to each category of labor employed on the project.

7.3 On projects requiring a Maine wage determination, the Contractor shall submit monthly payroll records to the Owner ("the contracting agency") showing the name and occupation of all workers and all independent contractors employed on the project. The monthly submission must also include the Contractor's company name, the title of the project, hours worked, hourly rate or other method of remuneration, and the actual wages or other compensation paid to each person.

7.4 The Contractor shall not reveal, in the payroll records submitted to the Owner, personal information regarding workers and independent contractors, other than the information described above. Such information shall not include Social Security number, employee identification number, or employee address or phone number, for example.

7.5 The Contractor shall conform to Maine statute (39-A M.R.S. §105-A (6)) by providing to the Workers' Compensation Board a list of all subcontractors and independent contractors on the job site and a record of the entity to whom that subcontractor or independent contractor is directly contracted and by whom that subcontractor or independent contractor is insured for workers' compensation purposes.

7.6 The Contractor shall enforce strict discipline and good order among their employees at all times, and shall not employ any person unfit or unskilled to do the work assigned to them.

7.7 The Contractor shall promptly pay all employees when their compensation is due, shall promptly pay all others who have billed and are due for materials, supplies and services used in the Work, and shall promptly pay all others who have billed and are due for insurance, workers compensation coverage, federal and state unemployment compensation, and Social Security

charges pertaining to this Project. Before final payments are made, the Contractor shall furnish to the Owner affidavits that all such payments described above have been made.

7.8 The Contractor may contact the Maine Department of Labor, 54 State House Station, Augusta, Maine 04333 for guidance on labor issues.

7.9 The Contractor may contact the Maine Workers' Compensation Board, 27 State House Station, Augusta, Maine 04333 for guidance on workers' compensation issues.

8. Indemnification

8.1 The Contractor shall indemnify and hold harmless the Owner and its officers and employees from and against any and all damages, liabilities, and costs, including reasonable attorney's fees, and defense costs, for any and all injuries to persons or property, including claims for violation of intellectual property rights, to the extent caused by the negligent acts or omissions of the Contractor, its employees, agents, officers or subcontractors in the performance of work under this Agreement. The Contractor shall not be liable for claims to the extent caused by the negligent acts or omissions of the Owner or for actions taken in reasonable reliance on written instructions of the Owner.

8.2 The Contractor shall notify the Owner promptly of all claims arising out of the performance of work under this Agreement by the Contractor, its employees or agents, officers or subcontractors.

8.3 This indemnity provision shall survive the termination of the Agreement, completion of the project or the expiration of the term of the Agreement.

9. Insurance Requirements

9.1 The Contractor shall provide, with each original of the signed Contract, an insurance certificate or certificates acceptable to the Owner and BGS. The Contractor shall submit insurance certificates to the Owner and BGS at the commencement of this Contract and at policy renewal or revision dates. The certificates shall identify the project name and BGS project number, and shall name the Owner as certificate holder and as additional insured for general liability and automobile liability coverages. The submitted forms shall contain a provision that coverage afforded under the insurance policies will not be canceled or materially changed unless at least ten days prior written notice by registered letter has been given to the Owner and BGS.

9.2 The Owner does not warrant or represent that the insurance required herein constitutes an insurance portfolio which adequately addresses all risks faced by the Contractor or its Subcontractors. The Contractor is responsible for the existence, extent and adequacy of insurance prior to commencement of work. The Contractor shall not allow any Subcontractor to commence work until all similar insurance required of the Subcontractor has been confirmed by the Contractor.

9.3 The Contractor shall procure and maintain primary insurance for the duration of the Project and, if written on a Claims-Made basis, shall also procure and maintain Extended Reporting Period (ERP) insurance for the period of time that any claims could be brought. The Contractor shall ensure that all Subcontractors they engage or employ will procure and maintain similar insurance

in form and amount acceptable to the Owner and BGS. At a minimum, the insurance shall be of the types and limits set forth herein protecting the Contractor from claims which may result from the Contractor's execution of the Work, whether such execution be by the Contractor or by those employed by the Contractor or by those for whose acts they may be liable. All required insurance coverages shall be placed with carriers authorized to conduct business in the State of Maine by the Maine Bureau of Insurance.

9.3.1 The Contractor shall have Workers' Compensation insurance for all employees on the Project site in accordance with the requirements of the Workers' Compensation law of the State of Maine. Minimum acceptable limits for Employer's Liability are:

Bodily Injury by Accident.....$500,000
Bodily Injury by Disease.....$500,000 Each Employee
Bodily Injury by Disease.....$500,000 Policy Limit

9.3.2 The Contractor shall have Commercial General Liability insurance providing coverage for bodily injury and property damage liability for all hazards of the Project including premise and operations, products and completed operations, contractual, and personal injury liabilities. The policy shall include collapse and underground coverage as well as explosion coverage if explosion hazards exist. Aggregate limits shall apply on a location or project basis. Minimum acceptable limits are:

General aggregate limit.....$2,000,000
Products and completed operations aggregate $1,000,000
Each occurrence limit.....$1,000,000
Personal injury aggregate.....$1,000,000

9.3.3 The Contractor shall have Automobile Liability insurance against claims for bodily injury, death or property damage resulting from the maintenance, ownership or use of all owned, non-owned and hired automobiles, trucks and trailers. Minimum acceptable limit is:

Any one accident or loss $500,000

9.3.4 For the portion of a project which is new construction, the Contractor shall procure and maintain Builder's Risk insurance naming the Owner, Contractor, and any Subcontractor as insureds as their interest may appear. Covered causes of loss form shall be all Risks of Direct Physical Loss, endorsed to include flood, earthquake, transit and sprinkler leakage where sprinkler coverage is applicable. Unless specifically authorized in writing by the Owner, the limit of insurance shall not be less than the initial contract amount, for the portion of the project which is new construction, and coverage shall apply during the entire contract period and until the work is accepted by the Owner.

9.3.5 The Contractor shall have Owner's Protective Liability insurance for contract values $50,000 and above, naming the Owner as the Named Insured. Minimum acceptable limits are:

General aggregate limit.....$2,000,000
Each occurrence limit.....$1,000,000

10. Contract Bonds

10.1 When noted as required in the Bid Documents, the Contractor shall provide to the Owner a Performance Bond and a Payment Bond, or "contract bonds", upon execution of the contract. Each bond value shall be for the full amount of the contract and issued by a surety company authorized to do business in the State of Maine as approved by the Owner. The bonds shall be

executed on the forms furnished in the Bid Documents. The bonds shall allow for any subsequent additions or deductions of the contract.

10.2 The contract bonds shall continue in effect for one year after final acceptance of the contract to protect the Owner's interest in connection with the one year guarantee of workmanship and materials and to assure settlement of claims for the payment of all bills for labor, materials and equipment by the Contractor.

11. Patents and Royalties

11.1 The Contractor shall, for all time, secure for the Owner the free and undisputed right to the use of any patented articles or methods used in the Work. The expense of defending any suits for infringement or alleged infringement of such patents shall be borne by the Contractor. Awards made regarding patent suits shall be paid by the Contractor. The Contractor shall hold the Owner harmless regarding patent suits that may arise due to installations made by the Contractor, and to any awards made as a result of such suits.

11.2 Any royalty payments related to the work done by the Contractor for the Project shall be borne by the Contractor. The Contractor shall hold the Owner harmless regarding any royalty payments that may arise due to installations made by the Contractor.

12. Surveys, Layout of Work

12.1 The Owner shall furnish all property surveys unless otherwise specified.

12.2 The Contractor is responsible for correctly staking out the Work on the site. The Contractor shall employ a competent surveyor to position all construction on the site. The surveyor shall run the axis lines, establish correct datum points and check each line and point on the site to insure their accuracy. All such lines and points shall be carefully preserved throughout the construction.

12.3 The Contractor shall lay out all work from dimensions given on the Drawings. The Contractor shall take measurements and verify dimensions of any existing work that affects the Work or to which the Work is to be fitted. The Contractor is solely responsible for the accuracy of all measurements. The Contractor shall verify all grades, lines, levels, elevations and dimensions shown on the Drawings and report any errors or inconsistencies to the Consultant prior to commencing work.

13. Record of Documents

13.1 The Contractor shall maintain one complete set of Contract Documents on the jobsite, in good order and current status, for access by the Owner and Consultant.

13.2 The Contractor shall maintain, continuously updated, complete records of Requests for Information, Architectural Supplemental Instructions (or equivalent), Information Bulletins, supplemental sketches, Change Order Proposals, Change Orders, Shop Drawings, testing reports, et cetera, for access by the Owner and Consultant.

14. Allowances

14.1 The Contract Price shall include all allowances described in the Contract Documents. The Contractor shall include all overhead and profit necessary to implement each allowance in their Contract Price.

14.2 The Contractor shall not be required to employ parties for allowance work against whom the Contractor has a reasonable objection. In such a case, the Contractor shall notify the Owner in writing of their position and shall propose an alternative party to complete the work of the allowance.

15. Shop Drawings

15.1 The Contractor shall administer Shop Drawings prepared by the Contractor, Subcontractors, suppliers or others to conform to the approved Schedule of the Work. The Contractor shall verify all field measurements, check and authorize all Shop Drawings and schedules required by the Work. The Contractor is the responsible party and contact for the Contractor's work as well as that of Subcontractors, suppliers or others who provide Shop Drawings.

15.2 The Consultant shall review and acknowledge Shop Drawings, with reasonable promptness, for general conformity with the design concept of the project and compliance with the information provided in the Contract Documents.

15.3 The Contractor shall provide monthly updated logs containing: requests for information, information bulletins, supplemental instructions, supplemental sketches, change order proposals, change orders, submittals, testing and deficiencies.

15.4 The Contractor shall make any corrections required by the Consultant, and shall submit a quantity of corrected copies as may be needed. The acceptance of Shop Drawings or schedules by the Consultant shall not relieve the Contractor from responsibility for deviations from Drawings and Specifications, unless the Contractor has called such deviations to the attention of the Consultant at the time of submission and secured the Consultant’s written approval. The acceptance of Shop Drawings or schedules by the Consultant does not relieve the Contractor from responsibility for errors in Shop Drawings or schedules.

16. Samples

16.1 The Contractor shall furnish for approval, with reasonable promptness, all samples as directed by the Consultant. The Consultant shall review and approve such samples, with reasonable promptness, for general conformity with the design concept of the project and compliance with the information provided in the Contract Documents. The subsequent work shall be in accord with the approved samples.

17. Substitutions

17.1 The Contractor shall furnish items and materials described in the Contract Documents. If the item or material specified describes a proprietary product, or uses the name of a manufacturer, the term “or approved equal” shall be implied, if it is not included in the text. The specific item or material specified establishes a minimum standard for the general design, level of quality, type, function, durability, efficiency, reliability, compatibility, warranty coverage, installation factors

and required maintenance. The Drawing or written Specification shall not be construed to exclude other manufacturers products of comparable design, quality, and efficiency.

17.2 The Contractor may submit detailed information about a proposed substitution to the Consultant for consideration. Particular models of items and particular materials which the Contractor asserts to be equal to the items and materials identified in the Contract Documents shall be allowed only with written approval by the Consultant. The request for substitution shall include a cost comparison and a reason or reasons for the substitution.

17.3 The Consultant may request additional information about the proposed substitution. The approval or rejection of a proposed substitution may be based on timeliness of the request, source of the information, the considerations of minimum standards described above, or other considerations. The Consultant should briefly state the rationale for the decision. The decision shall be considered final.

17.4 The duration of a substitution review process can not be the basis for a claim for delay in the Schedule of the Work.

18. Assignment of Contract

18.1 The Contractor shall not assign or sublet the contract as a whole without the written consent of the Owner. The Contractor shall not assign any money due to the Contractor without the written consent of the Owner.

19. Separate Contracts

19.1 The Owner reserves the right to create other contracts in connection with this Project using similar General Conditions. The Contractor shall allow the Owner's other contractors reasonable opportunity for the delivery and storage of materials and the execution of their work. The Contractor shall coordinate and properly connect the Work of all contractors.

19.2 The Contractor shall promptly report to the Consultant and Owner any apparent deficiencies in work of the Owner's other contractors that impacts the proper execution or results of the Contractor. The Contractor’s failure to observe or report any deficiencies constitutes an acceptance of the Owner's other contractors work as suitable for the interface of the Contractor’s work, except for latent deficiencies in the Owner's other contractors work.

19.3 Similarly, the Contractor shall promptly report to the Consultant and Owner any apparent deficiencies in their own work that would impact the proper execution or results of the Owner's other contractors.

19.4 The Contractor shall report to the Consultant and Owner any conflicts or claims for damages with the Owner's other contractors and settle such conflicts or claims for damages by mutual agreement or arbitration, if necessary, at no expense to the Owner.

19.5 In the event the Owner's other contractors sue the Owner regarding any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense. The Contractor shall pay or satisfy any judgment that may arise against the Owner, and pay all other costs incurred.

20. Subcontracts

20.1 The Contractor shall not subcontract any part of this contract without the written permission of the Owner.

20.2 The Contractor shall submit a complete list of named Subcontractors and material suppliers to the Consultant and Owner for approval by the Owner prior to commencing work. The Subcontractors named shall be reputable companies of recognized standing with a record of satisfactory work.

20.3 The Contractor shall not employ any Subcontractor or use any material until they have been approved, or where there is reason to believe the resulting work will not comply with the Contract Documents.

20.4 The Contractor, not the Owner, is as fully responsible for the acts and omissions of Subcontractors and of persons employed by them, as the Contractor is for the acts and omissions of persons directly or indirectly employed by the Contractor.

20.5 Neither the Contract Documents nor any Contractor-Subcontractor contract shall indicate, infer or create any direct contractual relationship between any Subcontractor and the Owner.

21. Contractor-Subcontractor Relationship

21.1 The Contractor shall be bound to the Subcontractor by all the obligations in the Contract Documents that bind the Contractor to the Owner.

21.2 The Contractor shall pay the Subcontractor, in proportion to the dollar value of the work completed and requisitioned by the Subcontractor, the approved dollar amount allowed to the Contractor no more than seven days after receipt of payment from the Owner.

21.3 The Contractor shall pay the Subcontractor accordingly if the Contract Documents or the subcontract provide for earlier or larger payments than described in the provision above.

21.4 The Contractor shall pay the Subcontractor for completed and requisitioned subcontract work, less retainage, no more than seven days after receipt of payment from the Owner for the Contractor's approved Requisition for Payment, even if the Consultant fails to certify a portion of the Requisition for Payment for a cause not the fault of the Subcontractor.

21.5 The Contractor shall not make a claim for liquidated damages or penalty for delay in any amount in excess of amounts that are specified by the subcontract.

21.6 The Contractor shall not make a claim for services rendered or materials furnished by the Subcontractor unless written notice is given by the Contractor to the Subcontractor within ten calendar days of the day in which the claim originated.

21.7 The Contractor shall give the Subcontractor an opportunity to present and to submit evidence in any progress conference or disputes involving subcontract work.

21.8 The Contractor shall pay the Subcontractor a just share of any fire insurance payment received by the Contractor.

21.9 The Subcontractor shall be bound to the Contractor by the terms of the Contract Documents and assumes toward the Contractor all the obligations and responsibilities that the Contractor, by those documents, assumes toward the Owner.

21.10 The Subcontractor shall submit applications for payment to the Contractor in such reasonable time as to enable the Contractor to apply for payment as specified.

21.11 The Subcontractor shall make any claims for extra cost, extensions of time or damages, to the Contractor in the manner provided in these General Conditions for like claims by the Contractor to the Owner, except that the time for the Subcontractor to make claims for extra cost is seven calendar days after the receipt of Consultant's instructions.

22. Supervision of the Work

22.1 During all stages of the Work the Contractor shall have a competent superintendent, with any necessary assistant superintendents, overseeing the project. The superintendent shall not be reassigned without the consent of the Owner unless a superintendent ceases to be employed by the Contractor due to unsatisfactory performance.

22.2 The superintendent represents the Contractor on the jobsite. Directives given by the Consultant or Owner to the superintendent shall be as binding as if given directly to the Contractor's main office. All important directives shall be confirmed in writing to the Contractor. The Consultant and Owner are not responsible for the acts or omissions of the superintendent or assistant superintendents.

22.3 The Contractor shall provide supervision of the Work equal to the industry's highest standard of care. The superintendent shall carefully study and compare all Contract Documents and promptly report any error, inconsistency or omission discovered to the Consultant. The Contractor may not necessarily be held liable for damages resulting directly from any error, inconsistency or omission in the Contract Documents or other instructions by the Consultant that was not revealed by the superintendent in a timely way.

23. Observation of the Work

23.1 The Contractor shall allow the Owner, the Consultant and the Bureau continuous access to the site for the purpose of observation of the progress of the work. All necessary safeguards and accommodations for such observations shall be provided by the Contractor.

23.2 The Contractor shall coordinate all required testing, approval or demonstration of the Work. The Contractor shall give sufficient notice to the appropriate parties of readiness for testing, inspection or examination.

23.3 The Contractor shall schedule inspections and obtain all required certificates of inspection for inspections by a party other than the Consultant.

23.4 The Consultant shall make all scheduled observations promptly, prior to the work being concealed or buried by the Contractor. If approval of the Work is required of the Consultant, the Contractor shall notify the Consultant of the construction schedule in this regard. Work concealed or buried prior to the Consultant's approval may need to be uncovered at the Contractor's expense.

23.5 The Consultant may order reexamination of questioned work, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to conform to the Contract Documents, the Owner shall pay the expense of the reexamination and remedial work. If the work is found to not conform to the Contract Documents, the Contractor shall pay the expense, unless the defect in the work was caused by the Owner's Contractor, whose responsibility the reexamination expense becomes.

23.6 The Bureau shall periodically observe the Work during the course of construction and make recommendations to the Contractor or Consultant as necessary. Such recommendations shall be considered and implemented through the usual means for changes to the Work.

24. Consultant's Status

24.1 The Consultant represents the Owner during the construction period, and observes the work in progress on behalf of the Owner. The Consultant has authority to act on behalf of the Owner only to the extent expressly provided by the Contract Documents or otherwise demonstrated to the Contractor. The Consultant has authority to stop the work whenever such an action is necessary, in the Consultant's reasonable opinion, to ensure the proper execution of the contract.

24.2 The Consultant is the interpreter of the conditions of the contract and the judge of its performance. The Consultant shall favor neither the Owner nor the Contractor, but shall use the Consultant's powers under the contract to enforce faithful performance by both parties.

24.3 In the event of the termination of the Consultant's employment on the project prior to completion of the work, the Owner shall appoint a capable and reputable replacement. The status of the new Consultant relative to this contract shall be that of the former Consultant.

25. Management of the Premises

25.1 The Contractor shall place equipment and materials, and conduct activities on the premises in a manner that does not unreasonably hinder site circulation, environmental stability, or any long term effect. Likewise, the Consultant's directions shall not cause the use of premises to be impeded for the Contractor or Owner.

25.2 The Contractor shall not use the premises for any purpose other than that which is directly related to the scope of work. The Owner shall not use the premises for any purpose incompatible with the proposed work simultaneous to the work of the Contractor.

25.3 The Contractor shall enforce the Consultant's instructions regarding information posted on the premises such as signage and advertisements, as well as activities conducted on the premises such as fires, and smoking.

25.4 The Owner may occupy any part of the Project that is completed with the written consent of the Contractor, and without prejudice to any of the rights of the Owner or Contractor. Such use or occupancy shall not, in and of itself, be construed as a final acceptance of any work or materials.

26. Safety and Security of the Premises

26.1 The Contractor shall designate, and make known to the Consultant and the Owner, a safety officer whose duty is the prevention of accidents on the site.

26.2 The Contractor shall continuously maintain security on the premises and protect from unreasonable occasion of injury all people authorized to be on the job site. The Contractor shall also effectively protect the property and adjacent properties from damage or loss.

26.3 The Contractor shall take all necessary precautions to ensure the safety of workers and others on and adjacent to the site, abiding by applicable local, state and federal safety regulations. The Contractor shall erect and continuously maintain safeguards for the protection of workers and others, and shall post signs and other warnings regarding hazards associated with the construction process, such as protruding fasteners, moving equipment, trenches and holes, scaffolding, window, door or stair openings, and falling materials.

26.4 The Contractor shall restore the premises to conditions that existed prior to the start of the project at areas not intended to be altered according to the Contract Documents.

26.5 The Contractor shall protect existing utilities and exercise care working in the vicinity of utilities shown in the Drawings and Specifications or otherwise located by the Contractor.

26.6 The Contractor shall protect from damage existing trees and other significant plantings and landscape features of the site which will remain a permanent part of the site. If necessary or indicated in the Contract Documents, tree trunks shall be boxed and barriers erected to prevent damage to tree branches or roots.

26.7 The Contractor shall repair or replace damage to the Work caused by the Contractor's or Subcontractor's forces, including that which is reasonably protected, at the expense of the responsible party.

26.8 The Contractor shall not load, or allow to be loaded, any part of the Project with a force which imperils personal or structural safety. The Consultant may consult with the Contractor on such means and methods of construction, however, the ultimate responsibility lies with the Contractor.

26.9 The Contractor shall not jeopardize any work in place with subsequent construction activities such as blasting, drilling, excavating, cutting, patching or altering work. The Consultant must approve altering any structural components of the project. The Contractor shall supervise all construction activities carried out by others on site to ensure that the work is neatly done and in a manner that will not endanger the structure or the component parts.

26.10 The Contractor may act with their sole discretion in emergency situations that potentially effect health, life or serious damage to the premises or adjacent properties, to prevent such potential loss or injury. The Contractor may negotiate with the Owner for compensation for expenses due to such emergency work.

26.11 The Contractor and Subcontractors shall have no responsibility for the identification, discovery, presence, handling, removal or disposal of, or exposure of persons to, hazardous materials in any form at the project site. The Contractor shall avoid disruption of any hazardous materials or toxic substances at the project site and promptly notify the Owner in writing on the occasion of such a discovery.

26.12 The Contractor shall keep the premises free of any unsafe accumulation of waste materials caused by the work. The Contractor shall regularly keep the spaces "broom clean". See the Close-out of the Work provisions of this section regarding cleaning at the completion of the project.

27. Changes in the Work

27.1 The Contractor shall not proceed with extra work without an approved Change Order or Construction Change Directive. A Change Order which has been properly signed by all parties shall become a part of the contract.

27.2 A Change Order is the usual document for directing changes in the Work. In certain circumstances, however, the Owner may utilize a Construction Change Directive to direct the Contractor to perform changes in the Work that are generally consistent with the scope of the project. The Owner shall use a Construction Change Directive only when the normal process for approving changes to the Work has failed to the detriment of the Project, or when agreement on the terms of a Change Order cannot be met, or when an urgent situation requires, in the Owner's judgment, prompt action by the Contractor.

27.3 The Consultant shall prepare the Construction Change Directive representing a complete scope of work, with proposed Contract Price and Contract Time revisions, if any, clearly stated.

27.4 The Contractor shall promptly carry out a Construction Change Directive which has been signed by the Owner and the Consultant. Work thus completed by the Contractor constitutes the basis for a Change Order. Changes in the Contract Price and Contract Time shall be as defined in the Construction Change Directive unless subsequently negotiated with some other terms.

27.5 The method of determining the dollar value of extra work shall be by:
- .1 an estimate of the Contractor accepted by Owner as a lump sum, or
- .2 unit prices named in the contract or subsequently agreed upon, or
- .3 cost plus a designated percentage, or
- .4 cost plus a fixed fee.

27.6 The Contractor shall determine the dollar value of the extra work for both the lump sum and cost plus designated percentage methods so as not to exceed the following rates. The rates include all overhead and profit expenses.
- .1 Contractor - for any work performed by the Contractor's own forces, up to 20% of the cost;
- .2 Subcontractor - for work performed by Subcontractor's own forces, up to 20% of the cost;
- .3 Contractor - for work performed by Contractor's Subcontractor, up to 10% of the amount due the Subcontractor.

27.7 The Contractor shall keep and provide records as needed or directed for the cost plus designated percentage method. The Consultant shall review and certify the appropriate amount which

includes the Contractor's overhead and profit. The Owner shall make payments based on the Consultant's certificate.

27.8 Cost reflected in Change Orders shall be limited to the following: cost of materials, cost of delivery, cost of labor (including Social Security, pension, Workers' Compensation insurance, and unemployment insurance), and cost of rental of power tools and equipment. Labor cost may include a pro-ratio share of a foreman's time only in the case of an extension of contract time granted due to the Change Order.

27.9 Overhead reflected in Change Orders shall be limited to the following: bond premium, supervision, wages of clerks, time keepers, and watchmen, small tools, incidental expenses, general office expenses, and all other overhead expenses directly related to the Change Order.

27.10 The Contractor shall provide credit to the Owner for labor, materials, equipment and other costs but not overhead and profit expenses for those Change Order items that result in a net value of credit to the contract.

27.11 The Owner may change the scope of work of the Project without invalidating the contract. The Owner shall notify the Contractor of a change of the scope of work for the Owner's Contractors, which may affect the work of this Contractor, without invalidating the contract. Change Orders for extension of the time caused by such changes shall be developed at the time of directing the change in scope of work.

27.12 The Consultant may order minor changes in the Work, not involving extra cost, which is consistent with the intent of the design or project.

27.13 The Contractor shall immediately give written notification to the Consultant of latent conditions discovered at the site which materially differ from those represented in the Drawings or Specifications, and which may eventually result in a change in the scope of work. The Contractor shall suspend work until receiving direction from the Consultant. The Consultant shall promptly investigate the conditions and respond to the Contractor's notice with direction that avoids any unnecessary delay of the Work. The Consultant shall determine if the discovered conditions warrant a Change Order.

27.14 The Contractor shall, within ten calendar days of receipt of the information, give written notification to the Consultant if the Contractor claims that instructions by the Consultant will constitute extra cost not accounted for by Change Order or otherwise under the contract. The Consultant shall promptly respond to the Contractor's notice with direction that avoids any unnecessary delay of the Work. The Consultant shall determine if the Contractor's claim warrants a Change Order.

28. Correction of the Work

28.1 The Contractor shall promptly remove from the premises all work the Consultant declares is non-conforming to the contract. The Contractor shall replace the work properly at no expense to the Owner. The Contractor is also responsible for the expenses of others whose work was damaged or destroyed by such remedial work.

28.2 The Owner may elect to remove non-conforming work if it is not removed by the Contractor within a reasonable time, that time defined in a written notice from the Consultant. The Owner may elect to store removed non-conforming work not removed by the Contractor at the Contractor's expense. The Owner may, with ten days written notice, dispose of materials which the Contractor does not remove. The Owner may sell the materials and apply the net proceeds, after deducting all expenses, to the costs that should have been borne by the Contractor.

28.3 The Contractor shall remedy any defects due to faulty materials or workmanship and pay for any related damage to other work which appears within a period of one year from the date of substantial completion, and in accord with the terms of any guarantees provided in the contract. The Owner shall promptly give notice of observed defects to the Contractor and Consultant. The Consultant shall determine the status of all claimed defects. The Contractor shall perform all remedial work without unjustifiable delay in either the initial response or the corrective action.

28.4 The Consultant may authorize, after a reasonable notification to the Contractor, an equitable deduction from the contract amount in lieu of the Contractor correcting non-conforming or defective work.

29. Owner's Right to do Work

29.1 The Owner may, using other contractors, correct deficiencies attributable to the Contractor, or complete unfinished work. Such action shall take place only after giving the Contractor three days written notice, and provided the Consultant approves of the proposed course of action as an appropriate remedy. The Owner may then deduct the cost of the remedial work from the amount due the Contractor.

29.2 The Owner may act with their sole discretion when the Contractor is unable to take action in emergency situations that potentially effect health, life or serious damage to the premises or adjacent properties, to prevent such potential loss or injury. The Owner shall inform the Contractor of the emergency work performed, particularly where it may affect the work of the Contractor.

30. Termination of Contract and Stop Work Action

30.1 The Owner may, owing to a certificate of the Consultant indicating that sufficient cause exists to justify such action, without prejudice to any other right or remedy and after giving the Contractor and the Contractor’s surety seven days written notice, terminate the employment of the Contractor. At that time the Owner may take possession of the premises and of all materials,

tools and appliances on the premises and finish the work by whatever method the Owner may deem expedient. Cause for such action by the Owner includes:

.1 the contractor is adjudged bankrupt, or makes a general assignment for the benefit of its creditors, or

.2 a receiver is appointed due to the Contractor's insolvency, or

.3 the Contractor persistently or repeatedly refuses or fails to provide enough properly skilled workers or proper materials, or

.4 the Contractor fails to make prompt payment to Subcontractors or suppliers of materials or labor, or

.5 the Contractor persistently disregards laws, ordinances or the instructions of the Consultant, or is otherwise found guilty of a substantial violation of a provision of the Contract Documents.

30.2 The Contractor is not entitled, as a consequence of the termination of the employment of the Contractor as described above, to receive any further payment until the Work is finished. If the unpaid balance of the contract amount exceeds the expense of finishing the Work, including compensation for additional architectural, managerial and administrative services, such balance shall be paid to the Contractor. If the expense of finishing the Work exceeds the unpaid balance, the Contractor shall pay the difference to the Owner. The Consultant shall certify the expense incurred by the Contractor's default. This obligation for payment shall continue to exist after termination of the contract.

30.3 The Contractor may, if the Work is stopped by order of any court or other public authority for a period of thirty consecutive days, and through no act or fault of the Contractor or of anyone employed by the Contractor, with seven days written notice to the Owner and the Consultant, terminate this contract. The Contractor may then recover from the Owner payment for all work executed, any proven loss and reasonable profit and damage.

30.4 The Contractor may, if the Consultant fails to issue a certificate for payment within seven days after the Contractor's formal request for payment, through no fault of the Contractor, or if the Owner fails to pay to the Contractor within 30 days after submission of any sum certified by the Consultant, with seven days written notice to the Owner and the Consultant, stop the Work or terminate this Contract.

31. Delays and Extension of Time

31.1 The completion date of the contract shall be extended if the work is delayed by changes ordered in the work which have approved time extensions, or by an act or neglect of the Owner, the Consultant, or the Owner's Contractor, or by strikes, lockouts, fire, flooding, unusual delay in transportation, unavoidable casualties, or by other causes beyond the Contractor's control. The Consultant shall determine the status of all claimed causes.

31.2 The contract shall not be extended for delay occurring more than seven calendar days before the Contractor's claim made in writing to the Consultant. In case of a continuing cause of delay, only one claim is necessary.

31.3 The contract shall not be extended due to failure of the Consultant to furnish drawings if no schedule or agreement is made between the Contractor and the Consultant indicating the dates

which drawings shall be furnished and fourteen calendar days has passed after said date for such drawings.

31.4 This article does not exclude the recovery of damages for delay by either party under other provisions in the Contract Document.

32. Payments to the Contractor

32.1 As noted under *Preconstruction Conference* in this section, the Contractor shall submit a Schedule of Values form, before the first application for payment, for approval by the Owner and Consultant. The Consultant may direct the Contractor to provide evidence that supports the correctness of the form. The approved Schedule of Values shall be used as a basis for payments.

32.2 The Contractor shall submit an application for each payment ("Requisition for Payment") on a form approved by the Owner and Consultant. The Consultant may require receipts or other documents showing the Contractor's payments for materials and labor, including payments to Subcontractors.

32.3 The Contractor shall submit Requisitions for Payment as the work progresses not more frequently than once each month, unless the Owner approves a more frequent interval due to unusual circumstances. The Requisition for Payment is based on the proportionate quantities of the various classes of work completed or incorporated in the Work, in agreement with the actual progress of the Work and the dollar value indicated in the Schedule of Values.

32.4 The Consultant shall verify and certify each Requisition for Payment which appears to be complete and correct prior to payment being made by the Owner. The Consultant may certify an appropriate amount for materials not incorporated in the Work which have been delivered and suitably stored at the site. The Contractor shall submit bills of sale, insurance certificates, or other such documents that will adequately protect the Owner's interests prior to payments being certified.

32.5 In the event any materials delivered but not yet incorporated in the Work have been included in a certified Requisition for Payment with payment made, and said materials thereafter are damaged, deteriorated or destroyed, or for any reason whatsoever become unsuitable or unavailable for use in the Work, the full amount previously allowed shall be deducted from subsequent payments unless the Contractor satisfactorily replaces said material.

32.6 The Contractor may request certification of an appropriate dollar amount for materials not incorporated in the Work which have been delivered and suitably stored away from the site. The Contractor shall submit bills of sale, insurance certificates, right-of-entry documents or other such documents that will adequately protect the Owner's interests. The Consultant shall determine if the Contractor's documentation for the materials is complete and specifically designated for the Project. The Owner may allow certification of such payments.

32.7 Subcontractors may request, and shall receive from the Consultant, copies of approved Requisitions for Payment showing the amounts certified in the Schedule of Values.

32.8 Certified Requisitions for Payment, payments made to the Contractor, or partial or entire occupancy of the project by the Owner shall not constitute an acceptance of any work that does

not conform to the Contract Documents. The making and acceptance of the final payment constitutes a waiver of all claims by the Owner, other than those arising from unsettled liens, from faulty work or materials appearing within one year from final payment or from requirements of the Drawings and Specifications, and of all claims by the Contractor, except those previously made and still unsettled.

33. Payments Withheld

33.1 The Owner shall retain five percent of each payment due the Contractor as part security for the fulfillment of the contract by the Contractor. The Owner may make payment of a portion of this "retainage" to the Contractor temporarily or permanently during the progress of the Work. The Owner may thereafter withhold further payments until the full amount of the five percent is reestablished. The Contractor may deposit with the Maine State Treasurer certain securities in place of retainage amounts due according to Maine Statute (5 M.R.S. §1746).

33.2 The Consultant may withhold or nullify the whole or a portion of any Requisitions for Payment submitted by the Contractor in the amount that may be necessary, in his reasonable opinion, to protect the Owner from loss due to any of the following:

.1 defective work not remedied;
.2 claims filed or reasonable evidence indicating probable filing of claims;
.3 failure to make payments properly to Subcontractors or suppliers;
.4 a reasonable doubt that the contract can be completed for the balance then unpaid;
.5 liability for damage to another contractor.

The Owner shall make payment to the Contractor, in the amount withheld, when the above circumstances are removed.

34. Liens

34.1 The Contractor shall deliver to the Owner a complete release of all liens arising out of this contract before the final payment or any part of the retainage payment is released. The Contractor shall provide with the release of liens an affidavit asserting each release includes all labor and materials for which a lien could be filed. Alternately, the Contractor, in the event any Subcontractor or supplier refuses to furnish a release of lien in full, may furnish a bond satisfactory to the Owner, to indemnify the Owner against any lien.

34.2 In the event any lien remains unsatisfied after all payments to the Contractor are made by the Owner, the Contractor shall refund to the Owner all money that the latter may be compelled to pay in discharging such lien, including all cost and reasonable attorney's fees.

35. Workmanship

35.1 The Contractor shall provide materials, equipment, and installed work equal to or better than the quality specified in the Contract Documents and approved in submittal and sample. The installation methods shall be of the highest standards, and the best obtainable from the respective trades. The Consultant's decision on the quality of work shall be final.

35.2 The Contractor shall know local labor conditions for skilled and unskilled labor in order to apply the labor appropriately to the Work. All labor shall be performed by individuals well skilled in their respective trades.

35.3 The Contractor shall perform all cutting, fitting, patching and placing of work in such a manner to allow subsequent work to fit properly, whether that be by the Contractor, the Owner's Contractors or others. The Owner and Consultant may advise the Contractor regarding such subsequent work. Notwithstanding the notification or knowledge of such subsequent work, the Contractor may be directed to comply with this standard of compatible construction by the Consultant at the Contractor's expense.

35.4 The Contractor shall request clarification or revision of any design work by the Consultant, prior to commencing that work, in a circumstance where the Contractor believes the work cannot feasibly be completed at the highest quality, or as indicated in the Contract Documents. The Consultant shall respond to such requests in a timely way, providing clarifying information, a feasible revision, or instruction allowing a reduced quality of work. The Contractor shall follow the direction of the Consultant regarding the required request for information.

35.5 The Contractor shall guarantee the Work against any defects in workmanship and materials for a period of one year commencing with the date of the Certificate of Substantial Completion, unless specified otherwise for specific elements of the project. The Work may also be subdivided in mutually agreed upon components, each defined by a separate Certificate of Substantial Completion.

36. Close-out of the Work

36.1 The Contractor shall remove from the premises all waste materials caused by the work. The Contractor shall make the spaces “broom clean” unless a more thorough cleaning is specified. The Contractor shall clean all windows and glass immediately prior to the final inspection, unless otherwise directed.

36.2 The Owner may conduct the cleaning of the premises where the Contractor, duly notified by the Consultant, fails to adequately complete the task. The expense of this cleaning may be deducted from the sum due to the Contractor.

36.3 The Contractor shall participate in all final inspections and acknowledge the documentation of unsatisfactory work, customarily called the "punch list", to be corrected by the Contractor. The Consultant shall document the successful completion of the Work in a dated Certificate of Substantial Completion, to be signed by Owner, Consultant, and Contractor.

36.4 The Contractor shall not call for final inspection of any portion of the Work that is not completely and permanently installed. The Contractor may be found liable for the expenses of individuals called to final inspection meetings prematurely.

36.5 The Contractor and all major Subcontractors shall participate in the end-of-warranty-period conference, typically scheduled close to one year after the Substantial Completion date.

37. Date of Completion and Liquidated Damages

37.1 The Contractor may make a written request to the Owner for an extension or reduction of time, if necessary. The request shall include the reasons the Contractor believes justifies the proposed completion date. The Owner may grant the revision of the contract completion date if the Work was delayed due to conditions beyond the control and the responsibility of the Contractor. The Contractor shall not conduct unauthorized accelerated work or file delay claims to recover alleged damages for unauthorized early completion.

37.2 The Contractor shall vigorously pursue the completion of the Work and notify the Owner of any factors that have, may, or will affect the approved Schedule of the Work. The Contractor may be found responsible for expenses of the Owner or Consultant if the Contractor fails to make notification of project delays.

37.3 The Project is planned to be done in an orderly fashion which allows for an iterative submittal review process, construction administration including minor changes in the Work and some bad weather. The Contractor shall not file delay claims to recover alleged damages on work the Consultant determines has followed the expected rate of progress.

37.4 The Consultant shall prepare the Certificate of Substantial Completion which, when signed by the Owner and the Contractor, documents the date of Substantial Completion of the Work or a designated portion of the Work. The Owner shall not consider the issuance of a Certificate of Occupancy by an outside authority a prerequisite for Substantial Completion if the Certificate of Occupancy cannot be obtained due to factors beyond the Contractor's control.

37.5 Liquidated Damages may be deducted from the sum due to the Contractor for each calendar day that the Work remains uncompleted after the completion date specified in the Contract or an approved amended completion date. The dollar amount per day shall be calculated using the Schedule of Liquidated Damages table shown below.

If the original contract amount is:	The per day Liquidated Damages shall be:
Less than $100,000	$250
$100,000 to less than $2,000,000	$750
$2,000,000 to less than $10,000,000	$1,500
$10,000,000 and greater	$1,500 plus $250 for each $2,000,000 over $10,000,000

38. Dispute Resolution

38.1 Mediation

38.1.1 A dispute between the parties which arises under this Contract which cannot be resolved through informal negotiation, shall be submitted to a neutral mediator jointly selected by the parties.

38.1.2 Either party may file suit before or during mediation if the party, in good faith, deems it to be necessary to avoid losing the right to sue due to a statute of limitations. If suit is filed before good faith mediation efforts are completed, the party filing suit shall agree to stay all proceedings in the lawsuit pending completion of the mediation process, provided such stay is without prejudice.

38.1.3 In any mediation between the Owner and the Consultant, the Owner has the right to consolidate related claims between Owner and Contractor.

38.2 Arbitration

38.2.1 If the dispute is not resolved through mediation, the dispute shall be settled by arbitration. The arbitration shall be conducted before a panel of three arbitrators. Each party shall select one arbitrator; the third arbitrator shall be appointed by the arbitrators selected by the parties. The arbitration shall be conducted in accordance with the Maine Uniform Arbitration Act (MUAA), except as otherwise provided in this section.

38.2.2 The decision of the arbitrators shall be final and binding upon all parties. The decision may be entered in court as provided in the MUAA.

38.2.3 The costs of the arbitration, including the arbitrators' fees shall be borne equally by the parties to the arbitration, unless the arbitrator orders otherwise.

38.2.4 In any arbitration between the Owner and the Consultant, the Owner has the right to consolidate related claims between Owner and Contractor.

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Wage Determination Schedule

PART 1- GENERAL

1.1 Related Documents
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specifications Sections, apply to this Section.

1.2 Summary
A. This Section includes the wage determination requirements for Contractors as issued by the State of Maine Department of Labor Bureau of Labor Standards or the United States Department of Labor.

1.3 Requirements
A. Conform to the wage determination schedule for this project which is shown on the following page.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

THIS DOCUMENT MUST BE CLEARLY POSTED AT ALL CONSTRUCTION SITES FUNDED IN PART WITH STATE FUNDS

State of Maine Department of Labor - Bureau of Labor Standards
Augusta, Maine 04333-0045 - Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid to laborers and workers employed on the below titled project.

2024 Fair Minimum Wage Rates -- Building 2 Penobscot County (other than 1 or 2 family homes)

Occupational Title	Minimum Wage	Minimum Benefit	Total
Brickmasons And Blockmasons	$32.25	$2.95	$35.20
Bulldozer Operator	$31.50	$7.53	$39.03
Carpenter	$19.57	$18.35	$37.92
Cement Masons And Concrete Finisher	$22.63	$3.67	$26.30
Commercial Divers	$30.00	$4.62	$34.62
Construction And Maintenance Painters	$21.00	$0.97	$21.97
Construction Laborer	$22.00	$2.31	$24.31
Crane And Tower Operators	$34.00	$10.12	$44.12
Crushing Grinding And Polishing Machine Operators	$23.00	$4.94	$27.94
Drywall And Ceiling Tile Installers	$26.20	$10.62	$36.82
Earth Drillers - Except Oil And Gas	$21.41	$5.51	$26.92
Electrical Power - Line Installer And Repairers	$38.93	$8.91	$47.84
Electricians	$37.58	$6.36	$43.94
Elevator Installers And Repairers	$68.38	$45.29	$113.67
Excavating And Loading Machine And Dragline Operators	$26.00	$7.01	$33.01
Excavator Operator	$31.38	$5.91	$37.29
Fence Erectors	$26.75	$4.05	$30.80
Flaggers	$20.00	$0.38	$20.38
Floor Layers - Except Carpet/Wood/Hard Tiles	$27.00	$6.21	$33.21
Glaziers	$37.00	$6.60	$43.60
Grader/Scraper Operator	$23.00	$1.99	$24.99
Hazardous Materials Removal Workers	$20.63	$1.25	$21.88
Heating And Air Conditioning And Refrigeration Mechanics And Installers	$30.08	$5.49	$35.57
Heavy And Tractor - Trailer Truck Drivers	$21.50	$0.95	$22.45
Highway Maintenance Workers	$20.00	$0.00	$20.00
Industrial Machinery Mechanics	$31.25	$1.01	$32.26
Industrial Truck And Tractor Operators	$29.25	$4.06	$33.31
Insulation Worker - Mechanical	$23.00	$3.59	$26.59
Ironworker - Ornamental	$29.00	$11.24	$40.24
Light Truck Or Delivery Services Drivers	$23.34	$1.67	$25.01
Millwrights	$33.75	$8.78	$42.53
Mobile Heavy Equipment Mechanics - Except Engines	$27.75	$4.89	$32.64
Operating Engineers And Other Equipment Operators	$24.00	$2.38	$26.38
Paver Operator	$27.03	$6.49	$33.52
Pile-Driver Operators	$32.75	$1.95	$34.70
Pipelayers	$28.50	$4.89	$33.39
Plumbers Pipe Fitters And Steamfitters	$29.50	$5.48	$34.98
Pump Operators - Except Wellhead Pumpers	$31.49	$32.08	$63.57
Radio Cellular And Tower Equipment Installers	$26.00	$3.77	$29.77
Reclaimer Operator	$27.03	$7.68	$34.71
Reinforcing Iron And Rebar Workers	$30.83	$24.97	$55.80
Riggers	$29.25	$7.79	$37.04
Roofers	$23.00	$3.13	$26.13
Screed/Wheelman	$29.25	$4.94	$34.19
Sheet Metal Workers	$26.00	$6.39	$32.39
Structural Iron And Steel Workers	$30.83	$24.97	$55.80
Tapers	$25.00	$5.11	$30.11
Telecommunications Equipment Installers And Repairers - Except Line Installers	$30.00	$2.39	$32.39
Telecommunications Line Installers And Repairers	$23.00	$5.16	$28.16
Tile And Marble Setters	$27.75	$6.73	$34.48

Welders are classified as the trade to which welding is incidental (e.g. welding structural steel is Structural Iron and Steel Worker)

Apprentices – The minimum wage rates for registered apprentices are the rates recognized in the sponsorship agreement for registered apprentices working in the pertinent classification.

For any other specific trade on this project not listed above, contact the Bureau of Labor Standards for further clarification.

Title 26 §1310 requires that a clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

Appeal – Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates.

A true copy

Attest: Scott R. Cotnoir
Scott R. Cotnoir
Wage & Hour Director
Bureau of Labor Standards

Expiration Date: 12-31-2024
Revision Date: 1-3-2024

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Work covered by the Contract Documents.
   2. Type of the Contract.
   3. Work schedule.
   4. Work under other contracts.
   5. Use of premises.
   6. Owner's occupancy requirements.
   7. Work restrictions.
   8. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: DDPC - IF&W Building Envelope Repairs

B. Project Location: Dorothea Dix Psychiatric Campus, Bangor, Maine

C. Owner: State of Maine
   1. Owner's Representative: Joseph H. Ostwald

D. Architect: Harriman, 46 Harriman Drive, Auburn, Maine.

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 PERMITS

A. The Contractor is responsible for obtaining all permits required by the City of Bangor.

1.6 WORK SCHEDULE

A. The construction start dates shall be as follows:
   1. Contractor mobilization shall be on a date to be determined by the Owner.

B. Completion dates for the work:

1. The work shall be substantially complete on or before (6) six months after contract is awarded. Final completion, including completion of punch list items shall be done on or before (9) months after contract is awarded.

C. Time: The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

1.7 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts. References to concurrent work included throughout the contract documents is intended to identify areas of potential overlap and conflict but does not necessarily capture all work under separate contracts. The Contractor shall coordinate fully with the Architect, Owner, and separate contractors prior to the commencement of work to identify all potential conflicts between separate contractors and to confirm scheduling requirements for a successful project completion.

1.8 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

B. Use of Site: Limit use of premises to areas within the Contract limits indicated: identified as the IF&W Building and its adjacent parking areas. Access on or near the hospital grounds is strictly prohibited. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Owner Occupancy: Allow for Owner occupancy of facilities adjacent to the work and use by the public.
   2. Driveways and Entrances: Keep driveways, parking, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Campus Tobacco Use Policy: A tobacco-free campus has been established at the Dorothea Dix Psychiatric Campus (DDPC).
   1. The DDPC is a tobacco-free campus. This policy applies to all staff, contractors, vendors and visitors. The use of tobacco and all smoking products is not permitted on any DDPC property, which includes but is not limited to, buildings, campus grounds, parking areas, and walkways,.
   2. Tobacco use by definition includes the possession of any lighted tobacco products, or the use of any type of smokeless tobacco, including but not limited to chew, snuff, snus, electronic cigarettes, and all other nicotine delivery devices that are non-FDA approved as cessation products.
   3. It is the shared responsibility of all members of the campus community to respect and abide by this policy. The successful implementation of this policy depends on the courtesy and cooperation of the entire campus community.

D. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building during construction period.

1.9 OWNER'S OCCUPANCY REQUIREMENTS

A. During the construction period the building is not intended to be occupied outside of general maintenance. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
   1. Maintain access to existing walkways, roadways, and other adjacent occupied or used facilities. Do not close or obstruct walkways, roadways, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
   2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
   3. Provide protective coverings for all furnishings (flooring, desks, shelves, equipment, etc..) that remain in the building to ensure that no damage occurs during construction.

B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of Work, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
   1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.

1.10 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, except otherwise indicated.
   1. Early Morning Hours: Contractor allowed access to site during early morning hours (prior to 7:00 am) upon request and approval of the owner.
   2. Hours for Utility Shutdowns: to be coordinated with the Owner a minimum of two weeks prior to the estimated time of work.
   3. Hours for Core Drilling and Concrete Saw Cutting: Work shall be performed during Early Morning Hours and be coordinated with the Owner a minimum of two weeks prior to the estimated time of work.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Architect and Owner not less than two weeks in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.
   3. Shutdown of building electrical service shall be only after indicated temporary electrical service is in place and critical loads have been cut over.

C. Worker Supervision:
   1. The Contractor shall supervise the actions of employees and sub-contractors with regard to inappropriate activity at the site. Comply with the following requirements:
      a. Sexual harassment of any nature will not be tolerated.

b. No pornography on property.
c. No alcohol on property.
d. No drugs on property.
e. No guns or weapons on property.
f. No smoking or vaping on property.

2. Failure to comply with the requirements outlined above will result in immediate action by the Owner. First Offense: The individual removed permanently from premises. Second Offense: The responsible subcontractor removed permanently from premises.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "2004 Master Format" numbering system.
1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.12 MISCELLANEOUS PROVISIONS

A. Material safety data sheets shall be made available in accordance with OSHA requirements.

B. No asbestos containing materials shall be used in the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections include the following:
   1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

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

1.4 PROPOSAL REQUESTS

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

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

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests, or format as approved by the Owner.

1.5 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount only where indicated as part of the allowance.
   2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
   3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
   4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
   1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
   2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a University of Maine Change Order form for signatures of Owner and Contractor.

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. The forms for application for payment, duly notarized, shall be the current authorized edition of the AIA Document G702, Application for Payment, supported by a current authorized edition of AIA G703, Continuation Sheet. Samples of these, and other required AIA documents, are provided in the Contract Documents under Division 00 for informational purposes only.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

A. Construction Schedule.
   1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with Continuation Sheets.
      b. Submittals Schedule.
      c. Contractor's Construction Schedule.
   2. Submit the Schedule of Values to Architect prior to the pre-construction meeting.

B. Format and Content: Use the specification table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the Schedule of Values:
      a. Project name and location.
      b. Name of Architect.
      c. Contractor's name and address.
      d. Date of submittal.
   2. Submit draft of AIA G702 Application for Payment form and AIA G703 Continuation Sheet (Schedule of Values) form.
   3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
      a. Related Specification Section or Division.
      b. Description of the Work.
      c. Name of subcontractor.

d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers).
g. Dollar value.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Specification table of contents. Provide several line items for principal subcontract amounts, where appropriate.
   a. For each line item, provide a sublist breakdown as follows:
      1) Material.
      2) Labor.
5. Documentation: Submit proper documentation for the amounts being requisitioned from subcontractors and material suppliers with each Application for Payment. Three (3) copies of an Application for Payment or a Payment Requisition are required for all subcontracted work. Three (3) copies of the invoice is required for each major supplier.
6. Stored Materials: If Contractor is requesting payment for stored materials as part of the Application for Payment, Contractor must complete Column F in the G703 Continuation Sheet (Schedule of Values) to record the stored materials amounts against line items that pertain to those stored materials. Stored materials are materials or equipment purchased or fabricated and stored, but not yet installed or incorporated into the Work.
   a. Complete and provide three (3) copies of 00 62 79 Stored Materials form with all required documentation. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
   b. Only major long lead delivery items may be considered for off-site storage (example: long lead custom mechanical unit). Standard order and production materials and products shall be delivered to the site before including in Application for Payment of such items.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when approved Change Orders or Construction Change Directives result in a change in the Contract Sum.
10. Retainage: The required five percent (5%) retainage held per Application for Payment submission shall be accounted for on the G703 on a per line item basis. Each line item with a value in Column G “Total Completed and Stored To Date” shall have a corresponding five percent retainage value entered in Column I.
    a. Final Release of Retainage: The final release of retainage shall be entered as a separate line item on the G703 as “Final Release of Retainage” with the full amount of the five percent retainage entered as a negative number in Column I. The final release of retainage request is submitted as a separate application.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: G702 Application for Payment shall be submitted to Architect and Owner not less than seven (7) days before monthly progress meeting. The period covered by each Application for Payment is one (1) month, ending on the last day of the month.

C. Payment Application Forms: The Contractor is required under the Contract Documents to use official original AIA documents. Samples of the required documents are provided in Division 00 of the Specifications.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
   2. Include amounts of approved Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal:
   1. Submit three (3) signed and notarized originals of:
      a. AIA G702 Application & Certificate for Payment.
      b. AIA G703 Continuation Sheet.
      c. AIA G706 Contractor's Affidavit of Payment of Debts & Claims.
      d. AIA G706A Contractor's Affidavit of Release of Liens.
      e. 00 65 19.17 Waiver of Lien.
   2. Transmit each Application for Payment with a transmittal form listing attachments and recording appropriate information about submission.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit three (3) copies of waivers of mechanic's lien from subcontractors, sub-subcontractors, major suppliers, and every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
   5. Waiver Forms: Submit 00 65 19.17 Waiver of Lien forms, executed in a manner acceptable to Owner.

G. Certified Payrolls: Wages paid to all workers performing work on the Project shall be in accordance with the Section 00 73 64 Wage Determination Schedule for the Project. Contractor shall submit one (1) copy of each weekly certified payroll for Contractor and all subcontractors, sub-subcontractors, sub-sub-subcontractors, etc. performing work on the Project during the time covered by the Application for Payment The certified payroll

shall be completed in accordance with Section 3.4.4 of the A201 General Conditions and contain the following information:

1. Contractor name.
2. Contractor address.
3. Period number.
4. Week ending date.
5. Employee(s)'s name.
6. Employee(s)'s job title.
7. Employee hourly wage:
    a. Straight time rate.
    b. Overtime rate.
8. Hours worked per day (broken down by straight time and overtime hours).
9. Hours worked per week (broken down by straight time and overtime hours).
10. Total earned for the week:
    a. Straight time.
    b. Overtime.
11. Benefits that form a part of the wage rate.
12. The signature and name of the authorized payroll person.

H. Initial Application for Payment: Administrative actions and submittals that must precede submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule.
4. Submittals Schedule.
5. List of Contractor's staff assignments.
6. List of Contractor's principal consultants.
7. Copies of building permits and other required permits.
8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
9. Initial progress report.
10. Report of preconstruction conference.
11. Insurance verification through submission of insurance certificates, for all Subcontractors.

I. Progress Applications for Payment: Administrative actions and submittals that must precede or coincide with submittal of progress Applications for Payment include the following:

1. Contractor's Construction Schedule update.
2. Submittals for Work being requisitioned that are complete and approved.
3. Submission of list of completed tests, checklists, commissioning, reports, and similar requirements for the work that are submitted and in compliance with the Contract Documents.
4. Distribution of minutes of previous month's progress meeting.
5. Current record drawings.

J. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion, less retainage, for portion of the Work claimed as substantially complete. Application must:

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. Reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
   1. Evidence of completion of Project closeout requirements.
   2. Insurance certificates for products and completed operations where required and proof that fees and similar obligations were paid.
   3. Updated final statement, accounting for final changes to the Contract Sum.
   4. AIA G707 Consent of Surety to Final Payment, three (3) originals.
   5. Evidence that claims have been settled.
   6. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
   7. Final, liquidated damages settlement statement, if a liquidated damages claim has been processed.
   8. As-built drawings.
   9. Operation and maintenance manuals.
   10. Final lien waivers.
   11. All training and equipment testing is complete.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION 012900

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Administrative and supervisory personnel.
   2. Project meetings.

B. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
   2. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
   4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components.

B. Coordinate with contractors doing work for the Owner under separate contracts.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Project closeout activities.

E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings as determined by the Contractor and subcontractors, if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
   1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
      a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
      b. Indicate required installation sequences.
      c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
   1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
   1. Include special personnel required for coordination of operations with other contractors.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
   1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for requests for interpretations (RFIs).
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. Preparation of Record Documents.
    l. Use of the premises.
    m. Work restrictions.
    n. Owner's occupancy requirements.
    o. Responsibility for temporary facilities and controls.
    p. Construction waste management and recycling.
    q. Parking availability.
    r. Office, work, and storage areas.
    s. Equipment deliveries and priorities.
    t. First aid.
    u. Security.
    v. Progress cleaning.
    w. Working hours.
    x. USM campus operational protocols and procedures.
3. Minutes: Record and distribute meeting minutes.
    a. Include action items and responsible party.

C. Progress Meetings: Conduct progress meetings at intervals as required by the project schedule. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
        1) Review schedule for next period.
    b. Application for Payment: Contractor shall bring copy of Application for Payment to meeting. Review Application for Payment and required attachments, including record drawing and documents status, waivers of mechanic's liens, list of completed tests, checklists, commissioning, reports, and similar requirements for the work are submitted and in compliance with the Contract Documents.
    c. Review present and future needs of each entity present, including the following:
        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) Requests for interpretations (RFIs).
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.
3. Minutes: Record and distribute the meeting minutes.
    a. Include action items and responsible party.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Preliminary Construction Schedule.
   2. Contractor's Construction Schedule.
   3. Submittals Schedule.
   4. Field condition reports.
   5. Special reports.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
   2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
   3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
   4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
   2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
   3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
   1. Scheduled date for first submittal.
   2. Specification Section number and title.
   3. Submittal category (action or informational).
   4. Name of subcontractor.
   5. Description of the Work covered.
   6. Scheduled date for Architect's final release or approval.

B. Preliminary Construction Schedule: Submit two copies.
   1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.

C. Preliminary Network Diagram: Submit two copies, large enough to show entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Submit two copies of initial schedule, large enough to show entire schedule for entire construction period.

E. CPM Reports: Concurrent with CPM schedule, submit two copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
   1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.

F. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

G. Special Reports: Submit two copies at time of unusual event.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

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

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
2. Initial Submittal: Submit concurrently with preliminary network diagram. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.
4. The Owner will review the schedule of submittals and identify the submittals that they want to receive a copy of at the same time that the Architect’s copies are sent out.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
   1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
   2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
   3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
   4. Startup and Testing Time: Include times for startup and testing.
   5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
   1. Phasing: Arrange list of activities on schedule by phase.
   2. Work under More Than One Contract: Include a separate activity for each contract.
   3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
   4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
   5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
   6. Work Restrictions: Show the effect of the following items on the schedule:
      a. Coordination with existing construction.
      b. Limitations of continued occupancies.
      c. Uninterruptible services.
      d. Partial occupancy before Substantial Completion.
      e. Use of premises restrictions.
      f. Provisions for future construction.
      g. Seasonal variations.
      h. Environmental control.
      i. Restriction of noise making operations during final exam weeks.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Mechanical Commissioning, Substantial Completion, and Final Completion.

F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

1. Refer to Division 01 Section "Payment Procedures" for cost reporting and payment procedures.
2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training.
3. Each activity cost shall reflect an accurate value subject to approval by Architect.
4. Total cost assigned to activities shall equal the total Contract Sum.

G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

2.3 BROAD SCOPE MILESTONE SCHEDULE

A. Submit a separate general broad scope schedule to provide a basic progress report for the Owner’s use. Examples of broad scope line items to include are: Site Work, Cast-In-Place Concrete, Framing, Rough MEP, Building Envelope, Interior Finishes, Exterior Finishes, Final MEP, Commissioning, 2 Week IAQ Flush Out, Certificate of Occupancy. Update schedule on a monthly basis for submission at project meetings.

2.4 REPORTS

A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

A. General: Submit special reports to Architect within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

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

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES (2023)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:
1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. 013100 “Project Management and Coordination” for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 014000 "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
5. Section 017700 "Closeout Procedures" for submitting warranties.
6. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
8. Section 017900 "Demonstration and Training" for submitting documentation of demonstration of equipment and training of Owner's personnel.
9. Division 01 to 33 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Electronic Document Files: Copies of the Contract Drawings in electronic format will be made available by the Architect to those requesting same in accordance with the "Agreement Between Harriman (Architect & Engineer of Record) and Owner or Contractor for Release of Electronic Documents" form attached to the end of this section. Agreement form shall be filled out and signed by each party requesting electronic documents before electronic media is released to them.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each specification section concurrently.
   3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
   4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
   5. No products shall be incorporated into the work unless they have been approved by the Contractor and Architect. No work will be paid for until required submittals for applicable work have been submitted and approved.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 14 calendar days minimum for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
   3. Resubmittal Review: Allow 14 calendar days minimum for review of each resubmittal.
   4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 calendar days minimum for initial review of each submittal.

E. Electronic Submittals: **Architect is using Newforma software to process electronic submittals**. Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into single files incorporating submittal requirements of a single specification section and transmittal form.
    a. Provide a separate transmittal form for Product Data, a separate transmittal form for Shop Drawings, and a separate transmittal form for Informational Submittals required by each Specification Section.
    b. Maximum File Size: A single file size, up to 18 MB can be received. Contact Architect for instructions if file exceeds 18 MB.
    c. For each transmittal, attach one single PDF only. Where multiple PDFs are required for a transmittal, utilize a combine feature to merge the PDFs into a single PDF.
        1) Unacceptable Formats: In order to process the transmittals in Newforma, the single PDF file protocol must be followed. Transmittals zip files or grouped PDFs cannot be electronically processed and will be returned without action for correction and resubmittal.
        2) Submittals will be returned without action for correction and resubmittal if:
            a) Submittal does not have an electronic Transmittal Form.
            b) Multiple specification sections are contained within a single Transmittal form. Submittals must be separated into individual Specification Sections.
            c) Submittal does not include the Contractors' signed reviewed stamp
2. Name file with submittal number or other unique identifier, including revision identifier.
    a. File name shall use project identifier and Specification Section number followed by a dash and then a sequential number (e.g., LNHS-061000-01). Resubmittals shall include an alphabetic suffix after another dash (e.g., LNHS-061000-01-A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Contractor.
    e. Name of firm or entity that prepared submittal.
    f. Names of subcontractor, manufacturer, and supplier.
    g. Submittal number or other unique identifier, including revision identifier.
        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    h. Specification Section number and title.
    i. Drawing number and detail references, as appropriate.
    j. Location(s) where product is to be installed, as appropriate.
    k. Related physical samples submitted directly.
    l. Indication of full or partial submittal.
    m. Other necessary identification.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract

Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked with appropriate notation from Architect's action stamp.

I. Architect will return all processed submittals through the Newforma file transfer procedure. Contractor will be responsible for incorporating the processed submittals into their file management systems as appropriate.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with appropriate notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Submit electronic submittals by either of the following methods:
      a. Via email as PDF electronic file to **constructadmin@harriman.com** .
         1) Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
      b. Post electronic submittals as PDF electronic files directly to Architect's FTP site specifically established for Project.
         1) Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
   2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
      a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.

c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams showing factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
   a. PDF electronic file.
7. Do not submit Material Safety Data Sheets (MSDSs).

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Dimensions.
      b. Identification of products.
      c. Schedules.
      d. Compliance with specified standards.
      e. Notation of coordination requirements.
      f. Notation of dimensions established by field measurement.
      g. Relationship and attachment to adjoining construction clearly indicated.
      h. Seal and signature of professional engineer if specified.
   2. Submit Shop Drawings in the following format:
      a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
   1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   2. Identification: Attach label on unexposed side of Samples that includes the following:
      a. Generic description of Sample.
      b. Product name and name of manufacturer.
      c. Sample source.
      d. Number and title of applicable Specification Section.
      e. Specification paragraph number and generic name of each item.
   3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
   4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned.
      1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:
   a. PDF electronic file.

F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Y. Material Safety Data Sheets (MSDSs): Submit information directly to Owner at end of the project; do not submit to Architect. Maintain copy at the site for the duration of the construction.
1. Architect will not review submittals that include MSDSs and will return them.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Contractor to mark submittal with their approval stamp before submitting to Architect.
1. The Contractor shall review submittals for completeness and compliance with the Contract Documents. If submittal contains substitutions, Contractor shall process substitutions in accordance with Division 01 Section “Substitutions and Product

Options," and not part of specified Shop Drawings or Product Data submittals. Contractor is responsible for keeping Subcontractors on time with the submittal schedule. If the Contractor submits submittals that are repeatedly rejected, requiring the Architect to perform multiple reviews of the same submittal because of the failure to properly prepare and complete the submittals:

a. Owner will compensate Architect for such additional services.
b. Owner will deduct the amount of such compensation from the final payment to the Contractor.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

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

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's submittal stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an appropriate mark to indicate status.

1. The Architect's marking of "Reviewed, Furnish as Corrected or similar verbiage means submittal has been reviewed for general conformance to the contract documents only and does not mean unqualified acceptance. The Contractor is fully responsible for compliance with the contract documents.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

F. Submittals not required by the Contract Documents will be returned by the Architect without action.

END OF SECTION 013300

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AGREEMENT BETWEEN HARRIMAN (ARCHITECT & ENGINEER OF RECORD)
AND OWNER OR CONTRACTOR
FOR RELEASE OF ELECTRONIC DOCUMENTS

RECIPIENT:

Name: _____ Phone Number: _____

Address: _____

Email Address: _____ Date: _____

Project Name: _____ HA Project No.: _____

- This request to for Harriman to provide the following Electronic Documents (AutoCad file or Revit model), dated _____, for the project use by the Recipient:

(List requested documents clearly)_____

_____

- Electronic Documents will be provided in the current software version used by Harriman at the time of the request. Alternate versions may be available at Harriman's discretion. Current software versions are AutoCAD 2023 and Autodesk Revit 2023.

  Alternate Version Requested: _____

- Transfer method shall be by Electronic File Transfer to the email address provided above.

- A fee may be assessed for processing and distributing requested document. Recipient will be notified on any fees prior after receipt of this request document. Fees are payable prior to receiving requested documents.

TERMS AND CONDITIONS:

1. For the purpose of this document, both 2d CAD files and 3d Revit models shall be collectively defined as "Electronic Documents".

2. It is understood and agreed that all drawings, specifications, or other documents of any kind prepared by Harriman or its subconsultants, whether in hard copy or in electronic format including Electronic Documents (collectively " Harriman's Documents"), are instruments of their services prepared solely for use in connection with the single project for which they were prepared and that Harriman and its subconsultants retain all common law, statutory and other reserved rights, including the copyright. This agreement is not intended in any way to alter the respective interests of the parties in the Instruments of Service as set forth in the Owner/Architect Agreement, notwithstanding Harriman's agreement to release the Electronic Documents to Recipient.

3. The Electronic Documents are provided as a convenience to the Recipient for informational purposes only in connection with the Recipient's performance of its responsibilities and obligations relating to the Project. The Electronic Documents do not replace or supplement the paper copies of the Drawings and Specifications, which are, and remain, the Contract Documents for the Project. In all instances, it is the responsibility of the Recipient to ensure that the Electronic Documents are

consistent with the Contract Documents.

4. The parties agree that the Electronic Documents are not, nor shall they be construed to be, a product. It is expressly agreed by the Recipient that there are no warranties of any kind in such Electronic Documents or in the media in which they are contained, either expressed or implied.

5. Harriman makes no representation as to the compatibility of the Electronic Documents with any hardware or software.

6. Since the information set forth on the Electronic Documents can be modified unintentionally or otherwise, Harriman reserves the right to remove all indicia of its ownership and/or involvement from each electronic display.

7. If any differences exist between printed Instruments of Service and Electronic Documents, the information contained in the printed documents shall be presumed to be correct and take precedence over the Electronic Documents.

8. Recipient agrees not to add to, modify or alter in any way, or to allow others to add to, modify or alter in any way, the Electronic Documents or any printed copies thereof.

9. Revit models are Design Models and will only contain elements and content that Harriman deems necessary and appropriate to share. Not all objects in the models are 3d objects and no specific Level of Detail is implied or expected. Consequently, the models cannot be used to extract precise material or object quantities. The Recipient agrees that no proprietary Revit families or Revit content shall be removed from the model and/or used for any other purpose but to support this specific project.

10. The Electronic Documents are supplied in a translatable format. Any conversion of the format is solely the responsibility of the Recipient. Recipient understands and agrees that the conversion of hard copies of Instruments of Service into electronic format or the conversion of Electronic Documents from formats used by Harriman to some other format may introduce errors or other inaccuracies. Recipient agrees to accept all responsibility for any errors or inaccuracies and to release Harriman, and its subconsultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.

11. Where the Recipient has received specific permission to use the Electronic Documents in connection with the Recipient's obligation to prepare certain documents for Project, Recipient shall, in addition to the other obligations set forth therein, be obligated to remove Harriman's or its Consultant's title block from the copy of the Electronic Documents used by Recipient. It is understood and agreed that, without the separate express written permission of Harriman to do so, the Electronic Documents are not to be used by any contractor or any of its subcontractors of any tier of material supplier or vendor as a shop drawing or any other type of submittal or as the basis for preparing such shop drawing or submittal. The sole exception to this prohibition shall be that the Recipient may use the Electronic Documents as a clearly distinguishable separate background upon which to prepare its shop drawings or other submittal.

12. Recipient further agrees that Harriman's Documents were prepared for use in connection with this project only and that the Electronic Documents are supplied to Recipient for the limited use stated above only. Recipient agrees not to use, or to allow others to use, the Electronic Documents, in whole or in part, for any purpose other than as stated above.

13. Harriman believes that no licensing or copyright fees are due to others on account of the transfer of the Electronic Documents, but to the extent any are, the Contractor will pay the appropriate fees and hold Harriman harmless from such claims.

14. Any purchase order number provided by the Contractor is for Contractor's accounting purposes only. Purchase order terms and conditions are void and are not a part of this agreement.

15. Harriman has prepared these Electronic Documents for the sole purpose of plotting and printing a hard copy of the design documents. Harriman believes only the hard copy print to be the accurate representation of all drawing information. Hard copy written dimensions override electronic measured dimensions. User must verify computer data against hard copy prints.

16. Electronic Documents are an inherently unstable medium subject to "bugs," deterioration, modifications, and viruses. Electronic Documents are subject to inadvertent changes in the process of moving from one computer to another or by compressing/decompressing the data; or by moving from one software revision to another; or any kind of manipulation of the data will lead to defects.

17. This agreement shall be governed by the laws of the principal place of business of Harriman. Only printed copies of the Instrument of Service shall be signed and sealed.

18. Recipient agrees to waive any and all claims and liability against Harriman and its subconsultants resulting in any way from any failure by Recipient to comply with the requirements of this Agreement for the Delivery of Documents in Electronic Format.

19. The Recipient agrees that no third-party beneficiary status or any other right of action is created in favor of any contractor, subcontractor, materialmen or other third party against Harriman by virtue of this Agreement or in connection with its delivery of Electronic Documents, and no third-party beneficiary status is intended.

20. Recipient further agrees to indemnify and save harmless Harriman and its subconsultants and each of their partners, officers, shareholders, and directors and employees from any and all claims, judgments, suits, liabilities, damages, costs or expenses (including reasonable defense and attorney's fees including claims asserted in breach of contract, breach of warranty, negligence, or any other tort) arising as a result of either: 1) Recipient's failure to comply with any of the requirements of Agreement for the Delivery of Documents in Electronic Format; or 2) a defect, error or omission in the Electronic Documents or the information contained therein, which defect, error or omission was not contained in the Contract Documents as defined in Paragraph 2 or where the use of such Contract Documents would have prevented the claim, judgment, suit, liability, damage, cost, or expense.

21. Harriman reserves the right to deny a request to translate files.

AUTHORIZED ACCEPTANCE

By Recipient	By Harriman (Architect/Engineer of Record)
_____	_____
Signature	Signature
_____	_____
Print Name and Title	Print Name and Title
_____	_____
Date	Date

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
   4. The Owner will hire an independent firm to do the testing and balancing of the air system and to do mechanical commissioning.

C. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
   2. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
   3. Divisions 02 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where

indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
   1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Description of test and inspection.
   3. Identification of applicable standards.
   4. Identification of test and inspection methods.
   5. Number of tests and inspections required.
   6. Time schedule or time span for tests and inspections.
   7. Entity responsible for performing tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, and telephone number of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.
   13. Recommendations on retesting and re-inspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
   1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
   1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
   1. Contractor responsibilities include the following:
      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
      d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
      e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
      f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

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

K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 26.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
   2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
   3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
   1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
   3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
   5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
   6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
   1. Access to the Work.
   2. Incidental labor and facilities necessary to facilitate tests and inspections.
   3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
   4. Facilities for storage and field curing of test samples.
   5. Delivery of samples to testing agencies.
   6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
   7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
   1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work.
   1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, in compliance with applicable building code.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
   4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 – REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216

AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989

APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems (See APA - The Engineered Wood Association)	
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industry International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCSC)	
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood-Preservers' Association www.awpa.com	(205) 733-4077

AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583

CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CPA	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	Canadian Standards Association	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Cast Stone Institute www.caststone.org	(717) 272-3744
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040

ESD	ESD Association www.esda.org	(315) 339-6937
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FMRC	Factory Mutual Research (Now FM Global)	
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Now GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200

HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation www.internationalbadminton.org	(6-03) 9283-7155
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150

ITS	Intertek Testing Service NA www.intertek.com	(972) 238-5591
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926

NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (303) 697-8441
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818

NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.com	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWWDA	National Wood Window and Door Association (Now WDMA)	
OPL	Omega Point Laboratories, Inc. (Now ITS)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America) www.landcarenetwork.org	(800) 395-2522 (703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540

RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154

SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(202) 828-7422

USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Now WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 297-2109
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc. (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICBO	International Conference of Building Officials (See ICC)	

ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)	
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
SBCCI	Southern Building Code Congress International, Inc. (See ICC)	
UBC	Uniform Building Code (See ICC)	

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111

HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800

DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation www.dca.ca.gov/bhfti	(800) 952-5210 (916) 574-2041
CCR	California Code of Regulations www.calregs.com	(916) 323-6815

CPUC	California Public Utilities Commission www.cpuc.ca.gov	(415) 703-2782
TFS	Texas Forest Service Forest Resource Development http://txforestservice.tamu.edu	(979) 458-6650

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Temporary utilities include, but are not limited to, the following:
   1. Sanitary facilities, including toilet facilities.
   2. Electric power service.

C. Support facilities include, but are not limited to, the following:
   1. Waste disposal facilities.
   2. Construction aids and miscellaneous services and facilities.
   3. Security and protection facilities include, but are not limited to, the following:
   4. Security enclosure and lockup.
   5. Temporary enclosures.

D. Related Sections include the following:
   1. Division 01 Section "Execution Requirements" for progress cleaning requirements.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum.

B. The use of existing power, and water will be allowed for Work in the existing building only.

1.5 QUALITY ASSURANCE

A. The Contractor is responsible for the implementation, monitoring, and maintenance of job site safety program for the duration of the contract.

1.6 PROJECT CONDITIONS

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

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

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

D. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site. Construction noise from loud machinery, equipment, hammering and similar loud noises shall be restricted to the hours when the facility is not in use. Obey State and local noise ordinances.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
   1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
   1. Coordinate with the Engineer and Owner at the preconstruction meeting.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. Add provisions for work not in the Contract but served by temporary facilities if required.

B. Water Service: Obtain water required for the work from location designated by the Owner.

C. Electrical Service: Provide required power cords and connect to existing outlets where available and approved for use by the owner. Provide portable power generator in all other areas.

D. Internet Service: Limited wireless internet connection is available at the site. Coordinate with the Owner for connection to the University service. Limit use of service to authorized personnel only, for specific project business only.

3.3 SUPPORT FACILITIES INSTALLATION

A. Waste Disposal Facilities: Provide waste-collection dumpsters and containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 01 Section "Execution Requirements" for progress cleaning requirements.
   1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
   2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

3.4 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Restoration of Roadways and Pavement: Roadways, pavements and curbs that are broken, damaged, settled, or otherwise defective as a result of receiving, handling, storage of materials or the performance of any work under this Contract, shall be fully restored to the satisfaction of the owner and authorities having jurisdiction.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are the property of Contractor.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Related Sections include the following:
   1. Division 01 Section “Substitutions and Product Options” for procedures and requirements for product substitutions.
   2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
   3. Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

A. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

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

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Store cementitious products and materials on elevated platforms.
   5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   7. Protect stored products from damage and liquids from freezing.
   8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on

product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 016300 - SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Substitution procedures during the bid period shall be followed to provide equality of bids. Substitutions approved by the Architect will be issued by addendum during the bid period. Substitutions not approved by addendum shall not be included in the bid. The Architect and Owner will not consider substitutions submitted after bids are received. Contractors submitting substitutions after bids are received will not be given additional compensation for rejected submittals.

1.2 SUBSTITUTIONS

A. Submit two copies of request for substitution. Include in the request:
   1. Complete data substantiating compliance of proposed substitution with Contract Documents.
   2. For Products:
      a. Product identification including manufacturer's name and address.
      b. Manufacturer's Literature:
         1) Product description.
         2) Performance and test data.
         3) Reference standards.
      c. Samples.
      d. Name and address of similar projects on which product was used, and date of installation.
   3. Itemized comparison of product substitution with product specified.
   4. Changes in construction schedule.
   5. Accurate cost data on proposed substitution in comparison with product specified.

B. In Making Request for Substitution, the Contractor Represents:
   1. Contractor has investigated proposed product or method and determined that it is equal or superior in all respects to that specified.
   2. Contractor will provide the same or greater guarantee for substitution as for product specified.
   3. Contractor will coordinate installation of accepted substitution into work, making such changes as required for work to be completed.
   4. Contractor waives all claims for additional costs related to substitution in which it becomes apparent before, during or after installation.
   5. Requested substitution is compatible with other portions of the Work. All sizes, dimensions, locations for connections to other items as designed, clearances from building structure and other equipment have been verified and is acknowledged in the substitution request
   6. Contractor requesting substitution shall bear additional costs to all parties due to his substitution, including Architect's fees.

C. Substitutions Will Not Be Considered If:

1. They are indicated or implied on shop drawings or project submittals without formal request.
2. Acceptance will require substantial revision of Contract Documents.
3. Not readily serviceable in the area or may cause the Owner to stock extra parts.

D. Substitutions not approved before the last addendum is distributed shall not be considered in the Base Bid.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 016300

SUBSTITUTION REQUEST FORM

Project: _____ Substitution Request Number: _____

To: _____ From: _____

Re: _____ Date: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____ Manufacturer: _____

Address: _____ Phone: _____

Trade Name: _____ Model No. _____

Attached data includes product description, specifications, drawings, cost data, and performance and test data adequate for evaluation of the request: applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitutions will require for its proper installation.

Attached data includes a detailed itemized comparison list of product substitution with product specified.

The Undersigned certifies:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the Substitution as for the specified Product.
3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner. All sizes, dimensions, locations for connections to other items as designed, clearances from building structure and other equipment have been verified.
4. Will remove substitution and pay all costs if differences discovered later that were not identified on the substitution request are found that make the substitution unacceptable with no additional cost to Owner.
5. Waive claims for additional costs or time extension that may subsequently become apparent.
6. Will reimburse Owner and Architect/Engineer for review or redesign services associated with substitution.
7. They are authorized to sign this form for the product manufacturer and commit to the terms of Section "Substitutions and Product Options," and this substitution request form.

Submitted By: _____

Signed By: _____

Firm: _____

Address: _____

Telephone: _____ Fax: _____

A/E's REVIEW AND ACTION

☐ Submission approved - Make submittals in accordance with Specification Section 013300.
☐ Submission approved as noted - Make submittals in accordance with Specification Section 013300.
☐ Submission rejected - Use specified materials.
☐ Submission request received too late - Use specified materials.

Signed by: _____ Date: _____

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports
☐ Comparison list ☐ Other

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SECTION 017300 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
   1. General installation of products.
   2. Coordination of Owner-installed products.
   3. Progress cleaning.
   4. Starting and adjusting.
   5. Protection of installed construction.
   6. Correction of the Work.

B. Related Sections include the following:
   1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
   2. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
   3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

B. Existing Systems: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of utilities and other construction affecting the Work.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
      a. Description of the Work.
      b. List of detrimental conditions, including substrates.
      c. List of unacceptable installation tolerances.
      d. Recommended corrections.
   2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Verification: Before proceeding to layout the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.
   2. Make vertical work plumb and make horizontal work level.
   3. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   4. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
   5. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling, unless indicated otherwise.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
   1. No asbestos containing materials shall be used in the work.

3.4 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
   1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
   2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work. It is the Contactor's responsibility for job site safety.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
      a. Clean interior spaces prior to the start of finish painting, and continue cleaning on an as-needed basis until painting is finished.
      b. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.
   3. Remove materials and debris that create tripping hazards.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

E. Comply with Division 01 Section “Integrated Deliverables and Testing (IDAT)” requirements.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.
   1. For correction of installed work.
   2. For repairs due to testing.

B. Related Sections include the following:
   1. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
   1. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
   2. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
   1. Primary operational systems and equipment.

2. Control systems.
3. Communication systems.
4. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Equipment supports.
4. Piping, ductwork, vessels, and equipment.
5. Noise and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
   5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.
3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Salvaging nonhazardous demolition and construction waste.
   2. Recycling nonhazardous demolition and construction waste.
   3. Disposing of nonhazardous demolition and construction waste.
   4. Recycling of DEP-Regulated Universal waste.

B. Related Requirements:
   1. Section 024119 "Selective Demolition and Alterations" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
   2. Refer to drawings for additional information.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Reused or Salvaged: Recovery of demolition or construction waste and subsequent sale, donation, or reuse in another facility or incorporated into the Work.

F. Universal Waste: Any waste designated by the Maine Department of Environmental Protection as Universal Waste i.e. fluorescent lamps, ballasts, thermostats and other lead and mercury containing devices. Information can be found on the DEP's website: http://www.maine.gov/dep/index.html

1.4 PERFORMANCE REQUIREMENTS

A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators by sorting prior to leaving the jobsite. Facilitate recycling and salvage of materials. All waste must be disposed of at facilities that operate in accordance with all local, state, and federal waste regulations. Documentation of compliance can be requested by the University of Maine System at any time.

1.5 SUBMITTALS

A. Submit 'Anticipated Project Waste Sheet' before commencement of work.

B. Submit 'Waste Reporting Sheet' monthly with each Pay Requisition during the course of the project and prior to Final Requisition.
   1. Include the following information on Waste Reporting Sheet:
      a. Date of disposal
      b. Type of material(s)
      c. Method(s) of disposal: recycled, reused/salvaged, landfilled, incinerated.
      d. Weight(s): attach copies of scale tickets to form (see below)

C. Copies of scale tickets from waste facilities, including transfer and processing facilities, for each haul must be attached to monthly 'Project Waste Sheet' on which the waste is listed.

D. Copies of Certificates of Recycling from DEP-approved consolidators for all hauls over the course of the project which involved Universal Waste must be attached to final Waste Reporting Sheet at conclusion of project.

E. Copy of Certificate of Refrigerant Recovery must be attached to Waste Reporting Sheet on which device is listed. Refrigerant Recovery must be performed by an EPA-approved Refrigerant Recovery Technician.

1.6 QUALITY ASSURANCE

A. Contractors must designate someone in their employ (a direct paid employee of the general contractor) to be the contact for waste reporting for the duration of the project.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
   1. For any questions or clarifications of waste handling procedures contact the UMS CPPM project manager directly.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 RECYCLING / SALVAGING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers in accordance with UMS and USM Waste Minimization policy.

B. Preparation of Waste: Prepare and maintain recyclable and salvageable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling or reusing process.

C. Procedures: Separate recyclable and salvageable waste from other waste materials, trash, and debris. Sort recyclable waste by type at Project site to the maximum extent practical.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
   2. Inspect containers and bins for contamination and remove contaminated materials if found.

3.2 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged/reused or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

END OF SECTION 017419

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Inspection procedures.
   2. Warranties.

B. Related Sections include the following:
   1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
   2. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   3. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Prepare and submit Project Record Documents, operation and maintenance manuals.
   6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   8. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
   9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
   10. Submit initial draft copy of operation and maintenance manuals at least 15 days before requesting inspection for Substantial Completion.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
   2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 INSPECTION FEES

A. If the Architect Performs Re-inspections Due to Failure of the Work to Comply with the Claims of Status of Completion Made by the Contractor, Or, Should the Contractor fail to complete the work, Or, Should the Contractor fail to promptly correct warranty items or work later found to be deficient:
   1. Owner will compensate Architect for such additional services.
   2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

B. If the Work is not completed by the date set in the Agreement, and the Architect needs to perform additional Contract Administrative and on site observation duties:
   1. Owner will compensate Architect for such additional services.
   2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Architect.
      d. Name of Contractor.
      e. Page number.

1.7 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated in the contract documents.
   1. Unless indicated otherwise, all warranties shall commence on the date of Substantial Completion.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Submit final warranties as a package for the entire project, assembled and identified as described below.
   2. Bind warranties and bonds in heavy-duty, D-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents but not greater than 2 inches, and sized to receive 8-1/2-by-11-inch paper. Do not over fill D-ring, allowing 1/2-inch space for future additions.
   3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
   5. Electronic Media: Submit copy of warranty binder on CD-R in .PDF format. Bookmark based on the table of contents, and for each warranty within each section.

C. Provide additional electronic media copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    f. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory.
   2. Operation manuals for systems, subsystems, and equipment.
   3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. Related Sections include the following:
   1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
   2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
   3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
   4. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will review concurrently with Owner for comment. Architect will return copy of draft and mark whether general scope and content of manual are acceptable.

B. Final Submittal: Submit 2 copies of each manual in final form at least 15 days before final inspection. Architect will review concurrently with Owner for comment. Architect will return copy with comments after final inspection.
   1. Correct or modify each manual to comply with comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments.

C. Preliminary Operation and Maintenance Manual Summary: Submit two copies concurrently with the submittal of the Schedule of Values in accordance with Division 01 section, "Submittal Procedures."

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Organization: Include a section in the directory for each of the following:
1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents.

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor and primary subcontractors.
6. Name and address of Architect.

7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
   1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
   1. Binders: Heavy-duty, D-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents but not greater than 2 inches, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets. Do not over fill D-ring, allowing 1/2-inch space for future additions.
      a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
      b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
   2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
   3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
   4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
   5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
      a. Maximum size of drawings to be included in the binders shall not exceed 11-by-17-inch. Fold drawings to same size as text pages and use as foldouts.
      b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and submit envelopes with manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

E. Electronic Media: Submit one copy of each complete manual, including Record Shop Drawings and Product Data on CD-R in .PDF format. Bookmark based on the specifications table of contents and manual dividers.

2.3 OPERATION MANUALS

A. Content: Daily operations and management of systems and equipment. In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions.
   2. Performance and design criteria if Contractor is delegated design responsibility.
   3. Operating standards.

4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:
1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:
1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
1. Standard printed maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
   1. Do not use original Project Record Documents as part of operation and maintenance manuals.

G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.
   4. Record Shop Drawings.

B. Related Sections include the following:
   1. Division 01 Section "Closeout Procedures" for general closeout procedures.
   2. Divisions 02 through 33 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit copies of Record Drawings as follows:
      a. Submit one set(s) of marked-up Record Prints

B. Record Specifications: Submit one hard copy and one copy on electronic media of Project's Specifications, including addenda and contract modifications.

C. Record Shop Drawings and Product Data: Submit one hard copy and one copy on electronic media of each Product Data submittal.
   1. Where Record Shop Drawings and Product Data is required as part of operation and maintenance manuals, submit marked-up Shop Drawings and Product Data as an insert in manual instead of submittal as Record Shop Drawings and Product Data. Insert typewritten pages indicating typewritten pages indicating drawing titles, descriptions of contents, and Record Shop Drawings and Product Data locations drawing locations that are part of operation and maintenance manuals.
   2. Electronic Media: In addition to paper copy, submit record copy of record Shop Drawings and Product Data specification on CD-R in .PDF format. Bookmark Product Data based on the table of contents.

D. Directories: Material supplier directory and subcontractor directory.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
   1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
      b. Revisions to details shown on Drawings.
      c. Locations and depths of underground utilities.
      d. Revisions to routing of piping and conduits.
      e. Revisions to electrical circuitry.
      f. Actual equipment locations.
      g. Changes made by Change Order or Construction Change Directive.
      h. Changes made following Architect's written orders.
      i. Details not on the original Contract Drawings.
      j. Field records for variable and concealed conditions.
      k. Record information on the Work that is shown only schematically.
   3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
   4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
   5. Mark important additional information that was either shown schematically or omitted from original Drawings.
   6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
   1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions, change orders and product options selected.

3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
6. Electronic Media: Submit record copy of record specification on CD-R in .PDF format. Bookmark based on the table of contents.

2.3 RECORD SHOP DRAWINGS AND PRODUCT DATA

A. Preparation: Mark Shop Drawings and Product Data to indicate the actual product installation where installation varies substantially from that indicated in Shop Drawings and Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
4. Bind product data in heavy-duty, D-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents but not greater than 2 inches, and sized to receive 8-1/2-by-11-inch paper. Do not over fill D-ring, allowing 1/2 inch space for future additions.
5. Provide heavy paper dividers with plastic-covered tabs for each specification section with product data. Mark tab to identify the specification section. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
6. Identify each binder on the front and spine with the typed or printed title "PRODUCT DATA," Project name, and name of Contractor.
7. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    a. Maximum size of drawings to be included in the binders shall not exceed 11-by-17-inch. Fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and submit envelopes with manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
8. Electronic Media: Submit record copy of marked-up Shop Drawings and Product Data on CD-R in .PDF format. Bookmark based on the table of contents, and for each Shop Drawings and Product Data within each section. Where Record Shop Drawings and Product Data is required as part of operation and maintenance manuals, submit electronic media of marked-up Shop Drawings and Product Data as part of manual instead of submittal as Record Shop Drawings and Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Subcontractor Directory: Name, address and telephone number for all major subcontractors, organized by specification section.

C. Material Supplier Directory: Name, address and telephone number for major material suppliers, organized by specification section.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 024119 - SELECTIVE DEMOLITION AND ALTERATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of selected portions of a building or structure.
   2. Disconnecting, capping or sealing, and abandoning utilities.
   3. Demolition and removal of selected site elements.
   4. Repair procedures for selective demolition operations.

B. Related Sections include the following:
   1. Division 01 Section "Construction Progress Documentation" for preconstruction photographs taken before selective demolition.
   2. Division 01 Section "Cutting and Patching" for additional cutting and patching procedures for selective demolition operations.
   3. Division 01 Section "Construction Waste Management and Disposal" for handling and processing demolition and construction debris.
   4. Division 01 Section "Project Record Documents" for documentation of capped utilities and other subsurface structural, electrical or mechanical conditions.
   5. Divisions 21, 22 and 23 Sections for additional requirements regarding demolishing, cutting, patching, or relocating mechanical items.
   6. Division 26 Sections for additional requirements regarding demolishing, cutting, patching, or relocating electrical items.
   7. Division 31 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

B. Carefully remove items indicated to be salvaged in a manner to prevent damage and deliver promptly to the Owner.

C. Historic items, relics, and similar objects including, but not limited to, commemorative plaques and tablets, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.5 SUBMITTALS

A. General: Submit in accordance with Division 01 Section "Submittal Procedures."

B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.

D. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
   2. Interruption of utility services
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
   5. Locations of proposed dust- and noise-control temporary partitions and means of egress. Indicate the proposed time frame for their operation.
   6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
   7. Locations of temporary partitions and means of egress.
   8. Coordination of removals with the installation of new materials to prevent unauthorized entry into the building, and for protection of existing materials and finishes to remain from damage from the weather.

E. Inventory of items to be removed and salvaged.

F. Inventory of items to be removed by Owner.

G. Record Drawings at Project closeout according to Division 01 Section "Project Record Documents."
   1. Identify and accurately locate capped utilities and other subsurface or hidden structural, electrical, or mechanical conditions.

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Standards: Comply with ANSI A10.6 and NFPA 241.

E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
   1. Inspect and discuss condition of construction to be selectively demolished.
   2. Review structural load limitations of existing structure.
   3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review shoring sequencing for maintaining existing structure without damage during removal of structural components.
   5. Review methods of protecting remaining surfaces in weathertight conditions without damage during selective demolition operations and ensuing time frame until exterior envelope can be made permanently weathertight.
   6. Review methods of protecting remaining surfaces from damage from demolition and construction operations.
   7. Review procedures for noise control and dust control.
   8. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
   9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.
   10. Provide 7 business days minimum advance notice to participants prior to convening pre-demolition conference.

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' to Owner of activities that will affect Owner's operations.

B. Owner assumes no responsibility for condition of areas to be selectively demolished.
   1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Maintain access to existing walkways, and other adjacent occupied portions of building.

1. Do not close or obstruct walkways, or other occupied or used portions of building without written permission from Owner and authorities having jurisdiction.
2. If materials suspected of containing asbestos or PCB are encountered during the course of construction, do not disturb; immediately notify Architect and Owner.
3. Coordinate demolition schedule and activities with the Owner's abatement contractor.

D. Storage or sale of removed items or materials on-site will not be permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 SCHEDULING

A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

A. Use repair materials identical to existing materials.
1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Architect.

E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
   1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner or authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
      a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.

B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
   1. Owner will arrange to shut off indicated utilities when requested by Contractor.
   2. Where utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
   3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
   4. Existing piping, conduit, and panels to remain that are supported by walls and ceilings to be demolished, shall be temporarily re-supported to the existing structure until permanent construction is in place.

C. Utility Requirements: Refer to Divisions 21, 22, 23, and 26 and 27 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities outside limits of Work, as defined on Drawings, without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by Owner or governing regulations.
   2. Erect construction fence with entry gates around new construction areas.
   3. Protect existing site improvements, appurtenances, and landscaping to remain.
   4. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
   2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
   3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations. Surfaces to remain that damaged by demolition and construction operations shall be repaired at no additional cost to Owner.
   4. Flooring Protection:

a. Where existing flooring is to remain, cover flooring with protection board that will prevent damage from construction activities, including moving of equipment and lifts, metal cuttings from steel cutting and threading operations, oils and fluids that could discolor flooring, water, construction worker traffic and activities.

5. Cover and protect furniture, furnishings, and equipment that have not been removed that are indicated to remain.
6. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

C. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, unauthorized entry and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

D. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures and provide exhaust ventilation to limit dust and dirt migration and to separate areas from fumes and noise. Coordinate requirements and locations with the Architect and Owner. See Division 01 Section "Temporary Facilities and Controls" for additional requirements.

E. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.

F. Core Drilling and Saw Cutting: All penetrations shall be fully planned and coordinated by the Contractor. Vacuum up water created by cutting operations to prevent damage to materials to remain.

G. Enclose openings to the exterior and to unconditioned spaces to prevent heat loss and maintain temperature at an acceptable level for Owner.

H. Salvaged Items: Comply with the following:
1. Remove items to be salvaged carefully to prevent damage. Parts and pieces shall be placed in containers and labeled.
2. Clean salvaged items of dirt and demolition debris.
3. Store items in a secure area until delivery to Owner’s designated recipient.
4. Transport items to storage area where directed by the Owner.
5. Protect items from damage during transport and storage.

I. Contractor Removed and Reinstalled Items:
1. Remove items to be salvaged carefully to prevent damage. Prats and pieces shall be placed in containers and labeled.
2. Clean and repair items to functional condition adequate for intended reuse.
3. Pack or crate items after cleaning and repairing. Identify contents of containers.
4. Protect items from damage during transport and storage.
5. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

J. Furniture Removal:
   1. At Minor Renovation Areas and Access for Mechanical, Electrical and Sprinkler: Contractor shall move furniture out of the way and cover furniture, shelving and equipment with 4 mil polyethylene to protect from dust and dirt. Prevent workers from stepping and standing on casework, shelving and furniture. The Owner will remove books and papers from shelves requiring relocation.

3.4 POLLUTION CONTROLS

A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
   1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Disposal: Remove and transport debris in a manner that will prevent spillage and/or damage on adjacent surfaces and areas.

C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Proceed with selective demolition systematically, from higher to lower level.
   2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
   3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during and after flame-cutting operations, until risk of fire has past.
   5. Maintain adequate ventilation when using cutting torches.
   6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
   7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
   8. Break up and remove concrete slabs on grade and foundations where indicated.
   9. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."
   10. Remove and replace or reinstall existing construction as necessary to permit installation and alteration of mechanical and electrical work. Coordinate all removals with appropriate trades.

11. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
12. Where exterior removals occur, the Contractor shall provide necessary temporary coverings and enclosures to maintain the building in a watertight condition and prevent unauthorized entrance. See Division 01 Section "Temporary Facilities and Controls for additional requirements.

B. Existing Facilities: Comply with Owner's requirements for using and protecting walkways, building entries, and other building facilities during selective demolition operations.

C. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

D. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

E. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

F. Floor Coverings: Remove floor coverings and adhesive according to industry best practices .
1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.

G. Existing Tile Flooring: Remove tile only to the limit shown on the drawings. All other tile, provided tile adjacent to demolished areas is not damaged, is to remain. In the event adjacent tile is damaged during the demolition process, it should be carefully removed to limit additional disruption to the existing tile floor.

3.6 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.

B. Patching: Comply with this section and additional requirements in Division 01 Section "Cutting and Patching."

C. Work Exposed to View: Do not cut or patch in a manner that would, in the Architect's opinion, result in a lessening of the building's aesthetic qualities. Generally, cut from exposed side into concealed spaces to avoid unnecessary damage to finish. Do not cut and patch in a manner that would result in substantial visual evidence of cut and patch work. Restore exposed finishes of patched areas in a manner, which eliminates evidence of patching and refinishing. For continuous surfaces, extend refinish to nearest intersection, with a neat transition to adjacent surfaces.

D. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.

E. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

F. Floors, Walls, and Ceilings: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
   2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
   3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

G. Suspended Acoustical Tile Ceilings: Patch, repair, or rehang existing ceilings to remain as necessary to provide an even-plane surface of uniform appearance.
   1. Where suspended acoustical tile ceilings to remain require removal for mechanical or electrical work, remove and re-install upon completion of mechanical and electrical work. Carefully remove acoustical tile and suspension system to prevent damage to components. Save, package and ceiling system components; identify areas where systems removed for re-installation. Protect ceiling tiles to prevent damage to edges. Replace ceiling tile damaged or made dirty.
   2. Where existing ceilings are scheduled to be completely removed, remove tile, grid, wall angle and hangers complete.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

D. Waste Reduction: To the maximum extent possible, removals shall be salvaged or recycled. See Division 01 Section "Construction Waste Management and Disposal" for additional requirements.

3.8 CLEANING

A. Sweep the building broom clean on completion of selective demolition operation.

END OF SECTION 024119

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CONCRETE REPAIRS

SECTION 03 30 00

PART 1 - GENERAL

1.1 IN GENERAL

A. Division 1, General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all sections within Division 1 for additional information.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 04 50 00 – Masonry

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, tools and appliances necessary for the proper completion of the work in this section, as required in the specification and in accordance with good construction practice. The work under this Section includes, but is not limited to, the following:

A. Repair areas of cracked concrete and stucco as indicated on the Contract Documents.

B. Repair areas of spalled concrete (shallow and deep) at horizontal and vertical locations as indicated on the Contract Documents.

C. Perform concrete restoration work to existing concrete stairs as indicated on the Contract Documents.

D. Scrape, clean, prime, and coat exposed steel reinforcement components prior to performing concrete spall repairs.

E. Clean and restore all areas affected by the work.

1.4 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions.

B. Product data for proprietary materials and items including all products, aggregates, topcoats, repair mortar, and others as requested by the Engineer.

C. Safety Data Sheet (SDS) for each product used.

D. Submit associated equipment and materials list including, but not limited to, surface preparation equipment and methods used, bonding agents, etc.

E. Submit means and methods proposed for curing and protecting all repairs, and for masking surrounding surfaces, and protecting public from work areas, etc.

1.5 JOB CONDITIONS

A. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by the work and segregate the work area(s) from pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

B. Materials which have a temperature other than the application temperatures of the manufacturer shall not be applied. Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture and other conditions affecting concrete repairs.

C. Coordinate the Work in this Section with the work by other trades to ensure the orderly progress of the Work.

D. Under no circumstances shall the Contractor remove existing materials and systems to the ground in an uncontrolled manner. Machinery or devices used shall be manufactured for this purpose. Adjacent building and property areas shall be protected from airborne debris.

E. During surface preparation operations, the Contractor is responsible for the containment of all dust, dirt, debris, overspray and run-off resulting from the work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures, personal property, or adjacent repairs. Specific attention is drawn to the use of chemicals, cleaners and pieces of demolished concrete.

1.6 QUALITY ASSURANCE

A. Contractor must coordinate site visits with appropriate manufacturer's field representative to view surface preparations, material mixing, application procedures, and curing operations for each different material. Refer to Part G "TEST AREAS."

B. The contractor shall utilize skilled and experienced specialty workers to perform the work. The intent of these repairs is to use methods and products as outlined in Part Two and Three in this specification.

C. Sound all concrete designated for repair via an approved sounding technique prior to performing repairs.

D. The contractor shall provide all means, methods, equipment, etc. as necessary to conform to current ACI and ICRI curing recommendations and requirements.

E. Under no circumstance shall the contractor move existing materials and systems to the ground in an uncontrolled manner. Machinery or devices used shall be protected from airborne debris.

F. Materials which have a temperature other than the application temperatures of the manufacturer shall not be applied. Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture and other conditions affecting concrete repairs.

G. Test Areas:
1. Before full-scale work is commenced, execute the following work for trial work areas to be reviewed by the Manufacturer's Field Representative as to surface preparation and material mixing and application acceptability.
2. One (1) concrete spall repair. Minimum one square foot (1 sq. ft.) each, including cleaning and coating of existing rebar (if applicable).
3. One (1) concrete crack repair. Minimum one linear foot (1 l.f.) each.
4. One (1) stair repair. Minimum one square foot (1 sq. ft.) each.
5. Repairs shall conform to the Contract Documents and manufacturer's instructions and once accepted shall become a standard for all subsequent work.
6. Trial areas shall be repeated until acceptable results are obtained and the accepted areas shall be a standard for all subsequent work. Construction of test areas shall be in conformance with all Contract Documents and shall use only submitted materials. After curing, the test areas shall be viewed, sampled, and/or removed as directed by the Manufacturer's Field Representative to establish to his satisfaction the actual performance of the installed materials. Evidence of improper or unsatisfactory performance shall be grounds for rejection of any or all of the submitted or applied materials.

1.7 DIMENSIONS AND QUANTITIES

A. All dimensions and quantities shall be determined or verified by the Contractor, this includes, but is not limited to, performing concrete sounding to verify limits of concrete deterioration. Quantities to be carried under the base bid work have been shown on the Contract Drawings. Additional quantities have been carried under each item as Unit Price scope of work, refer to Section 01 22 00 Unit Prices for additional information. The Contract Drawings have been compiled from various sources and may not reflect the actual condition at the moment of construction. The Contractor is cautioned to take all precautions and make all investigations necessary to install the proposed work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.8 REFERENCES

A. The Codes and Standards specified herein are based in the English (U.S. Customary) system. Substitution of SI Metric equivalents is not acceptable.

B. “Standard Specifications for Structural Concrete” (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except where more stringent requirements are shown on Contract Drawings or specified herein.

C. Comply with provisions of following codes, specifications, and standards except where more stringent requirements are shown on Contract Drawings or specified herein.

D. “Building Code Requirements for Reinforced Concrete” (ACI 318). American Concrete Institute, herein referred to as ACI 318.

E. “Causes, Evaluation, and Repair of Cracks in Concrete Structures” (ACI 224, 112), American Concrete Institute.

F. “Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive” (ACI 503.1), American Concrete Institute.

G. “Hot Weather Concreting,” reported by ACI Committee 305 (ACI 305R).

H. “Cold Weather Concreting” reported by ACI Committee 306 (ACI 306R).

I. ICRI: International Concrete Repair Institute.

J. CRSI: Concrete Reinforcing Steel Institute.

K. SSPC: Steel Structures Painting Council (The Society for Protective Coatings).

L. ASTM: American Society of Testing and Materials.

1.9 CLEANUP

A. Site cleanup shall be complete and performed daily to the satisfaction of the Owner.

B. All building (interior and exterior) components, landscaped and paved areas shall be cleaned of all trash, debris and dirt caused by or associated with the work.

C. All trash and debris shall be completely removed from the site daily during the work and at the completion of the work. All debris shall be legally disposed of off-site.

1.10 WARRANTIES

A. Upon completion of the work and prior to final payment, the Contractor shall submit a guarantee of his work as free from defect in materials and workmanship. The guarantee shall be for a period of two years (2 yrs.). The guarantee shall be signed by an officer of the Contractor's firm and sealed if a corporation.

B. Horizontal Pedestrian Concrete Breathable Coating System Manufacturer's Warranty:
1. Warranty Period: Five years (5 yrs.) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SALVAGED MATERIALS AND ITEMS

A. All building materials, equipment, and debris of whatever nature from the portions of the existing structure, removed under this Project, shall become the property of the Contractor and legally disposed of off-site.

2.2 FORM MATERIALS

A. Plywood for forms shall conform to U.S. Product Standard PS-1, B-B Plyform Class 1 Exterior Grade, and shall have a minimum thickness of five-eighths inch (5/8").

B. Form coatings shall be non-staining and non-oily and shall be subject to the approval of the Owner.

C. Framing, Studding, and Bracing shall be "Standard" or "Construction" grade Douglas fir, rough or S4S, conforming to the Grading Rules for Western Lumber published by the Western Wood Products Association.

2.3 CONCRETE REPAIR MORTAR

A. Repair mortar for partial-depth (less than three inches [< 3"]) spall: Repair on vertical and overhead surfaces shall be a one-component, polymer-modified, high performance, rapid setting, non-sag, early strength gaining, low resistivity cementitious, patching material such as:
1. SikaQuick VOH, as manufactured by Sika Corporation.
2. SPEED CRETE PM, as manufactured by Euclid Chemical.
3. MasterEmaco N400, as manufactured by Master Builders Solutions.
4. Or approved equal.

B. Repair mortar for full-depth (three inches [3"]) or more) spall: Repair on vertical and overhead surfaces shall be a one-component, cementitious, polymer-modified, self-consolidating concrete mix with an integral migrating corrosion inhibitor patching material such as:

1. SikaCrete 211 SCC, as manufactured by Sika Corporation.
2. EUCOREPAIR SCC, as manufactured by Euclid Chemical.
3. MasterEmaco N400, as manufactured by Master Builders Solutions.
4. Or approved equal.

B. Repair mortar for concrete spall repair on horizontal surfaces shall be a one-component cementitious repair mortar such as:
1. SikaQuick 1000, as manufactured by Sika Corporation.
2. VERSASPEED LS100, as manufactured by Euclid Chemical.
3. MasterEmaco T310 Cl; as manufactured by Master Builders Solutions.
4. Or approved equal.

2.4 SPALL REPAIR ACCESSORY MATERIALS

A. Fasteners for concrete spalls that exceed one- and one-half inches (1½") in depth shall be minimum one- and one-half inches (1-1/2") long by one-quarter inch (1/4") diameter drive pins in stainless steel sheaths as manufactured by Star, Rawl, Hilti, or Engineer approved equal. Embedment into substrate shall be one- and one-quarter inch (1-1/4") minimum. It is recommended that stainless steel pins have through-holes at exposed ends to accept tie wire.

B. Wire mesh to drape over spall fasteners shall be two-inch by two-inch (2" x 2") by 14-gauge stainless steel or epoxy coated.

C. Burlap for curing patches shall be heavyweight burlap cloth.

D. Polyethylene for curing patches shall be a six millimeter (6-mil) polyethylene plastic sheet, or Engineer approved equal.

2.5 MORTAR BONDING/LEVELING MORTAR

A. Bonding agent for application onto prepared concrete spall repair substrates as well as anti-corrosion coating for cleaned steel reinforcement shall be:
1. Sika Armatec 110 EpoCem: Sika Corporation, Lyndhurst, NJ.
2. Rebar Primer and Bonding Agent: ThoRoc/ BASF, Florham Park, NJ.
3. Emaco P24: MasterBuilders/ BASF, Florham Park, NJ.

2.6 CRACK ROUT AND SEAL

A. Sealant for crack repairs shall be a two-component, non-sagging, solvent-free, moisture tolerant flexible epoxy sealer and adhesive such as Sikadur 51 ns as manufactured by Sika Corporation or approved equal.

2.7 CONCRETE COATING

A. Horizontal Pedestrian Concrete Surfaces: Two-component, polymer-modified, waterproof cement-based coating system. Owner to select color from manufacturer's standard colors. System shall be:
   1. Sikagard Flexcoat System with Sikagard Flexcoat ATC, as manufactured by Sika Corporation.
   2. MasterSeal 581 System with MasterEmaco A 660, Master Builders Solutions as manufactured by BASF.
   3. Elastideck, as manufactured by Conproco.
   4. Or approved equal.

B. Sand for horizontal walking surfaces shall be included in the coating system installation only as recommended by the coating manufacturer to provide a textured skid resistance surface.

2.8 PORE SEALING / RESURFACING MORTAR

A. Repair mortar for filling bug holes, honeycombing, shallow surface imperfections, air holes, holidays, minor repairs for gouges and shallow broken edges, etc., shall be as recommended by the selected coating manufacturer such as:
   1. SikaTop, SikaRepair, or SikaQuick as manufactured by Sika Corporation.
   2. MasterEmaco N 400, Master Builders Solutions as manufactured by BASF.
   3. Compro Set, as manufactured by Conproco.
   4. Or approved equal.

2.9 REPLACEMENT STAIR TREAD NOSING

A. New nosing shall be minimum one- and three-eighths inch (1-3/8") wide, or as required to match the existing concrete stair tread nosing. Tread one-quarter inch (1/4") thick without anchor. The abrasive filler shall consist of a mixture of aluminum oxide and silicon granules in an epoxy resin and hardener mixture and locked into channels in an extruded aluminum base. Minimum coefficient of friction 1.02 dry, 0.98 wet per ASTM F 609. Abrasive filler color as selected by the Owner. Nosing shall either have anchors to be imbedded into the concrete repairs or mechanically fastened with flat head fasteners.
   1. Series 100 type 110A or Series 200 as Manufactured by Amstep Products.
   2. Supergrit type 610 safety nosing as Manufactured by Wooster Products, Inc.
   3. Ribbed Abrasive Stair Nosings Type-XRF as Manufactured by Grating Pacific.
   4. Or approved equal.

B. Fasteners for nosing attachment shall be minimum one-quarter inch by one- and three-quarter inch (1/4" x 1-3/4") 410 Stainless Steel Phillips Flat Head Concrete Anchors, or as recommended by the manufacturer for attachment to the concrete stairs.

C. Sealant/adhesive for setting stair nosing shall be a clear silicone sealant as recommended for exterior applications and as recommended by the nosing manufacturer.

2.10 ACCESSORY MATERIALS

A. Sealant: Single-component, neutral-curing, non-staining silicone sealant to comply with ASTM C 920 Type M, Grade NS, Class 25 or as recommended by the coating system manufacturer for use at concrete to metal railing joints.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

C. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

D. Masking materials shall be commercially available masking or duct tape of appropriate width. Self-adhesive materials shall be completely strippable, leaving no adhesive residue when removed.

E. Fasteners for concrete spalls that exceed one- and one-half inches (1-1/2”) in depth shall be minimum one- and one-half inches (1-1/2”) long by one-quarter inch (1/4”) diameter drive pins in stainless steel sheaths as manufactured by Star, Rawl or equal. Embedment into substrate shall be one- and one-quarter inch (1-1/4”) minimum. It is recommended that stainless steel pins have through holes at exposed ends to accept tie wire.

F. Type 304 stainless steel or hot dip galvanized wire mesh to be wrapped around drive pins for concrete spalls that are in excess of one- and one-half inches (1-1/2”) deep shall be a two-inch by two-inch (2” x 2”) grid mesh, 14-gauge wire (minimum).

G. Burlap for curing patches shall be heavyweight burlap cloth.

H. Forming materials shall be provided to install the repairs as outlined in the Contract Drawings. Forms shall be smooth and flat materials to provide a smooth and uniform concrete repair surface.

PART 3 - EXECUTION

3.1 GENERAL WORKMANSHIP

A. Do not deliver to site or install any material or system that has not been approved. Materials installed without approval may be required to be removed at no additional cost to the Owner.

B. The prepared concrete surfaces must be dry, clean and smooth. Provide dryers, if necessary, to dry concrete surfaces prior to installing new work. Open flame devices shall not be used.

C. Comply with the manufacturer's written instructions and these Specifications for all renovations and associated work.

D. Partial or unmarked cans or rolls of materials cannot be used.

E. Verify that all surfaces have been demolished to the specified depth and surface profile, and thoroughly cleaned for the areas to receive repairs.

F. Do not leave any partially completed sections exposed to the elements overnight. Provide all devices and protection (including heaters, dehumidification, ventilation, etc.) necessary to maintain areas and surfaces at the proper temperature, humidity, and surface moisture content for the curing of repair mortar, epoxy, and other materials.

G. No concrete repair work shall be executed when the temperature in the work areas has dropped below fifty degrees Fahrenheit (< 50ºF) , unless heated. Consult the manufacturers of the materials for proper application and storage procedures.

H. In all cases, the prepared surfaces ready to receive concrete repair and coating work, shall be maintained with adequate temporary protection to keep atmosphere and construction related contaminants (dust, debris, water, dirt, laitance, grease, oil, coating overspray, etc.) or any bond inhibiting contaminants from depositing on the prepared surfaces.

I. The contractor shall coordinate all project phasing to avoid delays in the work. Surface contamination or repeated surface preparation and cleaning will not be cause for additional contract cots or extensions of contract time.

J. The contractor shall submit a phasing diagram and work schedule with his bid submission. The phasing diagram and work schedule shall be updated and submitted to the Owner on a weekly basis during the progress of the work.

K. The contractor shall perform concrete sounding to verify limits of concrete deterioration. Contractor shall notify the Owner and Engineer when quantities exceed that indicated in the Contract Documents prior to performing repair work.

3.2 HANDLING, STORAGE, AND PROTECTION OF MATERIALS

A. Handle and store materials separately in such manner as to prevent intrusion of foreign matter, segregation, or deterioration. Do not use foreign materials or those containing ice. Remove improper and rejected materials immediately from point of use. Cover materials, including steel reinforcement and accessories, during

construction period. Stockpile concrete constituents properly to assure uniformity throughout project.

B. Do not deliver to site or install any material or system that has not been approved. Materials installed without approval may be required to be removed at no additional cost to the Owner.

C. Partial or unmarked cans or rolls of materials cannot be used.

3.3 SURFACE CLEANING

A. All surfaces to receive spall and epoxy injection repairs shall be free from all surface contaminants and thoroughly washed, using high-pressure water. All building components and public shall be protected from these procedures at all times.

B. All effluent shall be collected and properly disposed of.

C. Mask and protect adjacent surfaces and components to remain with polyethylene sheeting, or similar sheeting as approved by the Engineer.

D. During surface preparation operations, the Contractor is responsible for the containment of all dust, dirt, debris, overspray and run-off resulting from the Work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures, personal property, or adjacent repairs. Specific attention is drawn to the use of chemicals, cleaners and pieces of demolished concrete.

3.4 CONCRETE SPALL REPAIRS

A. Remove areas of spalled, delaminating, cracked, lose or otherwise unsuitable concrete from the slab surface. Define all repair areas with one-quarter inch (¼") deep saw cut. Undercut or "key" in spall repair edges on at least two (2) opposite sides to mechanically retain the repair. Cuts shall not overlap at corners.

B. Using hand and electric power tools (15 lb. maximum chipping hammers) remove all areas of deteriorated, delaminating, de-bonded, spalled or otherwise damaged concrete from existing surfaces, extending three-quarter inch (¾") minimum around rebar, as required to install the new work. Sound concrete areas adjacent to cracks to determine additional spall areas. Removal of deteriorated concrete and surface preparation shall be completed as recommended by the patching mortar manufacturer and as outlined within these Specifications. Do not cut existing steel reinforcement.

C. Prepare the surface of the existing concrete to receive the bonding agent and repair mortar. Provide a one-eighth inch (1/8") minimum aggressive surface profile

with fractured aggregate (ICRI-CSP 8 or CSP 9). Tool marks should be visible. Examine substrate for cracks and treat with specified crack repair procedure.

D. Should exposed reinforcing system exist within the spalled area, refer to Part 3.5 “Existing Reinforcing Steel at Spall Repairs” section. Do not apply spall repair material over corroded reinforcing.

E. Completely remove all dust, grease, and other impurities via high-pressure water wash, combined with wire brushes, chipping, grinding, or other methods as required to achieve acceptable bonding surfaces. Dampen the existing surface area with clean potable water, to obtain saturated-surface-dry (SSD) conditions.

F. Apply coating/bonding agent to all substrate surfaces and reinforcing steel as recommended by the repair mortar manufacturer. Provide one (1) coat on concrete substrates and two (2) coats on all steel items. Slurry scrub repair mortar into prepared damp substrates.

G. Install repair mortar to properly prepared areas within a time period to achieve a “wet-on-wet” mortar application. Mix repair mortar in accordance with the material manufacturer’s instructions. At vertical spall repairs with a depth greater than one- and one-half inches (> 1-1/2”), provide pinning and mesh reinforcement. Utilize the manufacturer’s recommended mix rates.

H. Vertical spall locations that exceed one- and one-half inches (> 1-1/2”) depth shall have specified drive pins installed into the substrate. Drive pins shall be spaced eight inches (8”) maximum on-center with a minimum of two (2) pins per spall, and have stainless steel wire or hot-dip galvanized wire wrapped throughout the repair to act as a reinforcement line upon installation of the patching materials.

I. The concrete substrates require wetting with water to obtain SSD conditions prior to installing the bonding agent. Consult with the manufacturer’s instructions prior to initiating repairs.

J. Finish the repairs flush with the existing surfaces. Ensure that the surface, texture, and profile is roughed and textured to match surrounding concrete and to achieve proper mechanical bond with the later applied coating primer. Do not feather edge repairs, but install in one-quarter inch (¼”) minimum applications, or as otherwise limited by each materials manufacturer’s limitations.

K. Clean uncured materials off of undesired areas with a moist sponge or cloth immediately after application.

L. Provide for proper cure of patch as recommended by the repair material manufacturer. At a minimum, curing shall consist of wet burlap placed over the repair area, continuously wetted to provide a consistently moist burlap, and enclosed with polyethylene, duct taped to the adjacent surfaces. Curing materials

shall remain in place for the minimum manufacturer's specified time based upon surface and ambient temperatures and humidity.

M. Concrete stair treads shall be repaired in a similar manner to typical concrete spall repairs. Provide form work to install repair mortar to match surround stair shape and size. Coordinate stair tread repairs to allow for installation of new stair tread nosing.

N. No coating work shall be performed when the temperature in the work areas has dropped below fifty degrees Fahrenheit (< 50ºF), unless heated. Consult the manufacturers of the materials for proper application and storage procedures.

3.5 EXISTING REINFORCING STEEL AT SPALL REPAIRS

A. Perform surface preparation as described in this section and as recommended by the repair mortar manufacturer. Should reinforcing bars be encountered, perform the following work:

1. All existing exposed reinforcing steel bars which have rust (greater than mild surface rusting) that extends to the back of the bar, or where concrete has cracked due to expansive forces from corroding steel, shall have the concrete removed from the full circumference of the bars to provide a minimum clearance of three-quarter inch (3/4") all around. If more than one half (½) of any bar diameter is exposed during demolition, remove concrete from the full circumference of bar with minimum three-quarter inch (3/4") clearance all around.
2. Reinforcing steel must be mechanically or sandblast cleaned and free of rust, scale, grease, oil, and other bond-inhibiting matter in accordance with SSPC – SP11, at a minimum, and as required by the rebar coating/boding agent manufacturer. This can be accomplished using power tools, sandblasting, or similar approved methods.
3. Miscellaneous embedded steel items requiring cleaning shall be sand-blasted or mechanically ground to bright steel.
4. After cleaning of reinforcement to bare metal, thoroughly examine and determine section loss. Bars with twenty-five percent or greater (25% >) section loss shall receive supplemental steel. New steel bars shall be placed and tied alongside of existing corroded bar at same depth where possible. Bar lap shall be developed thirty (30) bar diameters, each end, beyond point of corroded bar. Remove additional concrete as required to fit bar and develop lap lengths. New bar diameter shall match existing nominal bar diameter prior to corrosion. In all cases, new reinforcement shall have a minimum cover of one- and one-half inches (1-1/2").
5. At discontinuous ends of reinforcement, or where thirty (30) bar diameter lap is not possible, supplemental reinforcement may be drilled and epoxied into the substrate adjacent to existing corroded bars. Drill hole one-quarter inch (1/4") diameter larger than bar diameter at a depth ten times (10x) the bar diameter. Maintain a minimum two-inch (2") cover and edge distance at all drilled hole locations. Clean hole and fill with a high modulus, high-strength,

structural epoxy paste adhesive conforming to ASTM C-881 and AASHTO M-235 specifications.

6. Apply epoxy coating/bonding agent to all exposed steel and concrete bonding surfaces using brushes in strict accordance with the bonding agent manufacturer's written requirements. Use two (2) coats on steel, and one (1) coat on concrete substrates.
7. Apply repair mortar as specified and recommended by the manufacturer.
8. Clean areas adjacent to the repair area prior to curing with a moist sponge or cloth immediately after application.
9. Apply all curing materials and techniques as specified in this Section.

3.6 ROUTING AND SEALING OF CONCRETE CRACKS AND JOINTS

A. Crack Preparation

1. Rout or "vee" crack by saw cutting to a minimum depth of one-half inch (1/2").
2. Clean the routed crack and adjacent area of all loose material with high pressure air to blow the crack clean.
3. Clean all substrates to receive the sealant using the manufacturers recommended cleaners and surface preparation techniques. The removal and cleaning of sealants and adhesives shall be as specified herein and in accordance with the sealant manufacturer's written recommendations.
4. Clean each previously prepared bonding surface with applications of the manufacturers recommended solvent and clean white rags. Apply solvent by brush and wipe surfaces clean. Repeat a minimum of two times (2x), more often if necessary.
5. Primer shall be applied to all properly prepared, cleaned and dry substrates. Primer shall be recommended and approved by the sealant manufacturer for each substrate and shall be completely compatible with the existing materials and proposed sealants and accessories.
6. Primer shall be applied and allowed to dry prior to the application of the sealant.

B. Sealant

1. Precondition sealants to a temperature between sixty- and seventy-five degrees Fahrenheit (60ºF - 75ºF) or as required by the manufacturer. Apply sealant to clean dry surfaces only when the ambient temperature is between sixty- and eighty-five degrees Fahrenheit (60ºF - 85ºF).
2. All sealants shall be applied to clean, dry joints by knife, trowel, manual or air pressure caulking guns using proper nozzle sizes.
3. Sealant shall be forced into the joint to completely fill the void and achieve full "wet out" of the bonding surfaces. Force sealant into the joint and against the sides of the joint. Avoid pulling sealant from sides.
4. Tool sealant immediately to assure full adhesion. Sealant shall be dry tolled to be straight, uniform, smooth and neatly finished to the profiles detailed and to shed water. No soaps, wetting or slicking agents will be allowed.

3.7 CONCRETE COATING INSTALLATION

A. Remove efflorescence, chalk, dust, dirt, mortar spatter, grease, oils, paint, curing compounds, and form-release agents to ensure that waterproofing bonds to surfaces.

B. Prepare concrete surface to a sandpaper-like texture (ICRI-CSP-3) consistent surface by mechanical abrasion, abrasive-blast cleaning, or medium water blasting, or as required by the selected coating manufacturer. Surface preparation mockups will be required and are to be approved by the manufacturer of the coatings prior to full scale preparation.

C. Repair bug hole, cracks and irregularities in the concrete surfaces as outlined in these specification and as recommended by the manufacturer with coating compatible materials.

D. Comply with manufacturer's written instructions.

E. Provide temporary enclosure as required for coating application work (to confine spraying operation if applicable) to ensure adequate ambient temperatures and ventilation conditions for application.

F. Prior to applying new coatings or primers to concrete surfaces, Contractor shall perform adhesion testing, with the manufacturer present, to prepared concrete surfaces to confirm acceptable substrate conditions. Adhesion tests shall be performed on each elevation of the building to acquire appropriate sampling of the conditions of the concrete surfaces.

G. Install bond breaker and sealant at all concrete slab to wall joints in the areas to be coated. Apply sealant joints prior to or post coating application as required coating manufacturer.

H. All porous areas or concrete with excessive porosity should be primed, as recommended by the coating manufacturer to allow easy application of the finish coating. Perform testing with manufacturer to confirm acceptable substrate condition(s).

I. Adjacent building components and/or surfaces not designated (i.e. windows, glass, roofing, etc.) to receive concrete coating shall be masked off and protected.

J. Apply the specified coating to the exposed concrete surfaces per manufacturer’s requirements and to achieve the manufacturers required thicknesses.

K. Apply minimum two (2) coats or as required to comply with the manufacturer requirements for the particular coating system.

L. If applicable apply the manufacturers specified topcoat to the areas.

M. For horizontal walking surfaces provide broom finish or incorporate sand in the surface of the coating as recommended by the coating system manufacturer to provide a skid resistance finish surface.

N. Clean all excess coating and masking materials.

O. Protect the coating area from the public and other construction activities during application and curing.

P. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints. Install continuous sealant joint at railing post penetrations. Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of concave joint configuration per Figure 5A in ASTM C 1193 to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint.

3.8 REPLACEMENT STAIR TREAD NOSING INSTALLATION

A. Remove and replace existing stair tread nosing's at designated locations where repairs to the existing concrete stairs are designated to be performed.

B. The intent is to match the existing size, style, and type of stair nosing's.

C. For embedded nosing type:
1. Pour the concrete to form the stairs. Coordinate pours/repairs to allow stair tread nosing's to be installed quickly before initial set occurs.
2. Place the nosing, with anchors, into the fresh concrete. Ensure that the stair nosing is installed with the front edge of the nosing flush with the riser form or set back to as required to match the adjacent existing stair nosing's.
3. Work the nosing into the concrete until the back edge of the nosing is level with the finished edge of the tread. Work the nosing into the concrete until it is level and flush with the tread, and at the proper elevation. To provide a stable installation ensure that the stair nosing anchors are securely set in the concrete and that the concrete is completely surrounding them.
4. After the concrete has taken its initial set, remove the riser forms and finish the concrete riser flush to the stair nosing front.

D. For mechanically fastened nosing type:
1. Install a formboard or temporary filler material properly sized to notch out the outside corner of the stair tread repair during concrete pouring and repairs to allow for installation of the nosing components after the concrete repairs are cured.
2. Remove formboards and fillers, prepare concrete by removing all loose concrete debris and sweeping surface clean.
3. Install manufacture's recommended sealant/adhesive to the bottom side of the nosing piece.

4. Set nosing in place and apply even pressure to distribute sealant/adhesive, align to be level with the stair tread and flush with the riser.
5. Drill holes in the concrete to install the mechanical fasteners.
6. Clean the concrete debris, drillings, and holes with a shop vacuum.
7. Screw in and tighten mechanical anchors. Using a power driver can strip the fastener. If a power driver is used, use the clutch to help prevent stripping of the fastener.

3.9 FINISHING CONCRETE

A. Any concrete which shows a defective surface shall be corrected or replaced as directed by the Engineer.

3.10 CURING AND PROTECTION

A. The Contractor shall provide all means, methods, equipment, etc. as necessary to achieve satisfactory surface moisture content for as long a duration as required for proper application and curing of the specified materials.

B. Protect concrete work against injury from heat, cold, and defacement of any nature during construction operations.

3.11 FIELD QUALITY CONTROL

A. Cooperate with field quality control personnel. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.

B. Additional inspections and retesting of materials which fail to comply with specified material and installation requirements shall be performed at Contractor's expense.

3.12 CLEANING

A. During removal operations, the Contractor is responsible for the containment of all dust, dirt, debris, overspray, and run-off resulting from the work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures, or personal property. Specific attention is drawn to the use of chemicals and cleaners.

B. Prior to acceptance of the repair work covered in this section, the Contractor shall perform a thorough cleanup of the work site, building surfaces, landscaping, etc. Any items damaged shall be repaired or replaced to the satisfaction of and at no additional cost to the Owner.

C. Site cleanup shall be complete and performed daily to the satisfaction of the Owner.

D. All building (interior and exterior), roof areas, landscaped, and paved areas shall

be cleaned of all trash, debris, and dirt caused by, or associated with, the work.

E. All trash and debris shall be completely removed from the site daily during the work and at the completion of the work. All debris shall be legally disposed of off-site.

END OF SECTION

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MASONRY

SECTION 04 50 00

PART 1 - GENERAL

1.1 IN GENERAL

A. The General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 1 for additional information.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 30 00 – Concrete Repairs
B. Section 07 62 00 – Sheet Metal Flashing and Trim

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, tools and appliances necessary for the proper completion of the work in this section, as required in the specification and in accordance with good construction practice. The work under this Section includes, but is not limited to, the following:

A. Remove and replace damaged, cracked, or spalled brick masonry units at locations indicated in the Contract Drawings.

B. Cut and repoint masonry mortar joints at locations as indicated in the Contract Documents.

C. Rebuild deteriorated brick masonry at locations as indicated in the Contract Documents.

D. Remove abandoned anchors/fasteners and infill with new brick or mortar at locations as indicated on the Contract Drawings.

E. Remove and replace deteriorated sealants at locations and as indicated in the Contract Drawings.

F. Clean all surfaces at work locations and adjacent to where masonry renovations were performed.

1.4 JOB CONDITIONS

A. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, temporary heat, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by his work and segregate the work area(s) from pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

B. The Contractor shall use dust collection vacuums (HEPA vacuums) to limit airborne dust associated with grinding the existing mortar joints. All costs associated with additional power generators shall be the Contractor's responsibility.

C. Materials which have a temperature other than the application temperatures of the manufacturer shall not be applied.

D. Cold Weather Application - Applies only to rebuilding, no repointing shall be completed when air temperature is less than forty degrees Fahrenheit (< 40^{o}F). The Contractor shall comply with the following cold weather masonry construction requirements at no change in contract price and provide all necessary heat:

1. The cold weather construction and protection requirements shall be closely followed.
2. Construction materials shall be received, stored, and protected in ways that prevent water from entering the materials.
3. If climatic conditions warrant, temperatures of construction materials should be measured. Frozen sand and wet masonry units must be thawed. Masonry units below twenty degrees Fahrenheit (< 20^{o}F) must be heated above twenty degrees Fahrenheit (>20^{o}F) without overheating. Sufficient mortar ingredients should be heated to produce mortar temperatures between forty- and one hundred twenty degrees Fahrenheit (40^{o}F-120^{o}F). Every effort should be made to produce consecutive batches of mortar with the same temperatures falling within this range. The mortar temperature after mixing and before use should be above forty degrees Fahrenheit (40^{o}F), maintainable either by auxiliary heaters under the mortar board or by more frequent mixing of mortar batches. Heated mortar on mortar boards should not become excessively hot (greater than one hundred twenty degrees Fahrenheit (>120^{o}F).
4. During below-normal temperatures, masonry should be placed only on sound unfrozen foundations. Masonry should never be placed on a snow or ice-covered surface, because of the danger of movement when the base thaws and the possibility of very little bond being developed between the mortar and the supporting surface.
5. At the end of the day, the top surface of all masonry should be protected to prevent moisture, as rain, snow or sleet, from entering the masonry. This protection must cover the top surface and should extend a minimum of two feet (2') down all sides of the masonry.

WORKDAY TEMPERATURE	CONSTRUCTION REQUIREMENT	PROTECTION REQUIREMENT
Above 40°F	**Normal masonry procedures.**	*Cover walls with plastic or canvas at end of workday to prevent water entering masonry.*
40°F - 32°F	**Heat mixing water to produce mortar temperatures between 40°F - 120°F.**	*Cover walls and materials to prevent wetting and freezing. Covers should be plastic or canvas.*
32°F - 25°F	**Heat mixing water and sand to produce mortar temperatures between 40°F - 120°F.**	*With wind velocities over fifteen miles per hour (> 15 mph) provide windbreaks during day and cover walls and materials at the end of the workday to prevent wetting and freezing. Maintain masonry above freezing for sixteen hours (16 hrs.) using auxiliary heat or insulated blankets.*
25°F - 20°F	**Mortar on boards should be maintained above 40°F.**	
20°F - 0°F and below	**Heat mixing water and sand to produce mortar temperatures between 40°F - 120°F.**	*Provide enclosures and supply sufficient heat to maintain masonry enclosure above thirty-two degrees Fahrenheit (32°F) for twenty-four hours (24 hrs.).*

Note: Construction requirements, while work is in progress, are based on *ambient* temperatures. Protections requirements, after masonry is placed, are based on *mean* daily temperatures.

E. Hot Weather Application – The Contractor shall keep the areas being built sufficiently moist at all times during the operations. Mortar mixed and ready for application shall be used within one hour's time and continually remixed to prevent excessive evaporation of moisture from the mortar. Discard all mortar which has begun to set or is not used within two hours' time. Water for tempering shall be available at all times.

F. Under no circumstances shall the Contractor remove existing materials and systems to the ground in an uncontrolled manner. Machinery or devices used shall be manufactured for this purpose. Adjacent building and property areas shall be protected from airborne debris.

G. No building interiors, whether new or existing shall be left exposed to the weather at the end of each workday.

H. During removal operations, the Contractor is responsible for the containment of all dust, dirt, debris, overspray and run-off resulting from the work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures or personal property. Specific attention is drawn to the use of chemicals and cleaners.

I. The Contractor shall put silt debris protection within the adjacent roofing drains to collect masonry dust from entering the leader lines.

J. Fully charged, inspected and approved fire extinguishers shall be on site at all times. No cutting, grinding or welding of any kind shall proceed without an approved fully charged fire extinguisher.

K. The general nature, quantity and surface area of the various work items are shown on the Contract Drawings.

L. The Contractor shall provide a dust proof site during the course of the work. Wet cutting methods, dust tight staging and enclosures as well as other methods shall be employed as necessary to meet this requirement.

1.5 DIMENSIONS AND QUANTITIES

A. All dimensions and quantities shall be determined or verified by the Contractor. The Contract Drawings have been compiled from various sources and may not reflect the actual condition at the moment of construction. The Contractor is cautioned to take all precautions and make all investigations necessary to install the proposed work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.6 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions.

B. Submit a site-specific safety plan.

C. The Contractor shall submit the following items with their submittal package.
1. Methods of removal of materials.
2. Temporary protection procedures.
3. Staging/set-up procedures.
4. Program for containment of cleaning chemicals.

D. Submit a range to match the existing color, size and texture.

E. Proposed method of providing a dust proof site (dust removal) during masonry demolition work.

F. Proposed method of protection for adjacent landscaping, pavement, walkways, site plantings, and related sitework from damage.

1.7 TEST AREAS

A. Before full scale work is commenced, execute the following work for trial work areas to be reviewed by the Owner as to acceptability of color, texture and appearance

match with the existing construction. Test areas will be at locations established by the Owner and Engineer:

1. Two (2) square feet of repointing.
2. One (1) square feet of rebuilding.
3. Six (6) square feet of cleaning.
4. Two (2) linear feet of sealant replacement.

B. Prepare, install and cure all materials in accordance with these specifications and the manufacturer's instructions.

C. Trial areas shall be repeated until acceptable results are obtained. The accepted work shall be a standard for all subsequent work. Areas of masonry repointing shall be allowed to weather for seven days prior to Owner acceptance.

1.8 CLEANUP

A. Site clean-up shall be complete and performed daily to the satisfaction of the Owner.

B. All roof, building (interior and exterior), landscape and parking areas shall be cleaned of all trash, debris and dirt caused by, or associated with, the work.

C. All trash and debris shall be completely removed from the site daily during the work and at the completion of the work. All debris shall be legally disposed of off-site.

1.9 GUARANTEE

A. Upon completion of the work and prior to final payment, the Contractor shall submit a Guarantee of his work to be free from defect in materials and workmanship. This Guarantee shall be for a period of two years (2 yrs.)and shall be signed by a Principal of the Contractor's firm and sealed if a corporation.

B. Contractor to provide sealant manufacturer's standard five-year (5-yr.) warranty.

PART 2 – MATERIALS

2.1 SALVAGED MATERIALS AND ITEMS

A. All building materials, equipment and debris of whatever nature from the portions of the existing structure removed under this project and not designated to be reused or reinstalled shall become the property of the Contractor and legally disposed of off-site. The Contractor will be required to place all discarded materials in the appropriate rubbish receptacles for legal disposal by the Contractor.

2.2 BRICK MASONRY

A. Replacement brick masonry shall conform to ASTM C 216, Grade SW, Type FBS specifications. Brick shall match existing in size, configuration, color and texture. The majority of the brick masonry units appear to be two-inch by three- and one-half inch by seven- and five-eighths inch (2" x 3-1/2" x 7-5/8") in dimension. However, these units vary and will require the Contractor to confirm brick masonry unit sizes prior to ordering.

B. All brick shall be submitted to the Owner for acceptability as to color and appearance match with the existing brick. The Contractor may be required to submit additional brick samples for approval. No brick shall be purchased or installed until approval by the Owner is obtained.

2.3 MORTAR

A. Mortar for rebuilding brick veneer shall be Type N, conforming to ASTM C270 specifications and shall match the existing in color, texture and appearance. Mortar shall conform to Parts 8 and 11 E of the BIA Technical Notes.

B. Mortar for tuck pointing shall be Type N, conforming to ASTM C270 specifications and shall match the existing in color, texture and appearance. Mortar shall be pre-hydrated and conform to Part 7 of the BIA Technical Notes.

C. Portland cement shall be Type II (Type III may be used only if previously approved) conforming to ASTM C150, specifications.

D. Hydrated lime shall conform to ASTM C207, Type S specifications.

E. Sand shall conform to ASTM C144, amended as follows:

Sieve Size	**% Passing (By Weight)**
#4	100
#8	95-100
#16	70-100
#30	40-75
#50	20-40
#100	10-25
#200	0-10

F. Tinting or coloring agent shall be added to the sand, lime cement to color the fully-cured, in-place mortar to match the physical and chemical characteristics and specified requirements of the Type N mortar.

G. Admixtures: No admixtures shall be allowed.

H. Water shall be clean, potable tap water.

2.4 MASONRY CLEANERS

A. Cleaner for newly installed, brick masonry, and repointing areas shall be Sure-Kleen 101 lime solvent by Pro-So-Co, Inc., Hydroclean HT 455 by Hydrochemical Techniques, Inc., 200 Lime Solvent as manufactured by Diedrich Technologies, or approved equal.

B. The cleaner shall be specifically recommended by the manufacturers for the removal of efflorescence from masonry, Radonseal Efflorescence cleaner, or approved equal. Cleaners with harsh chemicals and/or strong acids are not recommended but may be considered. Windows should be protected when using cleaners.

C. Masking materials shall be commercially available masking or duct tape of appropriate width. Self-adhesive materials shall be completely strippable, leaving no adhesive residue when removed.

D. Plastic sheet for masking tape areas shall be four millimeters (4 mils.) thick minimum polyethylene sheet of appropriate size to cover the required areas.

2.5 SEALANT AND ACCESSORIES

A. Sealant for exposed locations shall be a one-part polyurethane conforming to ASTM C920-87, Type S, Grade NS, Class 25, Uses NT, M, A, and O such as manufactured by Tremco, BASF-Sonneborn, Sika Corp., or Engineer approved equal.
   1. Contractor to provide sealant manufacturer’s standard five-year (5-yr.) warranty.

B. Color(s) shall be selected by the Owner from the approved manufacturer's color chart. Colors shall be the manufacturer’s available premium colors.

C. Primer shall be non-staining type as manufactured or recommended by the sealant manufacturer for each substrate.

D. Substrate cleaner shall be non-corrosive and non-staining as recommended by the sealant manufacturer. Cleaner shall be totally compatible with the sealant for each substrate.

E. Masking material shall be commercially available masking tape of appropriate width or other material recommended by the sealant manufacturer. Self-adhesive masking materials shall be of low tack and completely strippable, leaving no adhesive residue behind when removed.

PART 3 – EXECUTION

3.1 GENERAL WORKMANSHIP

A. Follow all applicable local, state and federal requirements regarding construction of scaffolding and protection of the public safety. Specific reference should be made to OSHA Construction Safety Regulations.

B. Set up of scaffolding or similar access and location of on-site storage areas shall be subject to review and approval by the Owner.

C. Do not leave any partially completed sections exposed to the elements overnight. Provide all devices (including heaters and insulation) necessary to maintain areas at the correct temperature and humidity for proper curing of mortar.

D. During freezing weather, the Contractor shall protect all masonry with tarpaulins or other approved material. Masonry materials shall be stacked on platforms and covered, or stored in a manner acceptable to the Owner, to protect them from contact with soil and weather exposure. Materials with stained faces will not be used in the walls.

E. No masonry work shall be executed when the temperature in the work area has dropped below forty degrees Fahrenheit (< 40ºF) unless it is rising. The Contractor shall provide heat and maintain the temperature of masonry materials and protect the completed work from freezing. Protection shall consist of heating and maintaining the temperature of masonry materials to at least forty degrees Fahrenheit (40ºF), but not more than one hundred degrees Fahrenheit (100ºF), and maintain an air temperature above forty degrees Fahrenheit (40ºF) on both sides of completed masonry for a period of at least seventy-two hours (72 hrs.).

F. Keep covers tightly sealed on all evaporative products to prevent premature curing.

G. All debris shall be transported to dumpsters, in locations approved by the Owner, at ground level by enclosed chute or crane and scaling bucket. Uncontrolled dropping of debris to ground level will not be permitted.

H. During the removal of any existing component, the Contractor shall report to the Owner any areas of damaged, deteriorated or otherwise unsuitable framing, wood blocking, or wall materials uncovered during the work. Do not cover unacceptable areas until reviewed by the Owner and Engineer. Provide temporary protection to the area in question.

I. Any wall areas opened for replacement shall receive the new system that day and shall be enclosed with masonry. Should rebuilding of masonry not be completed, temporary weather protection and shoring for the wall shall be provided by the Masonry Contractor at no additional charge to the Owner.

J. If needed, the Contractor shall lay-up granite units' plumb, level, and true to the lines and dimensions at the existing walls. Chipped or broken units shall be repaired. If any such units are placed in the finished wall, they shall be removed and replaced with new units at no additional cost to the Owner.

K. The repointing of granite mortar joints is included at the locations shown on the Contact Drawings, and as specified in the Unit Price Section. Only additional scope of work designated by the Owner will be paid for at the Unit Price. The Contractor must confirm additional unit price items with the Owner prior to performing the work should compensation be desired. Adjacent masonry units damaged or removed as a result of the work will be removed and replaced at no cost to the Owner.

L. All shoring of the masonry components will be the responsibility of the masonry Contractor. Maximum spacing of temporary shoring shall be twelve inches (12") on center. Any damage as a result of insufficient shoring shall be repaired or replaced at no additional cost to the Owner.

M. Refer to Brick Industry Association (BIA) technical notes for standard practice for masonry repointing, rebuilding and repair.

3.2 MASONRY STORAGE

A. Storage of all masonry shall be in the area designated by the Owner. All stored masonry units shall be covered.

3.3 REMOVAL OF BRICK MASONRY

A. Remove brick masonry units in the locations shown on the Contract Drawings. Use hand and power tools to remove masonry. Pneumatic demolition tools are not permitted.

B. Saw-cut surrounding mortar joints to remove the designated masonry units. Remove adjacent units as required. Provide temporary shoring and protection, as necessary.

C. Remove masonry units in a manner so as not to damage sound materials designated to remain.

3.4 BRICK MASONRY REPLACEMENT

A. Reconstruct brickwork with new brick to follow the existing profile and configuration. All brick masonry shall be plumb, level and true to the lines and dimensions of existing wall. Chipped or broken units shall not be used. If any such units are placed in the finished wall they shall be removed and replaced with new units at no additional cost to the Owner.

B. The Contractor shall supply all jacks, shoring and temporary supports necessary to support brickwork above and adjacent to any area to assure proper installation of the work.

C. Wet all new and existing masonry units in the work area. Masonry shall be kept damp but without standing water.

D. Utilize rotary mixers when fabricating all mortar. Be sure to maintain relative proportions of mortar materials to provide the texture and color to match the existing mortar. No anti-freeze compounds or other substances shall be added to the mortar. Mix all mortar for at least three minutes (3 min.) and not more than five minutes (5 min.) with the minimum amount of water to produce a workable consistency. The maximum allowable air content of cured mortar shall be twelve percent (12%) by volume. Re-tempering of mortars that have stiffened because of evaporation of water will be allowed in order to provide the proper consistency provided all mortar in a batch is utilized within two hours (2 hrs.) of initial mixing.

E. Set each brick in a full bed of mortar and build upward. Tool all joints to match the existing joint profile. Fully butter all heads.

F. Work mortar into joints for complete width and depth. Consolidate and tool into joint using tooling equipment to completely fill the joint cavity to match the existing joint profile. Tool exposed joints slightly with a suitable jointer when the mortar is thumbprint hard. For horizontal joints, jointers shall be at least twelve inches (12”) long for brickwork. Jointers shall be slightly larger than the width of the joint so that complete contact is made along the edges of the units, compressing and sealing the surface of the joint. Strike flush joints that will not be exposed. Tool vertical joints first. Brush joints to remove all loose and excess mortar. Horizontal joints shall be level; vertical joints shall be plumb and in alignment from top to bottom of wall.

G. Set new masonry unit in full beds of mortar, top, bottom and sides. Utilize slate wedges as required to maintain mortar joint width. Should new masonry set in mortar require removal due to un-level/plumb conditions, that masonry unit shall be removed from the work area, cleaned and allowed to dry prior to reinstallation.

H. Provide full joint depth of new mortar. Strike off and tool joints to match existing joint configuration. Allow areas to fully cure prior to cleaning.

I. Where brick masonry replacement occurs in areas to be repointed, rake back joints and repoint together with the wall area.

J. Totally clean the areas of masonry rebuilding only after the rebuilding is completed and the mortar has been allowed to cure for eight (8) days minimum. Clean surfaces free of all dust, dirt and mortar stains as described in this section.

3.5 REPOINTING

A. Any masonry unit damaged during the repointing process shall be replaced by the Contractor at no additional cost to the Owner. Repoint the deteriorated masonry mortar joints as designated on the Contract Drawings.

B. Cut and point one hundred percent (100%) of masonry mortar joints where shown on the Contract Drawings..

C. Refer to Technical Notes, Section 7 of the Brick Industry Association concerning methods and materials for tuck pointing repairs.

D. Remove existing mortar to a depth of at least three-quarter inch (¾") in the areas to be repointed. Removal shall be accomplished using hand and power tools so as not to damage the existing masonry. Remove both horizontal and vertical joints. Brush the joint clean of all loose mortar and dust and wet the exposed surface down with a light water spray. Keep exposed surface damp throughout procedure.

E. Utilize rotary mixers when fabricating mortar. Be sure to maintain relative proportions of mortar materials to provide the texture and color to match the existing mortar. No antifreeze compounds or other substances shall be added to the mortar. Mix dry ingredients before adding water. Mix all mortar for at least three minutes (3 min.) and not more than five minutes (5 min.) with the minimum amount of water to produce a workable consistency. The maximum allowable air content of cured mortar shall be twelve percent (12%) by volume. Retempering of mortars that have stiffened because of evaporation of water will be allowed in order to provide the proper consistency, provided all mortar in a batch is utilized within two hours (2 hrs.) of initial mixing.

F. Pre-hydrated mortar shall be used for tuck pointing of masonry. Add only a sufficient amount of water to produce a damp mass of such a consistency that it would retain its form when pressed into a ball with hands but will not flow under a trowel. Allow mortar to stand for not less than one hour (1 hr.) nor more than two hours (2 hrs.). Be sure that the color and texture sample of the cured mortar has been viewed and approved by the Owner.

G. Work mortar into prepared joints for complete width and depth. Consolidate and tool into joint using concave tooling equipment to completely fill the joint cavity and to match the existing joint profile. Repoint rebuilt masonry areas along with the existing. Repointed masonry shall be raked or concave as required to match the existing wall mortar joints.

H. Protect areas of repointing from inclement weather during cure.

I. Allow repointing areas to fully cure prior to masonry cleaning as described in this section.

3.6 TEMPORARY SHORING

A. It is the responsibility of the Contractor to design, erect, and maintain all necessary shoring procedures sufficient to comply with applicable regulations, securely support all masonry or other elements left unsupported by the required removals and permit the work of other trades to proceed.

B. If cracks occur in mortar joints of brick intended to remain, completely stabilize the area with additional shoring or new construction, cut out the damaged joint area and repoint it after removal of shoring. Secure the Engineer's approval of repair.

C. Solidly patch all holes (with new mortar) left in mortar by withdrawal of shore fastenings.

D. Completely remove shoring system when no longer needed.

E. Notify the Owner forty-eight hours (48 hrs.) in advance of installation of shoring.

F. The maximum spacing of temporary shoring vertical supports shall be twelve inches (12") on-center.

G. The additional of temporary lateral bracing or blocking between vertical shoring elements is required.

H. A sequenced shoring scheme is recommended at all shoring applications. The minimum length of remaining solid masonry wall located between each removed masonry section shall be four feet (4').

I. Masonry and flashing replacement work must be completed in the same day that existing components are removed unless adequate temporary weather protection is provided to the satisfaction of the Owner and Engineer. Submit the intended demolition, shoring, and construction sequencing to accommodate this requirement. Submit the means and methods of temporary weather protection to include materials and methods of fastening or securing.

J. Submit the means and methods of temporary protection to low roof areas and their components.

K. Submit the means and methods of temporary covering or masking of wall and roof penetrations, grills, vents, and mechanical units.

L. All temporary shoring of the brick masonry components to complete the masonry and flashing repairs will be the sole responsibility of the masonry Contractor. The Contractor must supply, install, and maintain all temporary shoring for the duration of the project.

3.7 SEALANT INSTALLATION

A. Install sealant where shown on the Contract Drawings and as required for the proper completion of the work.

B. Clean and prime substrates in strict accordance with sealant manufacturer's requirements.

C. Precondition sealants to a temperature between sixty- and seventy degrees Fahrenheit (60ºF - 70ºF) or as required by the manufacturer. Apply sealant to clean dry surfaces only when the ambient temperature is between sixty- and eighty-five degrees Fahrenheit (60ºF - 85ºF).

D. Joint primer shall be applied to all properly prepared, cleaned, and dry substrates. Primer shall be approved by the sealant manufacturer for each substrate and shall be completely compatible with the existing materials and proposed sealants and accessories.

E. Sealant shall have a minimum application life of three hours (3 hrs.) after mixing.

F. Unless otherwise required by the sealant manufacturer, the sealant shall be mixed for a period of six minutes (6 min.) minimum with a slow speed electrical drill and mixing paddle. The sides of the container shall be repeatedly scraped to ensure adequate mixing.

G. Sealant shall be applied to clean, dry, joints by knife, trowel, manual or air pressure caulking guns using proper nozzle sizes.

H. All joint sealant shall be immediately tooled to assure full adhesion. Sealant shall be dry tooled, straight, uniform, smooth, and neatly finished to the profiles detailed. No soaps, wetting of slicking agents will be allowed.

3.8 MASONRY CLEANING

A. Totally clean all repaired, or repointed masonry areas of all construction stains and excess mortar. Do not perform any cleaning until mortar joints and adjacent sealants are fully cured.

B. Test the specified cleaners on a small area of masonry wall to determine compatibility with the masonry, window units, sealants, etc. Evidence of discoloration, metallic salts or other detritus shall be grounds for requiring the use of a substitute cleaner.

C. The Contractor will be required to clean the masonry units with the minimum cleaning solution mix ratios as recommended by the cleaner manufacturer. Should the minimum dilution ratios not clean the masonry, the Contractor will be required to slightly decrease the dilution rates to clean the surfaces. It is recommended that the

Contractor use care when performing the masonry repairs to prevent increasing the mixing solutions.

D. Apply the cleaner at the manufacturer's recommended dilution rate and dwell duration. Pre-wet the wall if the manufacturer so recommends.

E. Allow the cleaner to stand for the manufacturer's recommended dwell period while monitoring to ensure that the surface does not dry. Steel bristle wire brushes are not to be used.

F. Rinse all cleaner from the wall with water applied at the manufacturer's recommended flow and pressure. High pressure washing equipment may be required. Coordinate activities so that the Architect may witness and approve a mockup cleaning with the use of the proper spray tip and high-pressure equipment. Any acid neutralizing agent required by the manufacturer shall be applied as part of this rinse. Ensure that effluent does not accumulate at ground level, and fully rinse all effluent from sidewalks, streets and landscaping each day.

G. The Contractor must provide sufficient site protection to prevent the cleaning effluent from draining into the adjacent storm drains. The Contractor will provide a narrative as to how the site protection will be performed.

3.9 CLEANUP

A. Prior to acceptance of the masonry work covered in this section, the Contractor shall perform a thorough clean-up of the work site, building surfaces, landscaping, etc. Any plantings or other items damaged shall be repaired or replaced to the satisfaction of and at no additional cost to the Owner.

END OF SECTION

ASPHALT SHINGLE REPAIRS

SECTION 07 31 13

PART 1 - GENERAL

1.1 IN GENERAL

A. The General Conditions and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 1 for additional information.

1.2 SCOPE OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, tools and appliances necessary for the proper completion of the work in this section, as required in the specification and in accordance with good construction practice. The work under this Section includes, but is not limited to, the following:

A. Supply all shoring and protection necessary to protect the building areas, building systems and landscape areas.

B. Supply all necessary chutes, disposal facilities, transportation and labor necessary to dispose of all demolished materials, dirt, and debris off-site in a legal dumping area. The Contractor shall obtain all permits necessary to transport and dispose of all materials, rubbish and debris.

C. Remove and replace individual cracked, broken, or missing asphalt shingles.

D. Provide temporary protection of roof systems below.

E. Clean and restore all areas affected by the work.

1.3 REFERENCES

A. National Roofing Contractors Association (NRCA) Roofing Manual: Steep-slope Roof Systems.

B. Refer to the Residential Asphalt Roofing Manual and all recommendations of the Asphalt Roofing Manufacturers Association for the installation of roofing and flashing at this project.

1.4 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions

B. The Contractor shall submit the following procedural items with their submittal package:
   1. Methods of removal of materials
   2. Temporary protection procedures
   3. List of local emergency numbers
   4. Staging/set-up procedures

C. The Contractor shall submit the following samples with their submittal package:
   1. Color samples of asphalt shingles
   2. Manufacturer's literature
   3. Shingle manufacturer's installation instructions

D. Provide the manufacturer's product and installation literature for each item listed in Part 2 and other material anticipated for use on the project, for approval. Shop drawings are required indicating any anticipated changes.

1.5 QUALITY ASSURANCE

A. Fire-Resistance Characteristics: Where indicated, provide asphalt shingles and related roofing materials identical to those of assemblies tested for fire resistance per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1.6 JOB CONDITIONS

A. Carefully coordinate the work in this section with the work in other sections to be sure the Contract Areas are in weather tight condition at the end of each day's work. This includes flashing work.

B. All surfaces to receive shingle roofing or flashings shall be thoroughly dry. Should surface moisture such as dew exist, the Contractor shall provide the necessary equipment to dry the surface prior to application of roofing materials. No open flames will be allowed.

C. Completed roof areas shall be trafficked as little as practical. Work shall be coordinated to prevent this situation by working toward the roof edges and access ways. The Contractor shall provide protection for existing roof areas trafficked during construction.

D. Prior to, and during, asphalt shingle installation, all dirt and debris shall be removed from surfaces by sweeping and/or by similar methods.

E. The Contractor shall take all precautions to properly install the specified materials at cold temperatures. Consult with and follow all manufacturer requirements.

Materials which have a temperature other than the recommended application temperature of the manufacturer shall not be installed.

F. The Contractor shall provide and equip as much labor force as is necessary to complete the project within the Contract period and in accordance with the Contract Documents without sacrificing workmanship quality.

G. Materials, equipment, and demolition debris shall not be stored on roof decks in such a manner as to overstress and/or damage the existing composite panels, deck and supporting structure. Placing of loads at midspans of framing shall be avoided. Superimposed loads shall be well distributed and shall not exceed twenty pounds per square foot (20 psf) at any given point of the roof at any time during the construction. Equipment, apparatus, construction materials, and demolition debris shall not, in any case, be allowed to load the roof structures in combination with any standing snow or ice upon the roofs.

H. The Contractor will be responsible for providing the staging/scaffolding required to access the roof area to perform the work.

I. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by his work and segregate the work area(s) from pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

J. All new and temporary construction, including equipment and accessories, shall be secured from vandalism or abuse.

K. Stored shingle bundles are not to be stacked more than six feet (6') high. Rolled underlayments shall be stored on ends, not laid flat.

L. The Contractor shall provide all necessary temporary protection and barriers to segregate the work area and to prevent damage to adjacent areas.

M. Under no circumstances shall the Contractor remove existing materials and systems to the ground in an uncontrolled manner. Adjacent building and property areas shall be protected from airborne debris.

PART 2 – PRODUCTS

2.1 ASPHALT SHINGLES AND BITUMINOUS ROOFING MATERIALS

A. Asphalt shingles shall be 3-Tab type, algae-resistant, asphalt-impregnated fiberglass type with a granule surface, with size and shape to match the existing asphalt shingles. Shingles shall have a wind speed rating of sixty miles per hour (60 mph) or greater. Shingles shall be self-sealing with a U.L. 790 Class "A" fire rating classification, conforming to requirements of ASTM D3018, Type I. Shingles shall also conform to ASTM D3462, ASTM D3161; Class F. Color shall be selected

from manufacturer's standard color chart by Owner. Shingles shall meet the minimum specifications herein or shall be manufactured by CertainTeed, GAF Building Materials Corporation, Owens Corning, or an approved equal.

2.2 ACCESSORIES

A. Nails for asphalt shingles shall be hot dipped galvanized, ring shank large head roofing nails, one- and one-quarter inch (1-1/4") long minimum.

B. Where nails are in contact with metal flashing, use nails made from same metal as flashing

PART 3 – EXECUTION

3.1 GENERAL WORKMANSHIP

A. The prepared existing roof surface must be dry, clean, and smooth with no obtrusions or irregularities.

B. Comply with the manufacturer's written instructions and these Specifications for all renovations and associated work.

C. Handle materials to prevent damage to building components and project site areas.

D. Flashings shall be installed along with roof systems to assure weathertight termination.

E. Do not cut any material with a solvent or dilutant unless specifically instructed by the manufacturer in writing

3.2 PROTECTION OF ROOF SURFACES

A. Equipment (i.e. staging) and techniques shall be used which prevent damage to the roof as a result of foot or material traffic. The progression of work shall be laid out and presented to the Owner and Engineer to prevent other trades from working on or above completed roofing. Personnel who are working on the roof shall have proper shoes which will not damage the asphalt shingles, and shoe soles shall be made of a material which will aid in preventing falls

3.3 REMOVAL OF EXISTING SHINGLES

A. All existing asphalt shingles included in this Contract shall be removed down to the existing plywood roof sheathing. The Contractor shall follow the recommendations published in the NCRA Roofing Manual – Steep-slope Roof Systems.

B. Remove only as many shingles and flashings that can be made weathertight the same day. The entire existing asphalt shingle roof system shall be removed prior to the installation of the new shingle system.

C. Should damaged new shingles be encountered as a result of trafficking the roof system and where work involves partial replacement or repair of the roof, the Contractor shall remove and replace the damaged units at no additional cost to the Owner.

3.4 PREPARATION OF EXISTING ROOF DECK

A. The Contractor shall inspect the roof deck following removal of the existing roof systems. Deck areas found to have surface defects or otherwise unsuitable shall be repaired. Determination and extent of repairs shall be made by the Owner and Engineer. Do not cover over areas of unsuitable decking.

B. Ensure that surfaces to receive the roofing are clean, thoroughly dry, and free from loose boards, and projecting ends that might damage the roofing. Provide the necessary equipment to dry the surface prior to application should surface moisture such as dew exist. Do not dry with open flames.

C. Foreign particles shall be cleaned from interlocking areas to ensure proper seating and to prevent water damming. Prior to installation of vents and other projections through roofs shall be properly flashed and secured in position, and projecting nails shall be driven firmly home.

D. Re-nail any loose or unsecured sheathing to the framing prior to the installation of new materials.

E. Clean deck surfaces using brooms, air spray or other means necessary to provide a clean, smooth, uniform deck.

F. Install shingles in accordance with manufacturer's instructions and these specifications. Remove manufacturer’s cellophane protection strip from bottom surface of shingles to expose wind tab sealants.

G. Apply a starter course of shingles with the five-inch (5") exposure surface cut off. Install bottom edge of starter course overhanging the sheet metal counterflashing four inches (4”). Nail all shingles to deck at top of tabs and one-inch (1") in from each side along a line one- and one-half inches (1-1/2") above the lower edge install two (2) nails on-center (six [6] nails per shingle). Install asphalt roofing cement at each shingle as indicated on the Contract Drawings.

H. Beginning at the starter course, install asphalt shingles. Apply subsequent courses of shingles allowing a five-inch (5") weather exposure of the course below. Stagger butt joints six inches (6") minimum between courses.

I. Remove six inches (6”) from the end of the first (1st) shingle in the second (2nd) course to be installed. Remove twelve inches (12”) from the end of the first (1st) shingle in the third (3rd) course, eighteen inches (18”) from the end of the first (1st) shingle in the fourth (4th) course and so on. The first (1st) shingle in the seventh

(7^{th}) course will be a full shingle. Do not “rack” shingles by installing them with the end joints aligned over alternate courses.

J. Nail all shingles at third points and one-inch (1") in from each end along a line five-eighths inch (5/8") above the five-inch (5") exposure. Install two (2) nails at center point for a total of six (6) nails per shingle. Nails shall be below the line of wind seal adhesive. Trim to extend beyond the rake edge by one-quarter inch (1/4") and as required to neatly extend existing rake lines.

K. Each course of shingles shall be installed neat and straight with no visible variation between adjoining shingles or cut-out lines. Utilize chalk lines, tape measures.

L. Partial shingles may be used only along roof to wall or edge locations, as required to stagger butt joints and shingle cutouts or as required to properly tie-into adjacent shingle roofing to remain.

M. Apply the plastic cement to each of the shingle tabs.

N. Ridge Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

O. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

END OF SECTION

ELASTOMERIC ROOFING AND FLASHING

SECTION 07 53 00

PART 1 – GENERAL

1.1 IN GENERAL

A. The General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all sections within Division 1 for additional information.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 04 50 00 – Masonry
B. Section 07 31 13 – Asphalt Shingles
C. Section 07 62 00 – Sheet Metal Flashing and Trim

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, materials, equipment, shoring, temporary protection, tools, and appliances necessary for the proper completion of the work in this Section, as required in the Specifications, in accordance with good roofing practice, and as required by the materials manufacturer, as amended. The work under this Section generally includes the following:

A. Supply all necessary chutes, disposal facilities, transportation, and labor necessary to dispose of all demolished materials, dirt, and debris off-site in a legal dumping area. The Contractor shall obtain all permits necessary to transport and dispose of all materials, rubbish, and debris.

B. Coordinate this work with all other trades to provide orderly progress of work.

C. Supply all shoring and protection necessary to protect the building areas, building systems and landscape areas.

D. Coordinate the disconnection, removal, relocation, and reinstallation of mechanical units, conduits, ductwork, equipment, etc.

E. Install nine-inch (9”) wide elastomeric stripping membrane at field membrane seams.

F. Install sheet metal flashings, including but not limited to, counter flashings, skirt flashings, hook strips and clips to properly terminate the roofing membrane and shed water from walls. Coordinate with Section 07 62 00 – Sheet Metal Flashing and Trim.

G. Install new gutter, downspout and splash blocks where indicated on the contract documents. Splash blocks to be installed at all downspout discharge location. Coordinate with Section 07 62 00 Sheet Metal Flashing and Trim.

H. Clean and restore all areas affected by the work to the satisfaction of the Owner.

1.4 SPECIAL JOB CONDITIONS

A. Schedule and execute all work without exposing the building interiors to inclement weather. Protect all new and existing roof work, the building, and its contents from staining and damages. Segregate all work areas from the building occupants.

B. The Contractor shall utilize skilled and experienced specialty workers to install the work. Experienced trade workers shall be utilized for all aspects of the work.

C. The Contractor shall provide all protection, barriers, and guards necessary to segregate their work area, and the areas below, from pedestrian and vehicular traffic. Also protect existing roof areas, equipment, landscaping, and paved areas from damage.

D. All surfaces to receive new membrane or flashings shall be thoroughly dry. Should surface moisture such as dew exist, the Contractor shall provide the necessary equipment to dry the surface prior to application. No open flames shall be permitted on the roof at any time.

E. Remove only as much existing roofing as can be replaced and made weather tight each day, including all flashing work.

F. Roofing shall not be applied when ambient temperature is less than forty degrees Fahrenheit (< 40ºF) unless approved in writing by the Engineer and membrane manufacturer.

G. All new and temporary construction, including equipment and accessories, shall be secured from wind damage or blow-off.

H. Equipment required to hoist materials to the roof and remove debris from the roof shall be supplied, maintained, and operated by the Contractor.

I. The Contractor shall provide protection for sitework, plantings, landscaping, building surfaces, interior spaces, and similar items to protect from damage. Items damaged as a result of the work in this section shall be repaired or replaced by the Contractor to the satisfaction of and at no additional cost to the Owner.

J. The Contractor shall clean all debris which may infiltrate through the roof decking into the interior prior to demobilization from the site. This shall include, but not be limited to, floors, cabinets, and drop ceilings.

K. The Contractor shall notify the Owner at least seventy-two hours (72 hrs.) in advance of doing any interior demolition work so that the Owner may provide entry into required areas.

L. No removal, replacement, repair or covering of potentially deteriorated roof deck shall be performed without authorization from both the Engineer and Owner.

M. The Contractor is cautioned to take all necessary precautions and make all investigations necessary to install the work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.5 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions.

B. The roofing system must meet the intent of UL 790, Class A, be in conformance with all local and state building codes, and be accepted by the manufacturer for the required warranty.

C. The Contractor shall provide adequate staging and protection of the interior building as required to perform the work. Provide submittals for site protection and staging.

D. Provide the manufacturer's product and installation literature for each item listed in Part 2 for approval. Shop drawings are required indicating any anticipated changes.

1.6 QUALITY CONTROL

A. Roofing Contractor's Experience Requirements: The Roofing Contractor shall be experienced, to the satisfaction of the Owner and Engineer, in the installation of warranted, single-ply roofing systems. Minimum required experience involves the successful installation of at least five (5) projects of similar scope, size, and complexity where the Roofing Contractor has installed the Manufacturer's adhered single-ply roofing assemblies, within the past three years (3 yrs.). All such references must be available for inspection by the Owner and Engineer, as may be requested. Provide the following submittal information:
   1. Name, address and contact person of each of the five (5) projects being used as a reference.
   2. Copies of Roofing Material Manufacturer's warranties, showing dates and square footage for each of the five (5) referenced projects.
   3. Written letter of "Certification" or "Approval" from the Roofing Materials Manufacturer showing that the Roofing Contractor has been "Certified" or

"Approved" by the Roofing Materials Manufacturer for a minimum of three years (3 yrs.)

1.7 TESTING PROCEDURES

A. During the course of the work, the Owner (or designated representative) may secure samples, in accordance with testing guidelines defined within ASTM D140, of materials and completed roofing being installed at the job site and submit them to an independent laboratory for comparison to the material performance requirements listed in these specifications.

B. Should test results prove that materials and/or completed roofing do not meet-or-exceed the performance requirements listed within these specifications:
   1. Contractor shall pay for all testing.
   2. Construction installed and found not to comply with the specifications shall be removed and replaced at no change to the contract price.

1.8 WARRANTY AND GUARANTEE

A. Roofing Contractor's Guarantee: Upon completion of the work, and prior to final payment, the Contractor shall submit a Guarantee of his work to be free from defect in materials and workmanship. his Guarantee shall be for a period of two years (2 yrs.), and shall be signed by a Principal of the Contractor's firm, and sealed if a corporation. In the event any work related to the roofing, flashing, or metal work is found to be defective within two years (2 yrs.) of substantial completion, the roofing contractor shall remove and replace such at no additional cost to the Owner. The roofing Contractor's warranty obligation shall run directly to the building Owner, and a copy of the roofing signed warranty shall be sent to the roofing system's manufacturer.

PART 2 – MATERIALS

2.1 ROOFING AND FLASHING MEMBRANES

A. Stripping shall be six-inch (6") or nine-inch (9") wide semi-cured EPDM self-adhering seam cover strips (minimum thickness: sixty millimeters [60 mils]) as manufactured by Carlisle SynTec Systems, Inc., Elevate or Versico Incorporated.

B. Flashing membrane to be used at corners of walls or penetrations shall be of the same manufacturer as the roof membrane and shall be 0.060" thick uncured elastomer completely compatible with all other components used in the new roofing system. Cured membrane shall be used at straight flashing runs. Seams shall be stripped-in with uncured membrane.

C. All materials and accessories used to install the roofing and flashing membrane systems shall be of the same manufacturer as the sheet membrane. These materials include, but are not limited to, the following:
   1. Surface cleaners and primers.
   2. Bonding adhesive.
   3 Splicing cement.
   4. Lap Sealant.
   5. Mastics.
   6. Caulkings and sealants.
   7. Membrane termination strips, bars, plates, and fasteners.

D. All membrane manufacturer's required details shall be considered a part of this project and incorporated into the project details by the Contractor.

2.2 FASTENERS AND ACCESSORIES

A. In general, fasteners, straps and other hardware shall be copper, brass, stainless steel, or hot-dip galvanized steel. Galvanizing shall be per ASTM A 153-82 specifications.

B. All accessories, including, but not limited to nails, screws, clips, fastening strips, etc. shall be completely compatible with the material being fastened to prevent galvanic reaction and premature deterioration.

C. Nails for membrane and flashing terminations shall be No. 12 Stubbs gauge, large head, threaded shank, hot dip galvanized roofing nails of sufficient length to penetrate the wood blocking one- and one-quarter inch (1-¼") minimum

D. Fasteners for terminating roof membrane and flashing at concrete or masonry substrates shall be minimum one- and one-half inches (1-½") long drive pins in zinc sheaths as manufactured by Star, Rawl or approved equal. Embedment into masonry shall be one- and one-quarter inch (1-¼") minimum.

E. Fasteners for securement of flashings, and hook strips to wood blocking and plywood substrates shall be galvanized annular threaded ring shank nails. Fasteners shall be of sufficient length to penetrate the substrate one- and one-quarter inch (1-¼") minimum, except full depth of plywood.

2.11 SEALANTS AND ACCESSORIES

A. Sealant for sheet metal flashings and other exposed locations shall be a one-part polyurethane conforming to ASTM C920-87, Type S, Grade NS, Class 25, Uses NT, M, A, and O such as manufactured by Tremco, BASF-Sonneborn, Sika Corp., or approved equal.

B. Color(s) shall be selected by the Owner from the approved manufacturer's color chart. Colors shall be the manufacturer's available premium colors such as "Color Pak" by Tremco or approved equal.

C. Primer shall be non-staining type as manufactured or recommended by the sealant manufacturer for each substrate.

D. Substrate cleaner shall be non-corrosive and non-staining as recommended by the sealant manufacturer. Cleaner shall be totally compatible with the sealant for each substrate.

E. Bond breaker tape shall be pressure-sensitive tape as recommended by the sealant manufacturer.

F. Masking material shall be commercially available masking tape of appropriate width or other material recommended by the sealant manufacturer. Self-adhesive masking materials shall be of low tack and completely strippable, leaving no adhesive residue behind when removed.

PART 3 - EXECUTION

3.1 GENERAL WORKMANSHIP

A. Do not deliver to site or install any material or system that has not been approved by the Engineer or Owner. Materials installed without approval may be required to be removed at no additional cost to the Owner.

B. The prepared roof deck surface must be dry, clean, and smooth. Provide dryers, if necessary, to dry deck surfaces prior to installing new work. Open flame devices shall not be used.

C. Maintain temporary protection of the new and existing roof system throughout the duration of the project. The roof system will be cleaned to the satisfaction of the Owner and Engineer prior to final payment. All areas of stained membrane will be cut out and replaced by the Contractor at no additional cost to the Owner. Multiple patches in close proximity will not be acceptable and will require one (1) large patch.

D. Comply with the manufacturer's written instructions and these specifications for all roof repairs and associated work. Flashing shall be installed along with the membrane to assure weather tight termination.

E. Do not cut any material with a solvent or dilutant unless specifically instructed by the manufacturer in writing.

F. Keep covers tightly sealed on all canned and evaporative products to prevent premature curing.

G. Partial or unmarked cans or rolls of materials cannot be used.

H. Do not store rolls of membrane or flashings on the roof without the written consent of the Engineer and Owner.

I. Refer to the publication, "Copper and Common Sense" by Revere Copper and Brass and all recommendations of the Sheet Metal and Air Conditioning Contractors National Association concerning methods and materials to be used in the fabrication and construction of sheet metal flashings.

3.13 MEMBRANE FLASHING

All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the job progresses. The Contractor shall arrange his schedule, as much as practical, to install complete distinct roof areas each which, once flashed, will then be installed completely. No temporary membrane flashings shall be allowed without the prior written approval of the Engineer. Approval will only be for specific locations on specific dates.

A. Ensure that all air intakes and air handling units have been shut off or temporary protected to prevent adhesive fumes from infiltrating the building.

B. Ensure that all substrates are free from contaminates prior to the installation of the new flashing membranes. Install the manufacturers' buffer or protection sheets as required.

C. Cured membrane shall be used for flashing purposes as much as practical. Uncured sheets are to be used at inside and outside corners, seams in flashings or at any other location where forming of membrane flashings is required.

D. Flashing sheet shall be spliced to the membrane first, and then bonded to the mating surface. Totally clean the roof membrane area to receive flashing sheet using new, clean rags and manufacturer's splice wash cleaner. All talc, dirt, excess bonding adhesive and other foreign material shall be totally cleaned from the roof membrane sheet. Clean all seam areas at least twice in two (2) separate applications with new rags and cleaner each time. After cleaning, apply splicing cement to both the underside of the flashing sheet and the prepared roof membrane for a width of minimum six inches (6"). Be sure cement is not on bonding adhesive areas.

E. Apply bonding adhesive to surface of wood, metal, masonry or other material or surface to be flashed. Also apply bonding adhesive to flashing membrane making sure bonding adhesive is not applied to splice area of flashing and using longest possible lengths of flashing membrane. Apply bonding adhesive using rollers or brushes one hundred percent (100%) to all surfaces at a smooth, uniform rate, free

of holidays, light spots, globs, or similar irregularities, at the manufacturer's application rate. Allow two (2) surfaces of adhesive to dry to a tacky condition, such that adhesive does not stick or string when touched with a dry finger. After bonding adhesive has set on both surfaces, roll flashing onto surface carefully to prevent wrinkles, fishmouths, bridging or similar flaws. Unless otherwise detailed, top of membrane flashings must be minimum eight inches (8") above the surface of the roof membrane, three-inch (3") minimum above the bottom of metal counterflashings, and minimum three inches (3") past the limits of nail heads or other fasteners. Membrane flashings shall extend the full width of horizontal metal flashing flanges (i.e., gravel stops). After setting, roll membrane into place using a two-inch (2") wide steel roller and heavy hand pressure. Roll one hundred percent (100%) of the surface to assure total adhesion with no wrinkles or bridging. After rolling, splice vertical or side laps of flashing sheet using minimum six-inch (6") wide splices and splicing cement. After applying splicing cement to both mating surfaces of the flashing sheet vertical laps and allowing it to become tacky, roll splice in place as described above.

F. Inside and outside corners and other changes in direction of flashing sheets shall not be butt-type splices at the point of direction change. All flashing sheets shall be jointed past the change in direction. Inside vertical corners shall be folded with no cuts in the sheet at the corner. Folds shall be "pig's ear" type on flashing sheets entering a corner. Splice shall be made sixteen inches (16") minimum away from corner. Outside vertical corners, such as around curb units, shall extend a minimum of two inches (2") around the corner for each flashing sheet. Contour flashing sheets in place with light pressure. Flashing sheet may be heated, if ambient temperature is below sixty degrees Fahrenheit (< 60ºF), in order to work them in place. Heating shall be done with heat lamp or air gun. No open flames can be used. All flashings shall be installed in accordance with the approved shop drawings and manufacturer's instructions, unless amended. Flashings shall be turned up and over the tops of curbs as much as practical.

G. Membrane flashing terminating on a vertical surface shall be mechanically fastened to the substrate.
   1. On wood surfaces, termination bars and flashings shall be secured with the specified large head roofing nails spaced six inches (6") on-center maximum or as specifically required by the membrane manufacturer.
   2. On masonry surfaces, termination bars and flashings shall be secured using the specified drive pins through predrilled holes spaced eight inches (8") on-center maximum or as specifically required by the membrane manufacturer.

H. Strip in all metal flanges such as gravel stops and vents with EPDM. Two-ply stripping to be used by applying a six-inch (6") wide strip of flashing over which a nine-inch (9") wide strip is to be applied. Uncured membrane shall be utilized where required by the manufacturer or by detail conditions. Stripping shall be

continuous over the entire flange and extend onto the membrane six-inch (6") minimum.

I. Strip in all roof to wall terminations where new membrane will terminate below the existing membrane wall cladding with EPDM. Uncured membrane shall be utilized where required by the manufacturer or by detail conditions. Stripping shall be continuous over the entire flange and extend onto the membrane three-inch (3") minimum on each side of the lap.

J. Strip in all field seams with EPDM with a single nine-inch (9") wide EPDM stripping membrane. Uncured membrane shall be utilized where required by the manufacturer or by detail conditions. Stripping shall be continuous over the entire seam and extend onto the field membrane four-inch (4") minimum.

K. Lap sealant shall be applied daily along all edges of membranes which terminate on the horizontal, gravel stops and similar locations. After proper installation of membrane flashings, clean the area of the lap with the manufacturer's recommended cleaner and apply continuous bead of lap sealant to all seams, including vertical laps of the flashings. Feather the sealant bead using the preformed trowel. Should uncaulked seams be found to have weathered beneath ponding conditions, the Contractor will be required to strip-in these seams with six-inch (6") stripping as required by the Owner.

3.16 SHEET METAL FLASHINGS

A. Refer to Section 07 62 00 – Sheet Metal Flashing and Trim.

3.21 CLEANUP

A. All floor, site, and adjacent areas, both interior and exterior, damaged, or stained by the installation of the roofing work shall be repaired and cleaned of all dust, debris, and any other materials to the Owner's satisfaction.

B. The Contractor shall not demobilize the site until the completed work is toured by the Owner and Engineer. Any unsatisfactory items observed will be reported in "punch-list" form. These items shall be corrected immediately by the Contractor prior to demobilization from the job site. Final payment will not be made until all punch list items are complete and guarantees have been received.

C. All scaffolding, barriers, temporary facilities, and the like shall be removed upon completion of the work. Areas damaged as a result of the Contractors equipment shall be restored to their original condition, all to the satisfaction of the Owner.

END OF SECTION

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SHEET METAL FLASHING AND TRIM

SECTION 07 62 00

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The General Conditions and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 1 for additional information.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 04 50 00 – Masonry
B. Section 07 53 00 – Elastomeric Roofing and Flashing

1.3 DESCRIPTION OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, tools and appliances necessary for the proper completion of the work in this section, as required in the specification and in accordance with good construction practice. The work under this Section includes, but is not limited to, the following:

A. Supply all necessary chutes, disposal facilities, transportation, and labor necessary to dispose of all demolished materials, dirt, and debris off-site in a legal dumping area. The Contractor shall obtain all permits necessary to transport and dispose of all materials, rubbish, and debris.

B. Provide all necessary underlayment, miscellaneous flashing, attachment clips, and closure members to ensure a weathertight installation.

C. Install new sheet metal flashings and trim as shown on the Contract Drawings, and as required to properly terminate the membrane.

D. Install counter-flashings at roof membrane terminations.

E. Install blind nailers at vertical sheet metal termination locations.

F. Install new gutter, downspout and splash blocks where indicated on the contract documents. Splash blocks to be installed at all downspout discharge location.

G. Complete all associated work.

H. Clean and restore all areas affected by the work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Install roof edge flashings capable of resisting the Wind Zone forces required by Code according to recommendations in FMG Loss Prevention Data Sheet 1-49.

C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120ºF, ambient; 180ºF material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
   1. Identify material, thickness, weight, and finish for each item and location in Project.
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
   3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
   4. Details of expansion-joint covers, including showing direction of expansion and contraction.

C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
   1. Sheet Metal Flashing: Twelve inches (12”) long Include fasteners, cleats, clips, closures, and other attachments.
   2. Trim: Twelve inches (12”) long Include fasteners and other exposed accessories.

3. Accessories: Full-size Sample.

D. Contractor to provide site safety plan and Job Hazard Analysis.

1.6 MOCK-UP TEST AREAS

A. Before full scale work is commenced, execute the following work for trial work areas to be reviewed by the Owner as to acceptability of color, texture, and appearance match with the existing construction. Test areas will be at locations established by the Owner.

B. Trial areas shall be repeated until acceptable results are obtained, and the accepted areas shall be a standard for all subsequent work. Construction of test areas shall be in conformance with all Contract Documents and shall use only submitted materials.

C. Each mock-up shall be a minimum of two feet by two feet (2’ x 2’) where applicable and shall include all components of the roofing system.

1.7 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.
1. Meet with the Owner, Designer, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, and roof-mounted equipment.
2. Review methods and procedures related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.9 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leak proof, secure, and noncorrosive installation.

1.10 WARRANTY AND GUARANTEE

A. Upon completion of the work, and prior to final payment, the Contractor shall submit a Guarantee of his work to be free from defect in materials and workmanship. This Guarantee shall be for a period of two years (2 yrs.) and shall be signed by a Principal of the Contractor's firm and sealed if a corporation.

B. Finish Warranty: Twenty years (20 yrs.) for aluminum sheets.

PART 2 - PRODUCTS

2.1 SHEET METALS

A. Aluminum shall be 0.032", 0.040'', 0.050", and 0.063" thick Kynar 500 Fluoropolymer painted aluminum as shown on the Contract Drawings. Color(s) to be selected by the Owner. Aluminum shall have a mill finish for concealed items. Aluminum shall be 3003 alloy, H-14 temper.

B. Plain copper shall be 20 oz. cold rolled sheet conforming to ASTM B-101078, Type I, Class A specifications. Sheet length shall not exceed 8' maximum.

C. All accessories, including but not limited to nails, screws and clips shall be stainless steel or galvanized steel and completely compatible with the surrounding metal to prevent galvanic reaction. Galvanizing shall be per ASTM A153-09.

D. Termination bars shall be one-eighth inch by one-inch (⅛" x 1") stainless steel or aluminum bar (as required to prevent galvanic action with the flashings being secured) with pre-punched holes at six inches (6") on-center, or as required by the membrane manufacturer.

E. Rivets shall be three-sixteenth inch (3/16") diameter stainless steel as required by the metal being secured.

F. Sheet metal flashings shall be shop fabricated. All breaks, bends, and hems shall be uniform, clean, straight lines.

1. All aluminum joints shall be adequately overlapped, back-sealed, and riveted.
2. Flanges shall be four-inch (4") wide minimum.
3. Drip edges shall be hemmed three-quarter inch (¾") wide and break at a thirty degree (30^{o}) angle.
4. Clips shall be two-inches (2") wide.
5. All flanges to be covered with roofing or flashing membranes shall have a one-quarter inch (¼") minimum hem on the edge.
6. All sheet metal joints shall have six-inch (6") wide cover and backer plates.
7. Blind nailers shall be four inches (4") wide folded to a two-inch (2") wide final dimension.
8. Fascia reveals shall not exceed eight inches (8"). Fascia requiring a greater vertical face than eight-inch (8") shall be fabricated as a two-piece system with each face of equal exposure.

2.2 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.

C. Sealing Tape: Pressure-sensitive, 100% solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, non-toxic, non-staining tape.

D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

F. Slip sheet shall be fifteen-pound (15-lb.) red rosin paper.

2.3 FABRICATION SCHEDULE

A. Note: similar flashing components have been listed under multiple metal fabrications type and thicknesses. The Contractor shall coordinate the use of compatible metals to prevent galvanic corrosion and coordinate painted finish components at visible locations.
   1. 0.032" Thick Coated Aluminum:
      a. Blind Nailers

2. 0.040" Thick Coated Aluminum:
   a. Gutter
   b. Downspout
3. 0.050" Thick Coated Aluminum:
   a. Edge Fascia
   b. Aluminum Closure
4. 20 oz. Copper:
   a. Two-inch (2") Wide Clips
   b. Blind nailers
   c. Reglet Flashing
   d. Counterflashing

2.4 GUTTER AND DOWNSPOUT

A. Downspout straps, spacers shall be heavy weight aluminum one-quarter inch (¼") thick by one-inch (1") wide minimum and shall be secured to the wood blocking, fascia, or structure. Dogs shall have twist to eliminate drips over the edge.

B. Stiffening bars shall be continuous heavy weight aluminum bars one-quarter inch (¼") thick by three-quarters inch (¾") wide minimum. Bars shall be pre-punched to receive through bolts.

C. Screws for downspout straps shall be stainless steel and have one- and one-half inch (1-½") embedment minimum into the substrate.

D. Wire ball strainers for gutter/downspout assemblies shall be stainless steel wire, .018" thick.

E. Splash blocks shall be solid rubber that is UV-resistant and mold-resistant. Blocks to be weighted to not blow or float away after installation. Color to be determined by Owner.

2.5 FASTENERS

A. In general, fasteners, straps and other hardware shall be copper, brass, stainless steel, or hot-dip galvanized steel. Galvanizing shall be per ASTM A 153 specifications. Electro-galvanizing will not be accepted.

B. Fasteners for securement of flashings and hook strips to concrete or masonry shall be one-quarter inch (¼") diameter hammer drive anchors with zinc sheaths and flat heads such as Zamac Nailins by Rawl, Star Fasteners, Unifast, or approved equal. Anchors shall be of sufficient length to penetrate the substrate one and one-quarter inch (1-¼") minimum.

C. Sheet metal to wood blocking connections and mechanical unit securement (exposed securement): Self-drilling, self-tapping, Number 10, stainless steel hex-

head screws, one and one-half inch (1-½") long, equipped with metal capped EPDM washers.

D. Nails for flashing securement at wood substrates shall be No. 12 Stubbs gauge, large head, threaded shank, copper, or galvanized steel nails minimum one-inch (1") long.

E. Fastens for securement of the pre-engineered edge metal shall be recommended by the manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
   1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
   2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
   1. Coat side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip-sheet or install a course of polyethylene underlayment.
   3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.

C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.

E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   1. Space cleats not more than twelve inches (12") apart. Anchor each cleat with two (2) fasteners. Bend tabs over fasteners.

F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of ten feet (10') with no joints allowed within twenty-four inches (24") of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used, or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than one-inch (1") deep, filled with elastomeric sealant concealed within joints.

G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than one and one-quarter-inches (1-1/4") for nails and not less than three-quarter inch (¾") for wood screws.
   1. Galvanized or Pre-painted, Metallic-Coated Steel: Use stainless-steel fasteners.
   2. Aluminum: Use aluminum or stainless-steel fasteners.
   3. Stainless Steel: Use stainless-steel fasteners.

H. Seal joints with elastomeric sealant as required for watertight construction.
   1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than one-inch (1") deep into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between forty- and seventy degrees Fahrenheit (40ºF - 70ºF) set joint members for fifty percent (50%) movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below forty degrees Fahrenheit (40ºF).

I. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of one and one-half inches (1-½") except where pre-tinned surface would show in finished Work.
   1. Do not solder aluminum sheet.
   2. Stainless-Steel Soldering: Pre-tin edges of uncoated sheets to be soldered using solder recommended for stainless steel and phosphoric acid flux. Promptly wash off acid flux residue from metal after soldering.
   3. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

3.3 SHEET METAL FASCIA

A. Fascia flashing systems shall be installed to roof perimeter edges at locations as shown. Ensure that the roof membrane extends behind the hook strips/nailers as shown.

B. Continuous hook strips shall be secured four inches (4") on-center maximum with nails into wood blocking – staggered.

C. Backer and cover plates shall be installed behind all fascia flashing joints. Set flange on roof and nail off with fascia flashing flange.

D. Sealant shall be applied with full beads between backer and cover plate to fascia flashing joint.

E. Fascia flashing flange shall be nailed off over membrane three inches (3") on-center staggered, minimum.

F. Provide blind nailers at exposed ends where fascias meet rising walls as necessary to provide an aesthetic watertight termination of metal flashings.

3.4 COUNTERFLASHINGS

A. Fabricate new counterflashing and receivers to the dimensions and shapes where shown in the Contract Drawings and as specified herein.

B. Secure counter-flashings with clips where indicated. Fabricate and secure clips as previously specified.

3.5 BLIND NAILERS

A. Fabricate and install blind nailers flashing with a two-inch (2") minimum leg inserted behind membrane or sheet metal fascia. Fasten flashing through leg of blind nailers.

B. Fold blind nailer to two-inch (2") wide final dimension with one-half inch (½") hemmed edge over fastener.

C. Provide continuous beads of sealant at back and leading edges.

3.6 CONTINUOUS CLEATS AND HOOK STRIPS

A. Form continuous cleats/hook strips with three-quarter inch (¾") kicks, bent out at a thirty-degree (30°) angle to the face or wall. Height of continuous cleats/hook strips shall be as indicated on the Detail Drawings.

B. Secure continuous cleats/hook strips to wood blocking with the specified fasteners spaced at six inches (6") on-center.

C. Provide one-eighth inch (⅛") butt joints between hook strip sections.

3.7 SECUREMENT CLIPS

A. Secure clips to substrate with the specified fasteners at minimum eight inches (8") on-center, or as indicated on the Detail Drawings.

B. Bend clips a minimum of one-inch (1") over bottom drip edge of flashing and crimp tightly.

C. Coordinate with installation of roofing flashing termination bar.

3.8 GUTTER INSTALLATION

A. Fabricate and install gutter and downspout assemblies where shown on the roof plan.

B. Fabricate gutters in sections not less than ten feet (10') and not greater than thirty feet (30'). Provide expansion joints in gutters that exceed fifty feet (50') long. Lap sections a minimum of four inches (4") in the direction of flow. Join the gutter sections by riveting and sealing joints with the manufacturer's recommended materials.

C. Gutter shall be formed three inches (3") deep by three inches (3") wide minimum.

D. Secure gutter hangers and dogs at twenty-four inches (24") on-center to fascia. Locate hangers and dogs so as to slope gutter to downspout at one-eighth inch (⅛") per foot. Install continuous stiffening bar along outside edge of the gutter as detailed. Connect bar, dogs and hangers with stainless steel through-bolt, nut and washer.

E. Hangers shall be secured with two (2) screws each through fascia and penetrate the wood blocking. Dogs shall be secured with two screws to blocking and stripped in, set in water cut-off mastic.

F. Locate outlet tubes as shown on the Roof Area Plan. Outlet tubes shall extend three inches (3") minimum into downspout. Tubes shall be constructed with a longitudinal seam and the upper edge flanges one-half inch (½"). Flange shall be riveted to the gutter and sealed.

G. Install drain strainers at outlet tubes. Strainers shall fit snugly within the outlet tube.

H. Gutters will be inspected following rain for proper slope to outlet. Sections of gutter not draining properly will be removed and re-hung for proper drainage at no cost to the Owner.

3.9 DOWNSPOUTS

A. Downspouts shall be three inches by three inches (3" x 3") minimum and the full height of the roof elevation. Seams shall face away from the wall and be secured with continuous cover strips as shown on the Contract Drawings.

B. Upper end of the downspout shall be riveted to the scupper outlet tube.

C. The downspout shall be bent in such a manner as to allow for the installation of a cover strip over the outer skin of the unit. The intent of this cover strip is to allow the downspout to expand in the event of obstructions and ice blockage within the system.

D. At scupper outlet, insert outlet tube through scupper and install downspout strainer into unit.

E. Install two (2) two-inch (2") wide securement straps with one-half inch (½") hemmed edges on-center to secure downspouts. Downspouts shall have two (2) straps minimum. Straps shall be installed at top, bottom, and middle of each ten-foot (10') section.

F. Provide forty-five degree (45º) outlet shoe at base of downspout.

3.10 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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