CONTRACT DOCUMENTS

for the

Enfield Cold Storage Garage
for the
Maine Department of Inland Fisheries & Wildlife
Augusta, Maine

BREM# PT3162

Issued Date: August 19, 2022

A.E. Hodsdon Engineers

10 Common St. Waterville, ME
04901 (207) 873-5164
Fax: (207) 872-0645

Contract Documents
For
Enfield Cold Storage Garage
Enfield, Maine
BREM# PT 3162

Prepared by:

A.E. Hodsdon Engineers
10 Common Street
Waterville, Maine 04901

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Project No. 3162

00 11 13
Notice to Contractors

Enfield Cold Storage Garage BGS project number 3162

Construction of a new 40' x 100' cold storage garage

The cost of the work is approximately $ 350,000. The work to be performed under this contract shall be completed on or before the Final Completion date of *01 June 2023*.

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 *Enfield Cold Storage Garage***" and addressed to the Bid Administrator at: Richard.parker@maine.gov, so as to be received no later than **2:00:00 p.m.** on ***09-21-2022***.

   Bid submissions will be opened and read aloud at the time and date noted above at the Department of Inland Fisheries and Wildlife office, accessible as a video conference call. Those who wish to participate in the call must submit a request for access to richard.parker@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: Richard Parker, Director, Engineering Division, Inland Fisheries and Wildlife, 41 State House Station, Augusta, Maine 04333-0041, richard.parker@maine.gov.

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.

00 11 13
Notice to Contractors

7. An on-site pre-bid conference *will* be conducted for this project.
   If a pre-bid conference is scheduled, it is *optional* 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. *11:00 AM, Wednesday September 14th, ,16 Cobb Road, Enfield Maine.*.

8. Bid Documents - full sets only - will be available on or about *09-01-2022* and may be obtained *for $45.00* from:
   Quality Copy & Digital Print
   4 North St.
   Hallowell, ME 04347
   Phone: 207-622-7447

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 who is 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. After the bid closing time, such written withdrawal requests may be allowed in consideration of the bid bond or, without utilizing a bid bond, if the Contractor provides documented evidence to the satisfaction of the Bureau that 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.

00 41 13
Contractor Bid Form

Enfield Cold Storage Garage BGS project number 3162

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

Bid Administrator:

Richard Parker richard.parker@maine.gov
Inland Fisheries and Wildlife
353 Water Street
41 State House Station
Augusta, Maine 04333-0041

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 *Enfield Cold Storage Garage* Project Manual dated *August 19, 2022*, prepared by *A.E. Hodsdon Engineers/ Inland Fisheries and Wildlife*, 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

   $ *0*.00

3. Alternate Bids *are included* on this project.
   Alternate Bids are as shown below
   Any dollar amount line below that is left blank by the Bidder shall be read as a bid of **$0.00**.

   1 Section 1572 Louvers and Fans $ _____ .00

   2 Section 16402 Electrical Work $ _____ .00

   3 Section 0808 Door Opening System $ _____ .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 ***insert contracting entity name*** hereinafter called the ***Owner*** and ***insert Contractor company name*** hereinafter called the ***Contractor***.

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

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

The Specifications and the Drawings have been prepared by ***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 ***01 June 2023***.

2.3 The Work of this Contract shall be completed on or before the Contract Final Completion Date of ***01 June 2023***.

2.4 The Contract Expiration Date shall be ***01 June 2023***. (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 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.]

revised 05 April 2021

AdvantageME CT# 00000000000000000000

State of Maine
CONSTRUCTION CONTRACT
Application for Payment

Enfield Cold Storage Garage
location / school / campus

Contractor Company name
address
city state zip code

Application Number: 1
Period Start Date: 1-Jul-2021
Period End Date: 31-Jul-2021
BGS Project No.: PT 3162
Other Project No.: AEH 59-21

1	Original Contract Amount			$0
2	Net of Change Orders to Date	(from table below)		$0
3	Contract Sum to Date	(line 1 plus or minus line 2)		$0
4	Total Completed and Stored to Date	(column G on Continuation Sheet)		$0
5a	5% Retainage of Completed Work	(columns D + E x 5%)	$0	
5b	5% Retainage of Stored Materials	(column F x 5%)	$0	
5c	Total Retainage	(column I)		$0
6	Total Earned Less Retainage	(line 4 minus line 5c)		$0
7	Less Previous Approved Applications for Payment	(line 6 from previous Application)		$0
8	Current Payment Due	(line 6 minus line 7)		**$0**
9	Balance to Finish, Including Retainage	(line 3 minus line 6)	$0	

Change Order Summary	Additions	Deductions	
Total Changes Approved in Previous Months	$0	$0	
Total Changes Approved this Month	$0	$0	
Subtotals	$0	$0	
Net of Change Orders to Date			$0

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information, and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which the previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

Contractor
Type company name here
Type person's name, title here

signature date

In accordance with the Contract Documents, based on on-site observations and the data comprising this Application, the Consultant certifies to the Owner that to the best of the Consultant's knowledge, information, and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Amount Certified. **Amount Certified:**

Consultant (Architect or Engineer)
A.E. Hodsdon Engineers
Albert E. Hodsdon, Engineer

signature date

Owner
Maine Dept. of Inland Fisheries & Wildlife
Richard Parker

signature date

Owner's Rep / other - clear text if not used
Type entity name here
Type person's name, title here

signature date

Bureau of General Services

Type person's name, title here

signature date

revised 05 April 2021

State of Maine
CONSTRUCTION CONTRACT
Application for Payment - Continuation Sheet

Application Number: 1
Period Start Date: 1-Jul-2021
Period End Date: 31-Jul-2021
BGS Project No.: n
Other Project No.: x

Project name

page 1 of 2

Contractor Company name

A	B	C	D	E	F	G		H	I
			Work Completed						
Item No.	Description of Work	Scheduled Value	From Previous Application (Previous D + E)	This Period: Work in Place	This Period: Stored Materials (Not in D or E)	Total Completed and Stored to Date (D + E + F)	% (G ÷ C)	Balance to Finish (C - G)	Retainage 5%
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0
		$0	0	0	0	0	0.0%	$0	0

revised 05 April 2021

AdvantageME CT# 0000

State of Maine
CONSTRUCTION CONTRACT
Change Order

Enfield Cold Storage Garage
location / school / campus

Contractor Company name
address
city state zip code

Change Order Number: 1

Issue Date of this Document: 31-Dec-2022

BGS Project No.: PT 3162
Other Project No.: AEH 59-21

Cost Change *Show Deduct as a negative number, e.g.: "-$850".*

	Add	Deduct	Total
Net Amount of this Change Order	$0	$0	
Net Amount of Previous Change Orders	$0	$0	
Net of Change Orders to Date	$0	$0	$0
Original Contract Amount			$0
		Revised Contract Amount	**$0**

Time Change *Show Deduct as a negative number, e.g.: "-8".*

	Add	Deduct	Total
Net Calendar Days Adjusted by this Change Order	0	0	
Net Calendar Days Adjusted by Previous Change Orders	0	0	
Net of Change Orders to Date	0	0	0
Original Contract Final Completion Date			31-Dec-2023
		Revised Contract Final Completion Date*	**31-Dec-2023**

Consultant (Architect or Engineer)
A.E. Hodsdon Engineers
Albert E. Hodsdon, Engineer

signature date

Contractor
Type company name here
Type person's name, title here

signature date

Owner
Maine Department of Inland Fisheries & Wildlife
Richard Parker

signature date

Type Entity, such as "Owner's Rep", or "not used"
Type entity name here
Type person's name, title here

signature date

Bureau of General Services
Division of Planning, Design & Construction
Type person's name, title here

signature date

Attach the "List of Change Order Items" sheet, plus all supporting documentation for each Change Order Item.

Substantial Completion Date: the deadline for first beneficial use by Owner, as certified by Consultant.	*1-Dec-2023*
**** Contract Final Completion Date**: the Contractor's final completion deadline for contract work.*	*31-Dec-2023*
Contract Expiration Date: the Owner's deadline for internal management of contract accounts; Contract Expiration Date does not directly relate to any contract obligation of the Contractor.	*29-Feb-2024*

List of Change Order Items

Enfield Cold Storage Garage **C. O. Number: 1**

Contractor Company name

CO Item No.	CP No.	Item Name	Reason Code	Calendar Days*	Cost
1	1	Type brief name of Change Order Item here		0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
				0	$0
			Totals	**0**	**$0**

Reason Codes

EO *Error or omission of Consultant*
UC *Unforeseen job site condition*
OC *Owner-generated change*
RC *Regulatory authority-generated change*
CC *Contractor-generated change*

** Calendar Days shows Contract Final Completion Date impact only.*

Attach this sheet to the BGS "Change Order" cover sheet (with cost and time summaries, and signatures). Attach a "Details" sheet, and other supporting documentation, for each Change Order Item listed above.

Details of Change Order Item

Enfield Cold Storage Garage
location / school / campus

Contractor Company name
address
city state zip code

Change Order Item Number 1
CP (Change Proposal) Number 1
Issue Date of this Document: 31-Oct-2021

BGS Project No.: PT 3162
Other Project No.: AEH 59-21

Change Order Item	Type name of Change Order Item here			
Description of Work	Type brief description here of work scope here.			
Reason or Necessity of Work	Type brief justification for change here.			
Cost Breakdown	Work by Subcontractor only	Work by Sub *and* Contractor	Work by Contractor only	
Subcontractor base cost	$0	$0		
Subcontractor markup	$0	$0		
Contractor base cost		$0	$0	
Contractor markup	$0	$0	$0	
Subtotal	$0	$0	$0	
Compensation	lump sum		**Total Cost**	**$0**
Initiated by	Consultant		**Calendar Days***	0
Reason Code	CC	**Supporting Documentation**		is attached

EO — *Error or omission of Consultant*
UC — *Unforeseen job site condition*
OC — *Owner-generated change*
RC — *Regulatory authority-generated change*
CC — *Contractor-generated change*

* *Calendar Days shows Contract Final Completion Date impact only.*

Consultant (Architect or Engineer)
A.E. Hodsdon Engineers
Albert E. Hodsdon, Engineer
signature date

Contractor
Type company name here
Type person's name, title here
signature date

Owner
Maine Dept. of Inland Fisheries & Wildlife
Richard Parker
signature date

Owner's Rep
Type entity name here
Type person's name, title here
signature date

Bureau of General Services
Division of Planning, Design & Construction
Type person's name, title here
signature date

revised 05 April 2021

State of Maine
CONSTRUCTION CONTRACT
Construction Change Directive

Project name
location / school / campus

Contractor Company name
address
city state zip code

C. C. D. Number: **1**
CP (Change Proposal) Number 1
Issue Date of this Document: 31-Oct-2021

BGS Project No.: n
Other Project No.: x

CCD Item	Type name of CCD item here		
Description of Work	Type brief description here of work scope here.		
Reason or Necessity of Work	Type brief justification for change here.		
Method of Compensation	Select from drop down box…	**Projected Total Cost**	$0
Supporting Documentation	is attached	**Projected Calendar Days***	0

** Calendar Days refers to Contract Final Completion Date only.*
Fully describe the scope of work of the CCD item in the table above and on attached drawings and specifications as necessary.
Indicate the reason for the work, and the estimated schedule and cost impacts.
This CCD records the order to do the work. The documented actual final time and cost changes are subject to approval in a subsequent Change Order process.

Consultant (Architect or Engineer)
Type firm name here
Type person's name, title here
signature date

Contractor
Type company name here
Type person's name, title here
signature date

Owner
Type contracting entity name here
Type person's name, title here
signature date

Owner's Rep
Type entity name here
Type person's name, title here
signature date

Bureau of General Services
Division of Planning, Design & Construction
Type person's name, title here
signature date

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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.

00 73 46
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.

2022 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	$35.00	$0.00	$35.00
Carpenter	$26.40	$12.38	$38.78
Carpet Installers	$20.50	$0.72	$21.22
Cement Masons And Concrete Finisher	$20.00	$4.44	$24.44
Construction And Maintenance Painters	$34.61	$2.65	$37.26
Construction Laborer	$18.00	$1.39	$19.39
Control And Valve Installers And Repairers - Except Mechanical Door	$26.00	$5.49	$31.49
Crane And Tower Operators	$25.75	$6.29	$32.04
Drywall And Ceiling Tile Installers	$25.49	$0.00	$25.49
Earth Drillers - Except Oil And Gas	$23.25	$5.53	$28.78
Electricians	$30.68	$6.37	$37.05
Elevator Installers And Repairers	$56.69	$42.31	$99.00
Excavating And Loading Machine And Dragline Operators	$25.25	$0.00	$25.25
Fence Erectors	$23.00	$5.43	$28.43
Floor Layers - Except Carpet/Wood/Hard Tiles	$22.00	$5.25	$27.25
Glaziers	$26.00	$1.90	$27.90
Hazardous Materials Removal Workers	$20.38	$2.17	$22.55
Heating And Air Conditioning And Refrigeration Mechanics And Installers	$28.00	$4.26	$32.26
Heavy And Tractor - Trailer Truck Drivers	$20.75	$0.20	$20.95
Industrial Machinery Mechanics	$26.00	$5.82	$31.82
Industrial Truck And Tractor Operators	$24.00	$5.61	$29.61
Insulation Workers - Floor Ceiling And Wall	$26.25	$1.43	$27.68
Ironworker - Ornamental	$25.00	$3.32	$28.32
Light Truck Or Delivery Services Drivers	$20.00	$2.30	$22.30
Mobile Heavy Equipment Mechanics - Except Engines	$24.88	$4.09	$28.97
Operating Engineers And Other Equipment Operators	$26.00	$2.15	$28.15
Paving Surfacing And Tamping Equipment Operators	$33.12	$0.00	$33.12
Pipelayers	$28.00	$7.20	$35.20
Plumbers Pipe Fitters And Steamfitters	$26.00	$4.15	$30.15
Reinforcing Iron And Rebar Workers	$21.00	$5.69	$26.69
Roofers	$20.00	$0.46	$20.46
Sheet Metal Workers	$22.75	$6.53	$29.28
Sider	$18.00	$2.44	$20.44
Structural Iron And Steel Workers	$27.98	$4.69	$32.67
Tapers	$25.00	$1.13	$26.13
Telecommunications Equipment Installers And Repairers - Except Line Installers	$33.25	$10.78	$44.03
Tile And Marble Setters	$25.50	$5.30	$30.80

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 rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

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: 12-31-2022

DIVISION 1
GENERAL REQUIREMENTS

SECTION 0101
SUMMARY OF WORK

0101.01 LOCATION OF WORK

All work under this contract is located in **ENFIELD, MAINE** .

0101.02 WORK UNDER THIS CONTRACT

Work under this contract is generally described as the **COLD STORAGE GARAGE**.

0101.03 COORDINATION

In order that the work may be conducted in a timely and satisfactory manner, the Contractor shall coordinate all work with the **MAINE DEPT. OF INLAND FISHERIES & WILDLIFE, 41 STATE HOUSE STATION, AUGUSTA, ME 04333**.

0101.03 ABBREVIATIONS AND SYMBOLS

The following abbreviations may be used in these specifications:

AASHTO	- American Association of State Highway Officials
ANSI	- American National Standards Institute
AWWA	- American Water Works Association
ACI	- American Concrete Institute
ASTM	- American Society of Testing Material
AISC	- American Institute of Steel Construction
ASCE	- American Society of Civil Engineers
CPI	- Clay Pipe Institute

Where reference is made to a publication by one of the above mentioned or other association, it is understood that the latest revisions thereof shall apply unless otherwise designated.

In case of conflict, this specification will take precedence over the above references.

SECTION 0102
LIST OF DRAWINGS

Sheet No.	**Description**
A1.0	Floor/Elevation Plan
S1.0	Foundation & Roof Framing Plan
S5.0	Details
E1.0	Electrical Plan

SECTION 0130
SUBMITTALS

0130.01 GENERAL

A. Construction Schedule:

The Contractor shall submit a full construction schedule for each project. This schedule shall be a bar chart and shall include all items included in the Bid Schedule. The following items are to be part of this schedule.

1. Schedule of values for bid items for use in determining project partial payments.

2. Submit time schedule prior to commencement of work.

3. Provide complete sequence of construction by activity.

4. Engineer will review schedules and return review copy.

5. Update schedule showing changes occurring since previous submission.

6. Distribute copies of reviewed schedules to subcontractors and other concerned parties.
   a. Instruct recipients to report any inability to comply and provide detailed explanation with suggested remedies.

B. Shop Drawings, Project Data, Samples:

1. Submit shop drawings, project data and samples for all products, materials and equipment proposed for the completed project.

2. 14 day review period will be required for shop drawing review.

C. Record Drawings: The Contractor shall submit monthly record documents for the project. These shall include all items listed under Section 0131.03, Subsection D.

D. Weekly Progress Sheets: The Contractor shall submit weekly progress sheets, which shall include all bid item quantities completed for the week. The forms shall be signed by the Site Superintendent for the Contractor and Site Engineer.

E. Weekly Complaint Forms: The Contractor shall submit weekly complaint form resolution sheets showing updated progress and anticipated resolution.

0130.02 PAYMENT

Failure of the Contractor to perform any of the submitted tasks noted above will result in payment withholding of requested payments. Payments will be released once the submittals are received in accordance with these documents.

SECTION 0131
PROJECT RECORD DOCUMENTS

0131.01 GENERAL

Work included: Keep accurate record documents for all additions, substitutions of material, variations in work, and any other additions or revisions to the Contract.

0131.02 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:

1. Contract Documents
2. Specifications
3. Addenda
4. Reviewed Shop Drawings
5. Change Orders
6. Any other modifications to the Contract
7. Field Test Reports

B. Store documents in approved files and racks apart from documents used for construction.

C. Maintain documents in clean, dry, legible condition.

D. Do not use record documents for construction purposes.

E. Make documents available at all times for inspection by Engineer and Owner.

0131.03 RECORDING

A. The General Contractor will be required to provide 3 copies of a complete, bound, organized record of all materials, systems, manufacturer's literature, etc. installed during the course of the project. This includes but is not limited to: manufacturer's catalog cut, specification sheet, installation guide, operation and troubleshooting guide, and any and all information booklets available for each piece of equipment installed in this contract. A transmittal form stating the General Contractor's name and address, as well as subcontractor's and supplier's name and address shall precede each piece of equipment or division. This record material is to be used as an operational aid to the Engineer and Owner when the facility is placed into operation.

B. Label each document "Project Record" in large high printed letters.

C. Keep record documents current and do not permanently conceal any work until required information has been recorded.

D. Contract Drawings: Legibly mark to record actual construction:

1. Depths of various elements of foundations in relation to survey datum.

2. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.

a) Shall include all water, sewer, steam, air, instrumentation and fuel piping systems and all electrical and communications circuits including all direct burial cables.

b) Whenever any existing utility line is uncovered in the course of excavation for new utility installation, location dimensions for such lines shall be recorded.

c) Method of location and recording shall have prior approval of the Engineer.

3. Horizontal and vertical locations of all cross culvert inverts.

4. Location of house service connection points (when applicable) with any utility (water, sewer, electrical, telephone, etc.) and the location of capped or plugged ends of these same house service lines.

a) Locations shall be recorded by accurate "swing ties" or other methods approved by the Engineer.

b) Method of location and recording shall have prior approval of the Engineer.

5. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.

a) Electrical equipment such as conduits, piping, instrumentation located in slabs, walls and ceilings and to include approximate locations and routing.

b) Schematic diagram of actual electric conduit or instrument tubing routing between equipment and supply.

6. Field changes of dimension and detail and changes made by Change Order or Field Order.

7. Details not on original Contract Drawings.

E. Specifications and Addenda: Legibly mark up each Section to record:

1. Manufacture, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by Change Order or Field Order.

0131.04 SUBMITTAL

A. At the completion of the project, deliver record documents to the Engineer.

B. Accompany submittal with transmittal letter, in duplicate, containing:

1. Date, project title and number

2. Contractor's name and address

3. Title and number of each record document with certification that each document is complete and accurate.

4. Signature of Contractor, or his authorized representative

C. Failure to record these locations on the Project Record Drawings shall result in non-approval of the final payment to the Contractor and/or if contract time (as specified in the Contract and/or modified in accordance with the Standard General Conditions of the Construction Contract) has elapsed, this shall be grounds for the enactment of the liquidated damages as specified.

SECTION 0140
QUALITY CONTROL

0140.01 GENERAL

A. Testing

It is the Contractor's sole responsibility to provide and use only new materials, new products and new equipment that meet the requirements of the plans and specifications and will result in a completed project that is durable and of high quality in all respects. The Engineer may request samples of any material that the Contractor proposes to use. Such samples shall be of sufficient size and quantity to allow appropriate testing of the sample. The Contractor shall bear all cost of obtaining and providing such sample. The Contractor shall bear all costs of testing the sample. Furthermore, if testing shows that a sample does not meet the requirements of the plans and specifications, the Contractor shall retest at contractors expense.

B. Inspection Services

The Owner or Engineer or his representative will provide whatever inspection he feels is necessary. Such inspection in no way reduces the Contractor's responsibility for supervision of quality control. The Contractor shall cooperate fully in the Owner or Engineer's inspection efforts. The Contractor shall keep the inspector informed of work in progress as well as the schedule of work to be done. The Contractor shall allow complete access to the project by the inspector.

C. General

The Contractor will at all times be responsible for maintaining all areas of the job site. This is to include periods of work suspended due to cold weather. When the Owner recognizes defective conditions he shall notify the Engineer who will in turn notify the Contractor. The Contractor will be given a reasonable amount of time depending on the degree of the problem to correct the condition. Examples of defective conditions shall include, but not necessarily be limited to, trench settlement, erosion, pot holes, washouts, etc.

D. Quality Assurance

The Contractor will produce and conform to quality assurance programs as outlined in various sections of the technical specifications. These quality assurance programs are intended to provide for greater reliability of those items of work where failure or a malfunctioning system would pose severe problems to the Owner, human health, or the environment.

SECTION 0164

SUBSTITUTIONS AND PRODUCT OPTIONS

0164.01 GENERAL

In these specifications and on accompanying drawings, there are specified and shown materials or pieces of equipment, which are deemed most suitable for the service anticipated. Substitutes to those equipment or materials shall follow the requirements listed below.

The Engineer or Owner's representative has the final determination of the substitution acceptance and reserves the right to reject all substituted equipment or materials.

Review Period: The Engineer shall comply with the period for review of the initial submittal on the material or piece of equipment as specified in Section 0130. However, in the event that there are questions on the submittal, the Engineer shall have an additional period (same as first review period) to review each resubmittal package.

Review Expense: The Engineer shall review the initial shop drawings for material or piece of equipment specified in the Contract as required under Section 0130 of this Contract. If a substitution is submitted, the Engineer reserves the right to charge the Contractor a fee to review the material for compliance with the intended use and with the technical specifications. The Contractor shall compensate the Engineer prior to acceptance of the submittal.

DIVISION 2
SITE WORK

SECTION 0201
SITE PREPARATION

0201.01 DESCRIPTION

Site preparation shall consist of supplying all labor, materials and equipment necessary to prepare the site for excavation and/or construction. It shall include clearing, grubbing, and stripping.

0201.02 GENERAL

Included in this section shall be the removal of all material, both natural and man-made above ground in the areas designated on the plan. Vegetation shall be totally removed and disposed of in a satisfactory manner. Man-made material including pavement, curbing, structures and other items so designated shall be removed and disposed of as directed, unless such material is amenable to reuse, in which case it shall be stored. Soils stripped from any designated areas shall be stockpiled for reuse unless such soils are classified as unsuitable by the Engineer. Pavement and/or curbing shall be saw cut prior to excavation.

0201.03 CONSTRUCTION METHODS

In vegetated areas designated for clearing, grubbing and stripping, the Contractor shall cut and remove all trees, brush, and undergrowth, but shall protect all vegetation outside the limits of the areas designated and any trees so designated within the area. Any branches which must be removed from standing trees shall be removed in a manner in accordance with established arborists' practices. All scars and cuts in standing timber shall be painted with Tree Kote or equal.

In areas to be stripped, the Contractor shall strip the surface to a sufficient depth to expose a uniform subgrade of soil.

Before removing any structure, the Contractor shall obtain approval of the party having jurisdiction.

SECTION 0213
CLEARING, GRUBBING & STRIPPING

0213.01 DEFINITION

Clearing, grubbing and stripping shall consist of supplying all labor, materials and equipment necessary to prepare the site for excavation and/or construction.

0213.02 GENERAL

Included in this section shall be the removal of all material, both natural and man-made above ground in the areas designated on the plan. Vegetation shall be totally removed and disposed of in a manner acceptable to the Engineer. Man-made material including pavement, curbing, structures and other items so designated shall be removed and disposed of if directed, unless such material is amenable to reuse, in which case it shall be stored, if directed. Soils stripped from any designated areas shall be stockpiled for reuse unless such soils are classified as unsuitable in subsequent sections of these specifications.

0213.03 CONSTRUCTION METHODS

In vegetated areas designated for clearing, grubbing and stripping, the Contractor shall cut and remove all trees, brush, and undergrowth, but shall protect all vegetation outside the limits of the areas designated and any trees so designated within the area. Any branches which must be removed from standing trees shall be removed in a manner in accordance with established arborists' practices. All scars and cuts in standing timber shall be painted with Tree Kote or approved equal.

In areas to be stripped, the Contractor shall strip the surface to a sufficient depth to expose a uniform subgrade of soil, or as directed by the Engineer.

Before removing any structure, the Contractor shall obtain approval of the Engineer.

SECTION 0214
CLEANUP

0214.01 DESCRIPTION

Cleanup shall consist of all work required to maintain all work areas in a neat and orderly condition. Cleanup shall be considered incidental to the appropriate items of the contract.

0214.02 GENERAL

The Contractor shall remove all debris and surplus material resulting from the work, and shall maintain all property, both public and private, in a condition acceptable to the party having jurisdiction. If requested by the Owner and/or Engineer, work shall cease and all efforts shall center on cleanup. No compensation shall be paid the Contractor because of the stoppage of the work for cleanup.

The Contractor shall obtain written permission from private property owners before disturbing any private property and or storing any equipment or materials on private property.

Private property owners shall be satisfied with restoration of private properties. At the request of the Owner or Engineer the Contractor shall obtain written satisfaction or lien waiver from any private property owner effected as a result of construction.

SECTION 0222
STRUCTURE EXCAVATION

0222.01 DEFINITION

All excavation for foundations and subsurface structures shall be covered by this specification and shall be classified as either earth excavation or ledge excavation.

Earth excavation shall consist of removal of all grades of soil sufficiently friable to be worked with an excavator. This shall include any other material less than two (2) cubic yards in volume.

Ledge excavation shall consist of removal of all material not classified as earth and more than two (2) cubic yards in volume.

Structure excavation shall include furnishing all equipment, labor and materials necessary to perform the excavation and backfill as indicated on the plans and herein specified.

0222.02 GENERAL

All structure excavation shall provide sufficient working area to construct the structure. The contractor shall provide all sheeting, shoring, bracing, and cofferdamming necessary to insure the stability of the sides of the excavation. The contractor shall provide all pumping and/or drainage necessary to maintain a dry, firm bottom.

0222.03 UNSUITABLE MATERIAL

Where unsuitable material is encountered it shall not be incorporated into the work. Unsuitable materials shall be replaced with suitable material in accordance with Division 2 of the specifications.

0222.04 BLASTING AND LEDGE EXCAVATION

The contractor shall remove all overburden from any ledge encountered and shall contact the Engineer for measurement of its volume prior to removal.

All blasting shall comply with all federal, state, and local regulations. Warning signs shall be posted whenever blasting occurs. No blasting shall be permitted without blasting mats or sufficient soil overburden. A video log of surrounding structures (within 500 feet) shall be made prior to blasting and upon completion of blasting. The video shall be time/date stamped and shall be furnished to the Engineer. The Owner, Engineer, and funding agencies shall be indemnified against collateral damage caused by blasting.

All ledge removed shall be considered unsuitable material, and as such, is governed by Section 0223.03. If overblasting occurs, the Contractor shall replace this ledge with material suitable to the Engineer at the Contractor's expense. If material is required to replace ledge removed, its costs will be considered incidental to the ledge removal price as delineated in the Bid Schedule.

0222.05 CONSTRUCTION METHODS

The Contractor shall at all times keep the excavation free of water and saturated soil. Water removed from the excavation shall be disposed of so as not to interfere with adjacent areas. The bottom of the excavations shall be kept dry and firm at all times.

In addition to the requirements of Section 0226, the Contractor shall comply with the following. No backfilling around concrete walls shall be permitted until they have attained sufficient strength to support all loads to which they will be subjected. Compaction of backfill around structures shall be accomplished by waterjetting, puddling, tamping, or rolling. Backfill shall be compacted to a density of 95% of the optimum density as determined by the modified proctor test. Inplace density shall be determined by ASTM D 1556.

0222.06 OVER EXCAVATION

Any excavation beyond the prescribed limits, as shown on the plans or specified herein, shall be filled with crushed stone to the necessary grade at the Contractor's expense.

0222.07 EXCESS EXCAVATED MATERIAL

Any excess material encountered in this project shall remain the property of the Owner. The Contractor will be required to remove this material to a site(s) selected by the Owner within a two mile radius of the Contractor's excess material stockpile.

SECTION 0295
EROSION CONTROL

0295.01 DEFINITION

Erosion control shall consist of supplying all equipment, labor and materials necessary to prevent soil erosion from occurring on areas disturbed by the work and any other areas as may be designated on the plan. Soil erosion is the detachment of soil particles and loss of soil from an area by the action of water, ice, gravity or wind.

0295.02 GENERAL

It is the intent of this specification that the Contractor shall be responsible for providing temporary as well as long term protection for areas disturbed by the work. It is a condition of this Contract that soil erosion shall not take place to the extent that soil particles leave the project site, right-of-way, limits of work, areas otherwise owned/leased by the owner or enter waters of the state. Erosion control, where not otherwise specified, shall be considered incidental to appropriate items of the Contract. Reference is made to the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices published by the Cumberland County S.W.C.D. and the Maine D.E.P., March, 2003 hereinafter called B.M.P.

0295.03 MATERIALS

Mulch - Temporary and long term Ref. B.M.P. A-1 and C-4 Contractor may use any specified material and application rate, unless otherwise indicated.

Sediment Barriers - Where shown on the plans, shall consist of silt fence and/or hay bales ECM Berms or continuous contained berms Ref. B.M.P. B-1.

Temporary Check Dams - Where shown on the plans, shall be straw bale or stone Ref. B.M.P. B-2.

0295.04 CONSTRUCTION METHODS

All areas disturbed by construction, unless otherwise specified on the Plans, shall be reclaimed by methods described in Section 0283 - Seeding and Planting. These areas shall be mulched at rates given in B.M.P. A-1 and C-4. For critical areas (slopes >15%; waterways; disturbed areas within 100 feet of lakes, streams; wetlands), and late fall and winter work, the mulch shall be anchored using a method outlined in B.M.P. A-3.

Silt Fence: This sediment barrier utilizes standard strength or extra strength synthetic filter fabrics. It is designed for situations in which only sheet or overland flows are expected.

a. The height of a silt fence shall not exceed 36" (higher fences may impound volumes of water sufficient to cause failure of the structure).

b. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6" overlap and securely sealed.

c. Posts shall be spaced a maximum of 10' apart at the barrier location and driven securely into the ground (minimum of 12"). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6'.

d. A trench shall be excavated approximately 4" wide and 4" deep along the line of posts and upslope from the barrier.

e. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least 1" long, tie wires or hog rings. The wire shall extend more than 36" above the original ground surface.

f. The standard strength of filter fabric shall be stapled or wired to the fence, and 8" of the fabric shall be extended into the trench. The fabric shall not extend more than 36" above the original ground surface. Filter fabric shall not be stapled to existing trees.

g. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with other provisions of item (f) applying.

h. The trench shall be backfilled and the soil compacted over the filter fabric.

i. Silt fences shall be removed when they have served their useful purpose, but not before the upslope areas has been permanently stabilized.

Floating Silt Fence/Turbidity Curtain. This is a floating geotextile material (pervious) or reinforced vinyl fabric (impervious), which minimizes sediment transport from a disturbed area adjacent to or within a body of water.

The floating silt fence shall be made of bright colors for visibility such as orange or yellow, and have buoys or floats attached for increased visibility. The floats shall provide buoyancy sufficient to support the weight of the curtain and maintain at least 3" of free board above the water surface.

Floating silt fence/turbidity curtain shall be located parallel to the direction of flow of a moving body of water but not placed across the main flow of a significant body of water.

When sizing length of the silt fence, allow an additional 10-20% variance in the straight-line measurement. This will allow for measuring errors, make installation easier and reduce stress from potential wave action during high winds.

An attempt to minimize the number of joints in the floating silt fence should be made. A minimum continuous span of 50 feet between joints is acceptable with a maximum of 100 feet.

For stability reasons, maximum distance between anchors or stakes should be 100 feet or less, and generally shall be anchored at every joint using built in fasteners and loops.

The end of the floating silt fence both floating upper and weighted lower, should extend well up into the shoreline, especially if high waters are expected. The ends should be secured firmly to the shoreline to fully enclose the area where sediment may enter the water.

The height of the floating silt fence/turbidity curtain shall extend down to approximately 6-12 inches from the bottom of the water body depending on disturbance anticipation to eliminate sediment buildup on the curtain itself, and eliminate recirculation of sediments once the curtain is removed. Water flow is fastest near the surface and is slower the deeper you get. In faster water such as rivers, a half depth curtain could be sufficient.

The floating silt fence shall have a top load line consisting of rope or vinyl sheathed steel cable that shall have a break strength of at least 10,000 pounds (4.5 tons). The bottom load line shall consist of chain incorporated into the hem of the curtain of sufficient weight to serve as ballast to hold the curtain in a vertical position. Additional anchorage shall be provided as necessary. The load lines shall have suitable connecting devices which develop the full breaking strength for connecting to load lines in adjacent sections.

Sequence of Installation: Sediment barriers should be installed prior to any soil disturbance of the contributing drainage area above them.

Temporary Check Dams: The maximum height of the check dam should be 2'. The center of the check dam must be at least 6" lower than the outer edges. The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.

Stone Check Dams: Stone check dams should be constructed of 2" to 3" stone. Hand or mechanical placement will be necessary to achieve complete coverage of the ditch or swale and to ensure that the center of the dam is lower than the edges.

Check dams should be installed before runoff is directed to the swale or drainage ditch.

0295.05 MAINTENANCE

Straw/hay bale barriers, silt fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be inspected if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.

Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, the fabric shall be replaced promptly.

Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.

Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

Check dams must be removed when their useful life has been completed. In temporary ditches and swales, check dams must be removed and the ditch filled in when it is no longer needed. In permanent structures, check dams must be removed when a permanent lining can be installed. In the case of grass-lined ditches, check dams must be removed when the grass has matured sufficiently to protect the ditch or swale. The area beneath the check dams must be seeded and mulched immediately after they are removed.

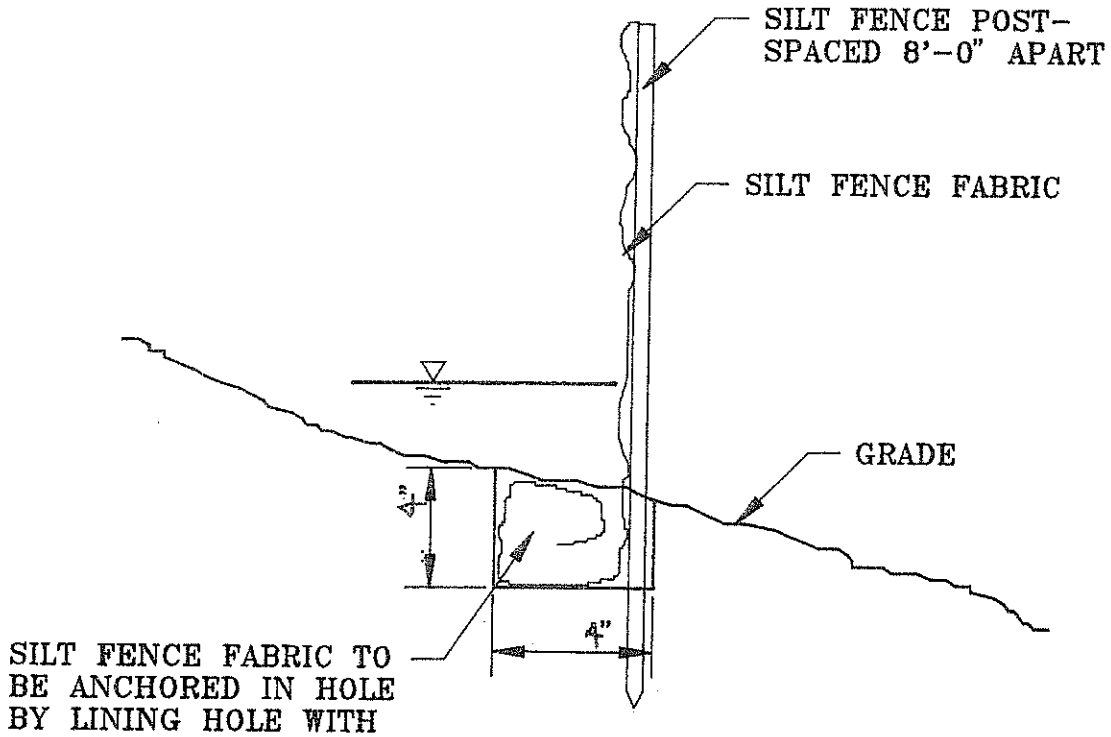
Regular inspections must be made to ensure the center of the dam is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected immediately. If evidence of siltation in the water is apparent downstream from the check dam, the check dam must be inspected and adjusted immediately.

Check dams must be checked for sediment accumulation after each significant rainfall. Sediment must be removed when it reaches one half of the original height or before.

A. E. Hodsdon
Consulting Engineers
10 Common St. Waterville, Me.

TYPICAL SILT FENCE DETAILS

NOT TO SCALE

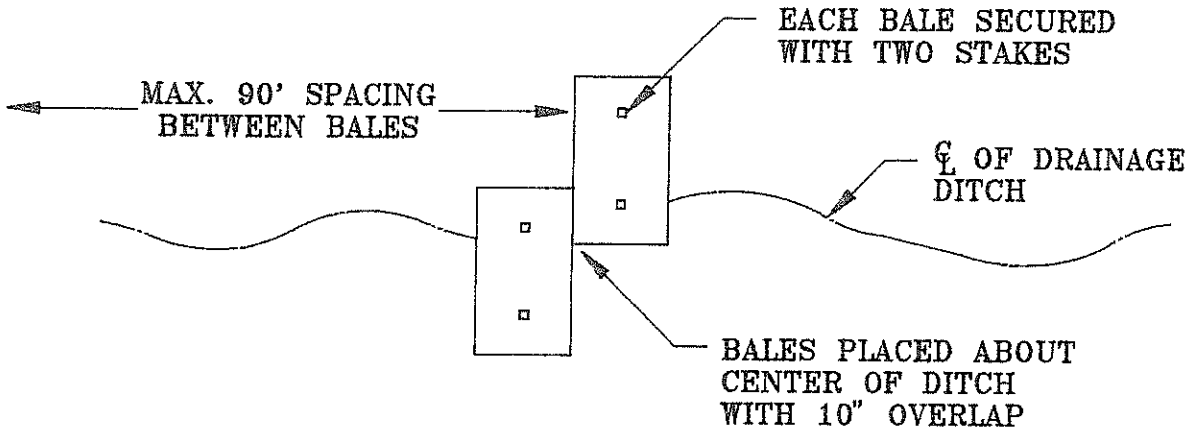


NOTES:
1. 4"x 4"HOLE TO BE EXCAVATED
2. POST TO BE INSTALLED ON DOWNSLOPE SIDE OF HOLE.
3. SILT FENCE FABRIC TO BE ATTACHED TO POST AND REMAINDER OF MATERIAL TO BE BURIED IN HOLE

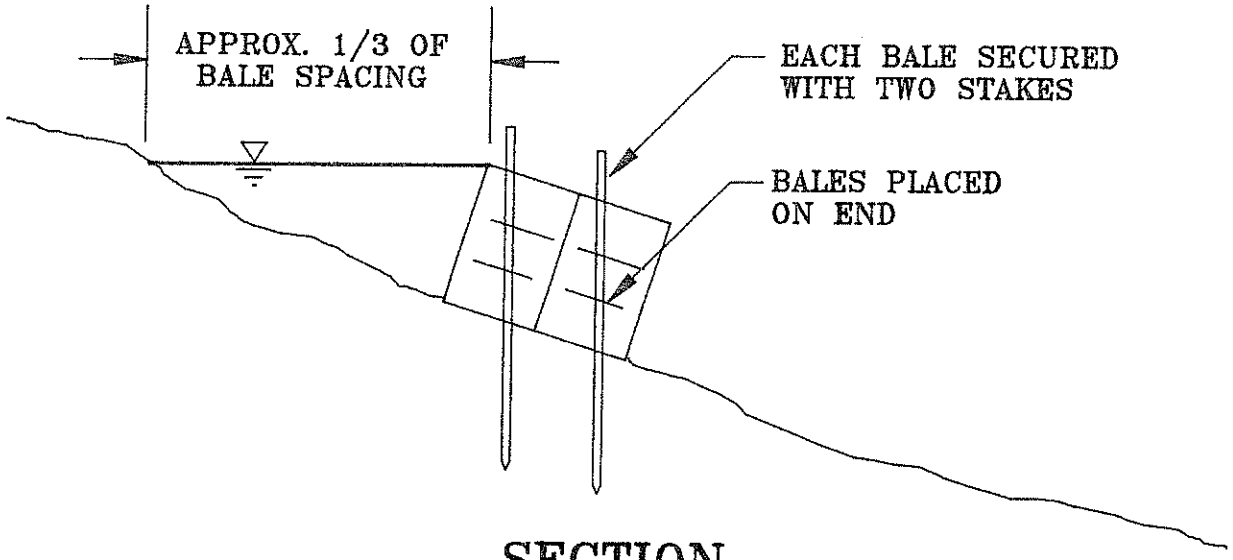
A. E. Hodsdon
Consulting Engineers
10 Common St. Waterville, Me.

EROSION CONTROL DETAIL

NOT TO SCALE



PLAN VIEW



SECTION

DITCH SLOPE (%)	SPACING
≤ 5	90'
≤ 7.5	60'
≤ 10 *	45'

* NOTE: SLOPES > 10% REQUIRES ROCK CHECK DAMS

SECTION 0296
FILTER FABRIC

0296.01 DESCRIPTION

The work in this section includes furnishing all the necessary labor, materials, tools, and equipment to place and install **NONWOVEN** filter fabric as shown on the drawings and as described herein.

0296.02 QUALITY ASSURANCE

A. Standards: Comply with standards and test methods in this section.

B. Test Methods:

Thickness - mils	D-1777
Grab Strength - lbs	D-1682
Grab Elongation - %	D-1682
Trapezoidal Tear Strength - lbs.	D-2263
Mullen Burst Strength – psi	D-231

C. Qualifications of manufacturers: Filter fabric used in the work of this section shall be produced by manufacturers engaged in the manufacture of filter fabric and with a history of successful production acceptable to the Engineer.

D. Qualifications of installers: Use an adequate number of workmen who have been thoroughly briefed on the manufacturer's installation recommendations and as to the requirements specified herein.

0296.03 SUBMITTALS

A. Product Data:

1. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.

2. Manufacturer's recommended installation procedures which, when approved by the Engineer, shall in addition to the requirements specified herein, become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

0296.04 PRODUCT HANDLING

A. Delivery and Storage: Deliver filter fabric to the job site and store in its original unopened container with all labels or tags intact and legible at time of use. Store in strict conformance with the manufacturer's recommendations.

B. Protection: Use all means necessary to protect the filter fabric before, during, and after installation from rips, punctures or tears.

C. Replacement: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

0296.05 MATERIALS

A. Filter fabric shall be non-woven, spun bonded plastic materials made by direct extrusion spinning methods and bonded by heat sealing or by mechanical methods.

B. Plastic materials shall be made of polypropylene, polyethylene, polyestic polymer, or similar material and shall be inert to soil chemicals; resistant to hydrocarbons, molds, mildew, acids, and alkalies within a pH range of 3 to 12; be non-biodegradable; and be insect and vermin proof.

C. Filter fabric shall have the following minimum properties:

Application	Rip-rap	Drainage	Soil Stabilization
Tensile Strength	200 lbs.	100	265
Elongation	50 %	50	50
Trapezoidal Tear	75 lbs.	40	130
Mullen Burst Strength	350 psi	210	470
Flow Rate	130 gpm/sf	140	85

0296.06 PREPARATION

Areas to receive filter cloth should be rough graded and relatively free of holes or protuberances. No sharp objects that might rip or otherwise puncture the fabric shall be present.

0296.07 PLACEMENT

A. Rolling: Filter fabric should be rolled out on the surface to be covered as indicated on the drawings.

B. Lap: Filter fabric shall be overlapped 3 feet where it is joined. Mechanical or glued joints are not required.

C. Cover Material: Deposit material over the filter fabric carefully to avoid rips, punctures, tears, dislocation, or other damage to the fabric. Material shall be backdumped and pushed ahead with a dozer. Equipment shall not be allowed to run on the unprotected filter fabric.

If the Contractor selects to route trucks or other equipment across an area where filter fabric has been placed, the cover thickness shall be increased to a minimum of 1 foot or as otherwise needed to support the traffic without affecting the fabric or the subgrade.

D. Repairs: Should damage occur to the filter fabric during placement, the area shall be patched with a piece of filter fabric using a standard overlap of 3 feet.

DIVISION 3
CONCRETE

SECTION 0310
CONCRETE FORMWORK

0310.01 GENERAL

The Contractor shall not use earth cuts as forms for vertical surfaces, unless otherwise specified herein.

0310.02 MATERIALS

A. FORMS shall be of wood, metal or other approved material that will not adversely affect the surface of the concrete and that will produce or facilitate obtaining the specified surface finish of the concrete.

1. Wood forms shall be commercial standard Douglas Fir, moisture-resistant, concrete-form plywood not less than 5-ply and at least 1/2 inch thick.

2. Metal forms shall be of approved type that will produce surfaces equal to those specified for wood forms.

B. FORM OIL shall be non-staining and shall not cause softening of the concrete, impede the wetting of surfaces to be cured with water or curing compound, nor be otherwise deleterious. Form oil shall be approved by the FDA and EPA for use with potable water when the concrete surface will come in contact with potable water.

C. FORM TIES shall be of an approved design, fixed or adjustable in length and free of devices that will leave a hole larger than 7/8 inch in diameter in surface on concrete. When form ties are used where discoloration of the concrete would be objectionable, the metal remaining after the removal of the external parts of the ties shall be not less than 1 inch below the finished surface. Form ties shall have a rubber waterstop to impede seepage.

0310.03 DESIGN

A. Design formwork in accordance with "Recommended Practice for Concrete Formwork: (ACI 347)" and wind loads as specified by the local building code.

B. Provide temporary openings at the base of column forms and wall forms and at other points where necessary to facilitate cleaning and observation immediately before concrete is deposited.

C. Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, shall be a commercially manufactured type. Nonfabricated wire is not acceptable. The portion remaining within the concrete shall leave no metal within 1 inch of the surface when the concrete is exposed to view. Spreader cones on ties shall not exceed 1 inch diameter.

0310.04 TOLERANCES

A. Construct so that concrete surfaces will conform to the tolerances of ACI 347.

B. The maximum deflection of facing materials reflected in concrete surfaces exposed to view shall be 1/240 of the span between structural members. Provide moldings or chamfer strips in the corners of column, beam, and wall forms where the concrete will be exposed to view.

C. Camber formwork to compensate for anticipated deflections in the formwork due to the weight and pressure of the fresh concrete and construction loads.

D. Provide positive means of adjustment (wedges or jacks) of shores and struts to take up settlement during concrete placing operation. Brace shores and struts securely against lateral deflections.

0310.05 PREPARATION OF FORM SURFACES

A. Construct forms sufficiently tight to prevent leakage of grout or cement plaster. Swell board forms having joints opened by shrinkage of wood until closed by wetting before concrete is placed.

B. Seal plywood and other wood surfaces not subject to shrinkage against absorption of moisture from the concrete by either (1) a field applied, approved form oil or sealer, or (2) a factory applied nonabsorptive liner.

C. Coat forms prior to placing reinforcing steel. Do not allow coating material to stand in puddles in forms nor to come in contact with concrete against which fresh concrete will be placed.

D. Where as-cast finishes are required, do not coat form surfaces with materials which will impart a stain to the concrete. Where the finished surface is required to be painted, coat form surfaces with materials compatible with type of paint to be used.

E. Clean all form surfaces before re-use.

F. Set edge forms and intermediate screed strips accurately to produce the designed elevations and contours; they shall be sufficiently strong to support vibrating bridge screed or roller pipe screeds if finish specified requires use of such equipment. Align concrete surface to the contours of screed strips by use of strike-off templates or approved compacting type screeds.

G. When the formwork is cambered, set screeds to a like camber to maintain the proper concrete thicknesses.

0310.06 REMOVAL OF FORMS

A. Delay removal of formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete until concrete has hardened sufficiently to resist damage from removal operations.

B. Leave formwork for beam soffits, slabs, and other parts that support the weight of concrete in place until concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

C. When shored and other vertical supports are so arranged that the form facing material may be removed without loosening or disturbing the shores and supports, the facing material may be removed at an earlier age as specified or permitted.

0310.07 RESHORING

A. Perform reshoring so that at no time will large areas of new construction be required to support their own weight. While reshoring is under way, do not permit live loads on the new construction. Leave reshores in place until concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

B. Reshore floors supporting under set concrete above or leave their original shores in place. The reshores shall have at least one-half the load capacity of the shores above and shall be distributed in approximately the same pattern as those above. Leave these reshores in place until the freshly placed concrete has reached 75 percent of its specified 28-day strength, unless otherwise specified or permitted.

0310.08 REMOVAL STRENGTH

A. When formwork removal or reshoring removal is based on the concrete reaching its specified 28-day strength (or a specified percentage thereof) the concrete shall be presumed to have reached this strength when either of the following conditions has been met:

1. When testing cylinders, field cured under the most unfavorable conditions prevailing for any portion of the concrete represented, have reached the required strength. Except for the field curing and age at test, the cylinders shall be molded and tested as specified in Division 3.

2. When the concrete has been cured as specified for the same length of time as the age at test of laboratory cured cylinders which reached the required strength. The length of time the concrete has been cured in the field shall be determined by the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is above 50 degrees F and the concrete has been damp or thoroughly sealed from evaporation and loss of moisture.

SECTION 0320
CONCRETE REINFORCEMENT

0320.01 GENERAL

Concrete reinforcement shall consist of furnishing all plant, labor, equipment and materials necessary to install reinforcement in the concrete as shown on the accompanying plans.

0320.02 MATERIALS

Reinforcing bars shall be deformed billet steel bars. Bars shall have a minimum yield point of 60,000 psi. and shall be substantially free of mill scale, oil, rust, dirt or other foreign matter. In the cases of mill scale and rust, it is sufficient merely to remove large flakes, wire brushing or sanding is not recommended. Reinforcing bars shall conform to ASTM specification A615, grades 60 and as shown on the drawings.

0320.03 DRAWINGS AND SCHEDULES

The Contractor shall submit to the Engineer detailed drawings showing bending and cutting schedules, splice locations, and placement locations for all reinforcing steel. No reinforcement shall be erected until the Engineer has given written approval of these drawings and schedules.

0320.04 FABRICATING AND PLACING REINFORCING

A. Fabrication Tolerances

1. Sheared length: +/- 1 inch
2. Depth of truss bars: + 0, -1/2 inch
3. Stirrups, ties and spirals: +/- 1/2 inch
4. All other bends: +/- 1 inch

B. Placement Tolerances

1. Concrete cover to formed surfaces: +/- 1/4 inch
2. Minimum spacing between bars: +/- 1/4 inch
3. Top bars in slabs and beams:

    a) Members 8 inch deep or less: +/- 1/4 inch
    b) Members more than 8 inches but not over 2 feet deep: +/- 1/2 inch
    c) Members more than 2 feet deep: +/- 1 inch
    d) Crosswise of members: spaced evenly within 2 inches
    e) Lengthwise of members: +/- 2 inches

C. Bar Relocation

Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval.

D. Support

Support all reinforcing bars and wire them together to prevent displacement by construction loads or the placing of concrete beyond the tolerances specified herein. On ground and where necessary, supporting metal chairs shall be used. Use metal, or other approved bar chairs and spacers over formwork. Use galvanized or plastic accessories where concrete surface will be exposed to the weather in the finished structure or where rust would impair architectural finishes.

E. Splices in Fabric, Load Bearing

Lap splice welded wire fabric designated as load carrying reinforcement so that the overlap measured between outermost cross wires is plus 2 inches. Support welded wire fabric as required for reinforcing bars.

F. Splices in Fabric, Non Load Bearing

Lap splice welded wire fabric not specifically designated as load carrying reinforcement so that the overlap measured between outermost cross wires of each fabric sheet is not less than 2 inches; extend welded wire fabric across supporting beams and walls to within 4 inches of concrete edges; extend welded wire fabric through contraction joints and construction joints except keyed joints in slabs on ground. Position welded wire fabric during placing of concrete to ensure its proper position in the slab.

G. Bar Splices

Offset vertical bars in columns at least one bar diameter at lapped splices. To ensure proper placement, provide templates for all column dowels. Obtain Owner's Representative's approval of all splices not shown on the project drawings.

H. Bending Bars

Unless permitted, do not bend reinforcement partially embedded in hardened concrete. Field bending shall not be allowed.

SECTION 0336
CONCRETE REPAIR SITE PREPARATION

0336.01 GENERAL

Concrete repair shall be by Shotcrete of similar.

0336.02 REFERENCES

Work shall be consistent with the following industry standards:

1. American Concrete Institute (www.concrete.org)
   a. ACI 506R – Guide to Shotcrete
   b. ACI 506.2 – Specifications for Shotcrete

2. ICRI – International Concrete Repair Institute (www.icri.org)
   a. No. 310.7B – Guide for Surface Preparation for Deteriorated Concrete Resulting from Reinforcing Steel Corrosion (formerly No. 03730).

0336.03 SUBMITTALS

Procedures: Submit description of procedures and methods used to identify areas for repair and means of preparation prior to repair.

0336.04 PREPARATION

Determining the Area to be Repaired: Some loose concrete has been removed by hand with a hammer to assess the extent of repairs necessary. Sound the vicinity of this location to determine the extent of unsound concrete. Typically this will extend at least two (2) feet below the currently exposed area or just above the bottom of the wall.

Surface Preparation: Prepare surfaces to be repaired in accordance with product manufacturer's printer instructions and as specified. Generally, this shall consist of the following:

1. Prior to any repair, all deteriorated or damaged concrete must be removed from the repair area to provide sound concrete for the repair material to bond to.
2. Preferred choice of removal should be high pressure (8,000-10,000 psi) hydroblasting or hydrodemolition. This technique removes unsound concrete while leaving sound concrete in place and does not cause a microfractured surface of old concrete that impact techniques like bush jackhammering would leave. Shallow surface deterioration (usually less than ½ inch deep) is best removed by shot blasting.

3. If impact techniques are used, afterwards the surface should be hydroblasted or sandblasted (wet or dry). The volume of water should be minimized to avoid environmental impacts.

Edge Preparation: saw cut the perimeter of the area to be repaired to a depth of 1 to 1 ½ inches to provide a retaining boundary against which the repair material can be compacted and consolidated. These saw cuts shall consist of straight cuts that do not meet at acute angles. These cuts should be tilted inward 2 or 3 degrees and never beveled outward. Preferable these corners should be rounded by making the final corner cuts with a jack hammer or bush hammer followed by hydroblasting.

Repair Depth: Prepare a uniform surface profile of the concrete substrate for each unique area to be repaired.

Reinforcing Steel Preparation: Reinforcing steel exposed during concrete removal requires special treatment. As a minimum, all scale, rust, corrosion, and bonded concrete must be removed by wire brushing, high pressure water or sand blasting. It is not necessary to clean the steel to white metal condition, just to remove all loose or poorly bonded debris that would affect the bond between the repair material and the reinforcing steel. If corrosion has reduced the cross section of the steel to less than 75% of its original diameter, the affected bars should be removed and replaced in accordance to ACI 318 Section 12.14. Steel exposed more than 1/3 of its perimeter circumference should be sufficiently exposed to provide a 1 inch minimum clearance between the steel and the concrete.

0336.05 MAINTENANCE OF PREPARED AREA

Cleaning: After the repair site has been prepared, it must be maintained in a clean condition and protected from damage until the repair materials can be placed and cured. The prepared keep wet or dry, depending on the repair materials used. Surfaces that will be repaired with cementitious material should be in a saturated surface dry (SSD) condition immediately prior to material application.

SECTION 0336
CRACK REPAIR

0336.01 GENERAL

Crack repair shall be by pressure injection of SikaFix HH.

0336.02 INSTALLATION

Surface Preparation - Crack must be clean and sound. Moisture must be present. Remove all dust, laitance, grease, curing compounds, impregnations, waxes. foreign particles, and disintegrated materials from cracks.

Mixing - Slowly combine Accelerator 'B ' with 5 gal. of Component 'A' and mix thoroughly for about 2 minutes with low speed (400-600 rpm) drill and paddle until uniform in color.

Caution: Do not allow water to enter this mix and avoid 'whipping' air into the material.

Application - Begin by drilling 5/8" or greater diameter holes along the side of the crack at a 45 angle. Drill the hole to intersect the crack midway through the substrate. Install the injection packers in holes and tighten.

If the crack to be injected is ½" or greater at surface, pack an open cell polyurethane foam saturated with the mixed SikaFix into the crack. Spray the water to activate the grout and create a surface seal.

Pump SikaFix at >250 psi into or behind fissures or into voids which are allowing water to infiltrate into unwanted areas. If concrete being injected contains insufficient moisture to activate the grout, inject the crack with a small amount of water prior to injecting the chemical grout.

Pump SikaFix for 45 seconds and then pause to allow the material to flow into all of the cracks and crevices. Watch for material flow and water movement to appear on the surface. When movement stops, begin injecting into the next packer.

When sealing vertical cracks, begin injecting at the bottom of the crack and work vertically. If faster reaction time is needed, or if grout is being pumped at cold temperature, additional SikaFix Accelerator can be added to base resin. Consult Technical Service before adding SikaFix Accelerator. Reinject to assure that all voids are properly sealed off.

Caution: Expanding SikaFix is exerting outward pressures of up to 450 psi. Caution must be used to avoid damage to the dam structure.

DIVISION 6

WOOD AND PLASTICS

SECTION 0610
CARPENTRY

0610.01 GENERAL

The work covered by this section of the specifications includes the furnishing of all plant, labor, equipment, appliances and materials and in performing all operations in connection with carpentry and millwork, complete, in strict accordance with this section of the specifications and the applicable drawings and subject to the terms and conditions of the contract.

0610.02 RELATED WORK SPECIFIED ELSEWHERE

1. Roofing and insulation are specified in Division 7.
2. Doors and windows are specified in Division 8.
3. Finishes are specified in Division 9.

0610.03 QUALITY ASSURANCE

All carpentry work shall be as detailed and in accordance with generally accepted construction procedures for frame type buildings. Carpentry work shall be performed only by personnel experienced in this trade.

In general all materials shall be as indicated on the applicable drawings and/or as specified herein.

Each piece of lumber shall bear the grade mark of the appropriate inspection bureau grading to conform with the rules of the Northeast Lumber Manufacturer's Association (NLMA).

Moisture content shall not exceed the following limits: structural grade - 19%; finish grade - 12%.

0610.03 MATERIALS

A. Framing lumber, where concealed, studding, joists, etc. shall be native (structural grade) hemlock, spruce or approved equal; full and square to dimensions indicated and air dried. Sill plates shall be pressure treated.

B. Plywood for roof shall be 5/8" APA rated exterior sheathing with a veneer grade of C on both faces. The interior walls and ceiling shall be 3/4" APA appearance grade (exp. 2) A-C plywood.

C. Pine for exterior use shall be native white pine, #2 and better. Sound red knots not larger than 1" will be permitted.

D. Pine for interior use shall be select white pine free from knots, sap streaks, or other defects.

E. Strapping shall be 1 x 3 pine.

F. Nails for exterior use shall be galvanized or stainless steel.

G. Rough hardware will be furnished and installed as required including all nails, spikes, bolts, anchors, screws, toggle bolts, expansion bolts, strap anchors and nailing clips as may be required for the proper execution of the work of this section. Rough hardware for exterior exposure shall be galvanized. All interior hardware exposed shall be galvanized.

H. Finish hardware shall be furnished and installed as required. Samples shall be submitted for owners approval. Roof nails shall be 2-1/2" spiral shank aluminum roofing nails with attached neoprene washers.

I. Vents and louvers shall be provided and installed as detailed on the applicable drawings.

J. All lumber shall be of best quality obtainable of grade specified and shall be properly finished for use to which it is going to be used. It shall be graded in accordance with rules of Lumber Manufacturer's Association. Any material which does not meet these requirements for quality and grade shall be rejected.

Rough lumber shall be well seasoned, sound, dressed four sides and be free from splits, checks, cracks, shakes, loose or unsound knots and decay.

Dimensions of lumber sized (width and thickness) given on plans are "Nominal" unless indicated otherwise.

0610.04 CONSTRUCTION

All work shall be erected true to line, level, squared, aligned, plumbed, and well spiked.

Millwork and finished carpentry items shall be installed to detail, set accurately to line, scribed where necessary, fitted, coped, mitered, glued, nailed, bolted, screwed and of the best workmanship by skilled carpenters and cabinet makers.
Exterior finished millwork and carpentry, including all finish and trim shall be installed according to details. Coping and cornice work shall be accurately installed. Finish joints shall be staggered and shall be concealed or in unobjectionable locations. Jointing shall be caulked and so constructed to prevent water passing through. Intersections of flat work shall be shouldered.

Interior finish shall be set and fitted accurately and securely nailed, bolted, secured, screwed or glued according to detail. Finish nails shall be of proper length deeply setting heads with set punch for putty. Each piece shall be double face nailed not over 16 inches apart insofar as practicable.

Coordinate all carpentry work with that of other trades and perform all carpenter assistance as required for the work of the other trades.

SECTION 0640
WOOD TRUSSES

0640.01 GENERAL

The Contractor shall furnish and install all materials and labor for the wood trusses as herein specified and as shown on the drawings.

0640.02 QUALITY ASSURANCE

Site built trusses shall be as shown on the plans. Pre-engineered wood trusses shall be equal to or better than those produced by Mainely Trusses, Inc., Fairfield, Maine. Submittals of all truss design is mandatory and must include all design calculations.

0640.03 MATERIALS

Chords: Chords of the trusses shall be kiln dried SPF 1650 MSR lumber.

Webs: Webs shall be structural grade No. 2 or better kiln SPF and shall be relatively free of knots.

Plates: Gang nail plates shall be as recommended by the manufacturer.

Loading: The trusses shall be designed to carry a snow load of 100 psf at the spacing shown on the drawings.

0640.04 INSTALLATION

Spacing: The trusses shall be spaced as shown on the drawings.

Bracing: Bracing shall be as recommended by the manufacturer. Additional bracing as shown on the drawings shall be provided.

The truss manufacturer shall warrant trusses to bear the designed load. Calculations and drawings for manufactured roof trusses shall be signed and sealed by a professional engineer licensed in the State of Maine. The manufacturer shall provide an on-site representative to certify that the trusses are installed correctly. All warranties shall pass through the Owner.

DIVISION 7
THERMAL & MOISTURE PROTECTION

SECTION 0742
METAL ROOFING & SIDING

0742.01 GENERAL

The Contractor shall furnish and install all materials, labor and equipment required to completely roof and side the Maintenance Building as shown on the Drawings and as herein specified. This includes (but not limited to) all panels, trim, hardware, fasteners, adhesives, paints and coatings for a complete metal roof and siding system.

0742.02 REFERENCES

International Building Code (IBC), Sixth Printing (2009): IBC 1609 - Wind Loads

0742.03 SUBMITTALS

The Contractor shall submit the following items in accordance with Specification Section 0130 - Submittals for review of the Engineer:

1. Shop Drawings, which include:
    a. Catalog cut sheets
    b. Panel configuration
    c. System assembly
    d. Attachment details
    e. Flashing details
    f. Erection drawings
    g. Layout
    h. Fastener layout patterns;

2. Product Data, including:
    a. Factory color finish (Color to be selected / approved during the submittal process)
    b. Fasteners
    c. Sealant compounds
    d. Adhesion compounds

3. Samples
    a. Factory applied Color Finish Chart (Color to be selected / approved during the submittal process)

4. Manufacturer's Certification.
    a. A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to the Engineer.
    b. Provide warranty certificates in accordance with 1.5 – Warranties, of this specification.

5. Manufacturer's Operation & Maintenance Manual
    a. To be provided upon substantial completion of the project.

0742.04 DELIVERY STORAGE & HANDLING

The Contractor shall exercise care in transporting and handling of roofing and siding panels to avoid damage. All materials shall be stored on site in enclosures or under protective coverings until ready for use. Materials shall not be stored directly on the ground.

0742.05 WARRANTIES

The Contractor shall supply the following warranties prior to substantial completion of the project:

1. Manufacturer's 40-Year Finish Warranty (Min)
2. Manufacturer's 15-Year Red-Rust Warranty (Min)
3. Contractor's 5-Year Workmanship Warranty
    a. Workmanship warranty shall include protection of the roofing/siding system free of defects due to installation workmanship including roof and siding installation, flashing, hardware, fasteners and any other items herein specified for a complete, water-tight roof/siding system.

0742.06 PRODUCTS

ROOF & SIDING PANELS

The roof & siding panels shall be of galvalume material and shall overlap and connected to additional panels with a tape sealant and fasteners in a fastener layout pattern recommended by the manufacturer. Panel design shall conform to IBC 1609 – Wind Loads, specifically for wind loads at the project location.

Panels shall conform to the following requirements:

Material:	Galvalume
Nominal Thickness:	26 Gauge (minimum)
Panel width:	36 inch Coverage
Rib spacing (max):	9 inches
Rib depth/height (min):	¾ inch
Panel Yield Stress (Fy):	80 KSI (Minimum)
Color:	(Color chart to be provided with Submittals, Owner to select/approve color at that time)

TRIM & FLASHING

Trim, flashing, edging, closure strips, caps, snow guards and other metal trim/flashing accessories required for a complete, watertight system shall be provided. Trim & Flashing accessories shall be of the same minimum gauge thickness as the panels specified in sub-section 2.1. Trim & flashing material shall be compatible with the panel material.

Snow guards shall be provided as shown on the Drawings.

Trim color shall match the panel color, as approved by the Engineer and/or Owner.

0742.07 ADHESIVES

As recommended by the panel Manufacturer.

0742.08 SEALANTS

Sealant shall be an elastomeric type containing no oil or asphalt, as recommended by the panel Manufacturer. Silicone based sealants shall be prohibited. Exposed sealants shall be of matching color of the panels. Sealant shall be applied as shown on the Drawings.

0742.09 UNDERLAYMENTS

As recommended by the panel Manufacturer.

0742.10 PAINTS & COATINGS

All panels, trim & flashing shall have a factor applied coating system. Minimum prime coat shall be 0.2 mil. Minimum color finish coat shall be 0.8 mil. Total coating system shall not be less than 1 mil.

0742.11 FASTENERS / HARDWARE

As recommended by the panel Manufacturer.

0742.12 MANUFACTURER

The roofing / siding system shall be a product of the following product and manufacturer:

1. Max Rib 'Ultra' by McElroy Metal, Inc.
2. Engineer's Approved Equal.

0742.13 INSTALLATION

All metal siding shall be installed by persons having at least one year of experience in this area of work. Install as shown on the drawings and according to manufacturer's latest recommendations.

DIVISION 8

DOORS, WINDOWS, GLASS

SECTION 0808
OVERHEAD DOOR WITH OPENER

0808.01 GENERAL

The Contractor shall furnish and install all material and equipment necessary to complete the installation of the overhead doors and opener. All work shall be done as herein specified and as shown on the drawings.

0808.02 MATERIALS

Doors shall be steel overhead type as manufactured by Dalton-International, New U.S. Route 30 West, Dalton, Ohio 44618.

Sections to be roll-formed from 16 GA(0.060) continuous steel coil, having 1.25 oz. hot-dipped galvanizing, acid treated, and pre-painted with two (2) coat baked acrylic enamel paint, both sides; 1 mil exterior, 0.6 mil interior.

Box (hat) shaped muntins and end stiles shall be formed of minimum 16 GA galvanized steel, with Pierce-Nuts for rapid hinge attachment. Muntins and end stiles to fit the contour of door section, and secured to panels with 3/8" head, 3/16" body steel rivets, plated and painted.

Bottom section to have rubber astragali, held by continuous roll-formed 16 GA galvanized step rail. Rubber head seal on top section optional.

Springs to be low-stress, oil-tempered, helicalwound torsion type on continuous steel shaft, solid CRS or tubular as required. Aluminum or cast iron drums, 7-strand preformed galvanized steel cable, providing minimum 7/1 safety factor.
Track assembly of inclined wedge-type, with galvanized stamped steel graduated hinges, for regular or special lift conditions as detailed; with 2" or 3" galvanized roll-formed steel track as specified. Track mounted on continuous steel angle or brackets for steel or wood jambs as specified. Painted 1/4" structural steel mounting angles available.

Locking device to engage right hand vertical track with standard size cylinder lock. Provide master keyed cylinders.

INSULATION: Doors shall be insulated with 1-7/8" urethane sheets to provide a U factor of 0.08. Embossed aluminum backup sheets and clips shall be provided.

WEATHERSTRIPPING: Continuous weather stripping shall be a combination of vinyl and aluminum extrusion. Neoprene rubber jam seals shall be provided around the perimeter of the door.

DOOR OPENING SYSTEM: Opening system shall be Telectron commercial model RD14-3, W.W. Graingers, S. Portland, Maine, Model 37263, or approved equal.

System shall be chain driven draw bar type. Drive shafts shall have permanent split ball bearings. Unit shall be powered by a 1/2 HP, 115 V, 1 phase split capacitor motor with automatic reset and thermal protection. Provide a 3 button 24 V control system and a heavy duty digital radio control system with 2 transmitters and a receiver (W.W. Graingers Model 6X892). Operator shall have built in safety features for overtravel or obstructions. Unit shall have a quick-release door arm.

WARRANTY: The complete door assembly shall have a one year warranty against defective material or workmanship.

0808.03 INSTALLATION

The installation of all overhead doors and equipment shall be done by qualified mechanics and shall be done according to the manufacturer's recommendations.

SECTION 0810
DOORS AND FRAMES

0810.01 GENERAL

Specifications apply to steel doors, steel door frames, door hardware and steel frame components such as sidelites, borrowed lites, transom frames and architectural stick assemblies as shown on plans and schedules, as manufactured by Steelcraft, Cincinnati, OH and as conforming to ANSI A250.8-1998 (SDI-100).

0810.02 SUBMITTALS

Doors, frames, hardware and steel frame components shall be as shown on shop drawings and schedules and shall be approved by the Engineer before fabrication.

0810.03 DELIVERY, STORAGE AND PROTECTION

A. Storage of Doors. Doors shall be stored in an upright position under cover. Place the units on at least 4" wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create humidity, chamber and promote rusting. If the corrugated wrapper on the door becomes wet or moisture appears, remove the wrapper immediately. Provide a ¼" space between the doors to promote air circulation.

B. Storage of Frames. Frames shall be stored under cover on 4" wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create humidity, chamber and promote rusting. Assembled frames shall be stored in a vertical position, five units maximum in a stack. Provide a ¼" space between frames to promote air circulation.

0810.04 MATERIALS

A. Doors, frames and frame components shall be manufactured from commercial quality carbon steel conforming to ASTM designation A366; or hot-dipped galvannealed steel having an A60 zinc-iron alloy coating conforming to ASTM designation A653. Galvannealed steel shall be treated to insure proper paint adhesion. All steel component parts used in galvannealed doors and/or frames shall meet the galvanized specification.

B. All doors, frames and frame components shall be cleaned, phosphatized and finished as standard with one coat of baked on rust inhibiting prime paint in accordance with ANSI A250-10.

C. Finish painted doors and frames shall be cleaned, phosphatized and finished with a baked on rust-inhibiting paint in accordance with ANSI A250.3. Color or colors shall be selected from a choice of ten colors as shown in Steelcraft Catalog 613. Custom colors shall be available upon request.

0810.05 CONSTRUCTION OF DOORS

L-Series Doors shall be full-flush or full-flush seamless construction, fabricated from commercial quality carbon steel or hot-dipped galvannealed steel (See Section 0810-04 A, 16 for 1 ¾" doors. Doors shall be reinforced, stiffened, sound deadened and insulated with impregnated Kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core. Door shall have continuous vertical mechanical interlocking joints at lock and hinge edges with visible edge seams or with edge seam filled and ground smooth. The internal portion of the seam shall be sealed with epoxy. An intermittent fastening along the seam is not permitted. Doors shall have beveled (1/8") in 2" hinge and lock edges. Top and bottom steel reinforcement channels shall be galvannealed 14 gage and projection welded to both panels. Hinge reinforcements shall be 7 gage for 1 ¾" doors. Lock reinforcements shall be 16 gage and closer reinforcements 14 gage box minimum 6" and 20" long. Hinge and lock reinforcements shall be projection welded to the edge of the door. Galvannealed doors shall have galvannealed hardware reinforcements. Adequate reinforcements shall be provided for other hardware as required.

All exterior out swing doors shall have the tops closed to eliminate moisture penetration. Door tops shall not have holes or openings. Top caps are permitted. All exterior doors shall include a self-adjusting, concealed door sweep installed in the bottom channel. The bottom seal shall not include springs.

Stile and rail doors shall be tubular stile and rail construction, 1 ¾" thick and fabricated from 16 gage cold-rolled or galvannealed steel (See Section 0810.04). Hinge reinforcements shall be 7 gage, lock reinforcements 16 gage, and closer reinforcements 14 gage. Galvannealed doors shall have galvannealed hardware reinforcements. Adequate reinforcements shall be provided for other hardware as required.

0810.06 CONSTRUCTION OF FRAMES

F-Series flush frames shall be formed from 16 gage commercial quality carbon or galvannealed steel. F-Series frames shall have 2" faces. Miter corners shall have reinforcements with four concealed integral tabs for secure and easy interlocking of jambs to head. F12 frames shall be welded at the corners, 16 gage frames shall be supplied with factory installed rubber silencers, (3) per strike jamb and (2) per head for pairs of doors. Stick on silencers shall not be permitted.

Frames for 1 ¾" doors shall have 7 gage universal steel hinge reinforcements and prepared for 4 ½" x 4 ½" standard or heavy weight template hinges. Strike reinforcements shall be 16 gage and prepared for an ANSI-A115.1-2 strike. Strike jambs shall have a 14 gage reinforcement and preparation for cylindrical ANSI-A115.3 strikes. Steel plaster guards shall be provided for all mortised cutouts. All hinge and strike reinforcements shall be projection welded to the door frame.

Reinforcements for surface applied door closers shall be 14 gage steel. Adequate reinforcements shall be provided for other hardware when required. F-Series frames shall be furnished with a minimum of six wall anchors and two adjustable based anchors of manufacturer's standard design.

All exterior frames shall include a synthetic rubber pressure sensitive weather-stripping. Weather-stripping shall be mounted to the stop of the frame. Door and frame assembly shall have an air infiltration rate of .074 CFM/lineal foot of crack when tested in accordance with ASTM designation E283 and UL 1784. Metal plaster guards shall be provided for all mortised cutouts. All hinge and strike reinforcements shall be projection welded to the door frame.

Reinforcements for surface closer shall be 14 gage steel. Adequate reinforcements shall be provided for other hardware when required.

0810.07 PROTECTIVE COATINGS

The inside of all frames shall be fully grouted or when an anti-freeze agent is used, shall be coated with a fibered asphalt coating prior to grouting. Coating shall be field applied by the Contractor to a minimum 1/16" thickness.

0810.08 FINISH

All doors, frames and frame components shall be cleaned, phosphatized and finished as standard with one coat of baked-on rust inhibiting prime paint in accordance with the ANSI A250.10 *Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.*

0810.09 INSTALLATION

Doors and frames shall be installed in accordance with ANSI/DHI A115.IG Installation Guard for Doors and Frames and/or Steelcraft installation instructions.

SECTION 0815
EXTERIOR DOORS

0815.01 GENERAL

Exterior doors shall be equal to Kawneer Aluminum, Series 190.

1. Air Infiltration: For single acting offset pivot or butt hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E 283 at a pressure differential of 6.24 psf for single doors and 1.567 psf for pairs of doors. A single 3'0" x 7'0" entrance door and frame shall not exceed 0.50 cfm per linear foot of perimeter crack. A pair of 6'0" x 7'0" entrance doors and frame shall not exceed 1.0 cfm per linear foot of perimeter crack.
2. Warranty Period: Two (2) years from date of substantial completion of the project.
3. Substitution Documentation:
    a. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
    b. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for entrance system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum entrances for a period of not less than ten (10) years.)
    c. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
    d. Product Sample and Finish: Submit product sample, with specified finish and color.

0815.02 MATERIALS

A. Aluminum (Entrances and Components):

1. Material Standard: ASTM B 221; 6063-T5 alloy and temper
2. The door stile and rail face dimensions will be as follows:

Door	Vertical Stile	Top Rail	Bottom Rail
190	2-1/8"	2-1/4"	3-7/8"

3. Major portions of the door members to be 0.125" nominal in thickness and glazing molding to be 0.05" thick.
4. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of entrance members are nominal and in compliance with Aluminum Standards and Data, published by The Aluminum Association.

B. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.

C. Provide adjustable glass jacks to help center the glass in the door opening.

0815.03 ACCESSORIES

A. Fasteners: Where exposed, shall be aluminum, stainless steel or plated steel.
Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

B. Panic Guard Entrance Hardware
1. Weatherstripping:
    a. Meeting stiles on pairs of doors shall be equipped with an adjustable astragal utilizing two polymeric fins.
    b. The door weathering on a single acting offset pivot or butt hung door and frame shall be Kawneer Sealair® weathering. This is comprised of a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing.
2. Sill Sweep Strips: EPDM blade gasket sweep strip in an aluminum extrusion applied to the interior exposed surface of the bottom rail with concealed fasteners. (Necessary to meet specified performance tests.)
3. The guard device of the Panic Guard exit system shall have a 1" x 1-3/4" retractable aluminum astragal bar with 1/2" locking throw extending full height of the doors.
4. Threshold: Panic Guard Threshold.

C. Panic Hardware: Von Duprin 88 Series, With Outside Lever and Lock.

D. Closer: 7570 Series Norton or equal

E. Factory Finishing: Kawneer Permanodic® AA-M12C22A44, AAMA 611, Architectural Class I Color Anodic Coating (Color By Owner)

0815.04 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive entrance system and sill is level in accordance with manufacturer's acceptable tolerances.

B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

0815.05 INSTALLATION

A. General: Install entrance system in accordance with manufacturer's instructions and AAMA storefront and entrance guide specifications manual.

1. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
2. Provide alignment attachments and shims to permanently fasten system to building structure.
3. Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.
4. Set thresholds in bed of mastic and secure.
5. Adjusting: Adjust operating hardware for smooth operation.

0815.06 CLEANING AND PROTECTION

A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

B. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum entrances from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants. Remove and replace damaged aluminum entrances at no extra cost.

SECTION 0850
WINDOWS

0850.01 GENERAL

Furnish and install windows and accessories as shown on the drawings and as specified herein.

0850.02 MATERIALS

EXTERIOR WINDOWS: All exterior windows shall be Anderson Perma-Shield windows with high performance glass as manufactured by Anderson Windowall, Bayport, MN or approved equal. Windows shall have wood sub-frames treated with water repellent preservative. Exterior exposed surfaces and faces of jambs shall be sheathed with rigid vinyl (PVC). A security lock shall be included with each unit.

Windows shall be designed to allow drainage for water and condensation, which may accumulate in members of the window units. Window units shall comply with the requirements of the NWMA-IS-4.

Provide window styles and quantities as shown on the plans and as specified in the Window Schedule.

SCREENS: Provide a removable insect screen with attaching hardware and locks (where applicable) for each operable exterior sash. Screen shall have an aluminum frame with 18 x 16 aluminum screen cloth with gun metal finish.

GRILLES: When designated in the Window Schedule provide rigid vinyl PVC divided light grilles for each unit.

EXTENSION JAMBS: Clear pine with sill and colonial casing trim.

COLOR: Color by Owner. Contractor shall verify color prior to ordering windows.

0850.03 INSTALLATION

Comply with manufacturer's specifications and recommendations for the installation of window units, hardware, operators, and other components of the work. Set units plumb, level and true to line, without warp or rack of frames or sash. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials. Set sill members and other members in a bed of compound as shown, or with joint fillers or gaskets as shown to provide weathertight construction. Adjust operating sash and hardware to provide a tight fit at contact points and at weatherstripping (if any), for smooth operation and weathertight closure. Remove excess glazing and sealant compounds, dirt and other substances. Lubricate hardware and other moving parts.

Framed opening shall be properly dimensioned, level, plumb and square. Shim units where necessary to ensure that sills and heads are level and jambs plumb. Check unit for squareness before final anchoring. All voids between frame and opening shall be filled with loose fiberglass insulation. Allow a 1/4" gap between unit and exterior finish for caulking. Paint interior wood surfaces of unit as per Division 9 of the specification and the manufacturer's recommendations.

DIVISION 9

FINISHES

SECTION 0996
SHEATHING (ZIP SYSTEM SHEATHING)

0996.01 GENERAL

The Contractor shall furnish and install material the wall sheathing with integral water-resistive barrier and air barrier, and roof sheathing with integral roof underlayment as specified in the Contract Documents.

0996.02 SUBMITTALS

Manufacturers project, literature and specs for wood sheathing and seam tape.

Product Certifications shall be from manufacturer, indicating that sheathing products comply with ICC-ES AS266 and ICC-ES AC310.

0996.03 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which sheathing manufacturer agrees to repair or replace sheathing products that demonstrate deterioration or failure under normal use due to manufacturing defects within warranty period specified, when installed according to manufacturer's instructions.

1. Warranty Period for Sheathing Products: 30 years following date of substantial completion.

2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.

0996.04 MATERIALS

A. General: Sheathing shall be ZIP system manufactured by Huber Engineered Woods, LLC or approved equal. Sheathing shall be 5/8" or as specified in the Contract Documents.

B. Wall Sheathing with Integral Water-Resistive Barrier and Air Barrier:

1. Oriented-Strand Board Wall Sheathing shall be exposure 1 sheathing with factory-laminated water-resistive barrier facer with printed fastener location symbols.

2. Facer: Medium-density, phenolic-impregnated sheet material qualifying as a Grade D weather-resistive barrier in accordance with ICC AC38.

C. Roof Sheathing with Integral Roof Underlayment

1. Oriented-Strand-Board Sheathing shall be exposure 1 sheathing with factory-laminated water-resistive barrier facer with printed fastener location symbols.

2. Exterior Surface Facer: Medium-density, phenolic-impregnated kraft paper overlay in accordance with ICC AC266.

3. Provide panel edge clips approved for application in accordance with code approvals and panel manufacturer's written instructions.

D. Fasteners: Fasteners shall be of size and type complying with manufacturer's written instructions for project conditions and requirements of authorities having jurisdiction.

0996.05 PERFORMANCE REQUIREMENTS

A. Fire Test Response Characteristics:

1. Exterior Fire-Test Exposure: ASTM E108, Class A, when covered with approved Class A. coverings.

2. Fire Resistance Ratings: Where indicated, provide assemblies tested for fire resistance per ASTM E119.

B. Air-Barrier Assembly Air Leakage: Less than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. per ASTM E2375.

C. Water-vapor Permeance, Facer: Minimum 12 perms, ASTM E96/E96M.

D. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period for 180 days.

0996.06 SHEATHING JOINT MATERIAL

A. Self-Adhering ZIP System Seam and Flashing Tape shall be pressure-sensitive, self-adhering, cold-applied, seam tape consisting of .012 inch thickness polyolefin film with acrylic adhesive, meeting ICC-ES AC148, and tested as part of an assembly meeting performance requirements.

B. Liquid-Applied ZIP System Flashing Membrane shall be gun-grade, cold-applied, silyl-terminated polyether (STPE) liquid flashing membrane compatible with sheathing/weather barrier and self-adhering seam and flashing tape, and tested as part of an assembly meeting performance requirements. Follow manufacturer's recommendation for integration with ZIP System Tape.

C. Self-Adhering ZIP System Flexible Flashing Tape shall be pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC-ES AC149, and tested as part of an assembly meeting performance requirements.

0996.07 INSTALLATION

A. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.

B. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.

C. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant sequencing and installation and with adjacent building air and moisture barrier components to provide complete, continuous air and moisture barrier.

D. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.

E. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs. Support all panel edges.

1. Space square-edged panels 0.125 inch.
2. Butt edges of self-spacing edge panels.

F. Roof Sheathing Panel Clips: Where required under code approvals based upon panel thickness and support spacing, provide panel clips located at each unsupported panel butt joint centered between supports.

G. Attach sheathing panels securely to substrate with manufacturer approved fasteners.

H. Apply ZIP System Tape at all panel seams, penetrations and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.

I. Apply liquid-applied flashing membrane at penetrations, gaps, and cracks to form continuous weathertight surface. Apply liquid membrane according to manufacturer's written instructions. Follow manufacturer's recommendation for integration with ZIP System Tape.

J. Apply ZIP System Stretch Tape around window and window frames, door frames, radius fenestrations and wall penetrations to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of IAPMO ER365 applicable to tape application.

DIVISION 13

SPECIAL CONSTRUCTION

SECTION 1311
CAST STEEL BOLLARD

1311.01 GENERAL

This specification consists of supply and installation of the cast steel mooring bollards as shown on the drawings. Installation includes bolting of bollard to embedded anchors, grouting of base, filling bollard with concrete, and filling of bolt holes with zinc.

1311.02 REFERENCES

A. ASTM A 27(1991) Steel Castings, Carbon, for General Application

B. ASTM A 53 (1997) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

C. ASTM A 123 (1989) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

D. ASTM A 449 (1993) Quenched and Tempered Steel Bolts and Studs

1311.03 SUBMITTALS

A. Pre-Manufacturer: Contractor is to submit the following manufacturer information for approval prior to manufacturing of bollards and hardware.

1. Shop drawings for bollard.
2. Detailed design calculations demonstrating proposed bollard meets the loading requirements with the required factor of safety found in Section 3.1. Calculations must be stamped by a Professional Engineer registered in the United States.
3. Grout.
4. Bolts, Nuts, & Washers.
5. Coating system data sheets.
6. Pipe Sleeves (if necessary).
7. One bollard from each heat shall be made with two (2) coupons. One coupon shall be matched to the serial number on the bollard and to the corresponding heat and sent to the contractor prior to shipment of the bollards. The second coupon will remain attached to the bollard until final delivery.

B. Post Manufacturer: Contractor is to submit the following information after manufacture of bollards and hardware.

1. Mill test certificates for each heat number.
2. Certificate of conformance for line pull rating.
3. Record showing heat numbers and serial numbers.

1311.04 MATERIALS AND DESIGN

A. Bollard: Bollard shall be a new single bit cast steel bollard as shown on the drawings and as manufactured by Maritime International part number **SB-20-1** or approved equal. Bollard material shall be stress-relieved cast steel conforming to Grade 65-35 of ASTM A27. Bollards shall have a load rating of **200 kips tons** in the direction of 0° to 30° relative to horizontal and 0° to 180° relative to wharf front. The theoretical point of loading for the line pull shall be the intersection of the bollard vertical axis centerline and the horizontal axis running through the center of the horns. The factor of safety of the bollard against yielding shall be 2.0 and the factor of safety against breaking shall be 3.5. The minimum height of the bollard shall be **29 ¼"**. The minimum weight of the bollard shall be **1500lbs**. Bollard shall have a **6"** diameter hole through the top through which concrete will be deposited after placement and bolting of bollards. Bollards shall be delivered to the site in a primed condition. Primer to be that or equal to primer listed below as "D. Finish".

B. Anchorage Hardware: The proposed bollard shall be anchored to the concrete with a minimum of **four 1-1/2"** diameter bolts conforming to ASTM A449. Bollard anchor hardware is to be supplied by the bollard manufacturer to ensure proper fit. All anchorage hardware shall be hot dipped galvanized to ASTM A123. Pipe sleeves (if necessary) shall conform to ASTM A53 and be hot dipped galvanized.

C. Grout: Grout used for around base of bollard shall have a minimum 4000 psi compressive stress and a maximum aggregate size of 3/8".

D. Finish: Bollard shall be blasted to SSPC-SP6 and cleaned of any grease or other foreign matter with suitable degreaser before applying any coatings. Bollard shall be finished with a 3-coat paint system as recommended below or approved equal:

- Primer, 2.0 to 3.0 mils D.F.T. Carbozinc 11 Inorganic Zinc
- Intermediate Coat, 3.0 mils D.F.T. Carboguard
  Cycloaliphatic Amine Epoxy
- Top Coat, 2.0-2.5 mils D.F.T. Carbothane 134 HG Aliphatic Acrylic Polyurethane, color shall be ***(Color, per Owner)***

1311.05 EXECUTION

Anchor bolts and sleeves shall be held in place with templates that match bollard manufacturers bolt pattern. Templates shall ensure proper location of bolts and sleeves during placement of concrete.

Bollards shall be leveled using optional leveling nuts on exposed bolts and secured to bolts using additional nuts and washers within bollard base. Nuts shall be hand tight before grouting of base. After grouting has cured for seven days nuts shall be tightened to the snug condition. Areas around nuts in bollard base shall be filled with hot poured zinc so as to prevent standing water. To prevent damage to vessel mooring lines, no sharp edges around bolting area shall exist after installation.

Bollard shall be painted in accordance with section 3.4 above after installation is complete.

Approved manufactures for bollards and hardware include:

Maritime International, Inc.
204 Ida Road
Broussard, LA 70518
PHONE: 337-837-7160
FAX: 337-837-3610
E-mail:info@maritime-international.com

SECTION 1572
LOUVERS AND FANS

1572.01 GENERAL

The Contractor shall furnish all labor, materials, equipment and appurtenances necessary to install the louvers and fans as indicated on the drawings and as herein specified.

1572.02 MATERIALS

FANS shall be Breezeway Model P-16T as manufactured by Penn Ventilator Co., Inc. or equal. The fan is a direct drive aerial fan with a 1/8" hp motor and a capacity of 1620 CFM @ .125 inches.

FIXED LOUVERS shall be installed on the outside of the fan. It shall be compatible with the fan and shall be equal to Type ELF-81 as manufactured by Ruskin Manufacturing Company. An insect screen shall be installed outside of the fixed louver.

BACK DRAFT DAMPER shall be installed on the inside of insect screen. It shall be installed to operate automatically. It shall be equal to a Type BD 2/C bt Ruskin.

1572.03 INSTALLATION

Installation of the fan, louver, and damper shall be according to the manufacturer's recommendations. The unit shall be properly caulked and sealed to protect against the weather. The controls for the fans shall be as shown on the drawings.

SECTION 16000

ELECTRICAL

SECTION 16402

ELECTRICAL WORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. Include Conditions of the Contract and applicable parts of Division 1.

B. Examine all other sections of the Specifications for requirements which affect the work of this Section, whether or not such requirements are particularly mentioned herein.

C. Coordinate the work of this Section with the related work of other trades, and cooperate with such trades to assure the steady progress of all work of this Contract.

D. The intent of this project is to require the upgraded facilities to be completed and fully operational.

1.2 SCOPE

A. The work covered by this Specification consists of furnishing all labor, materials, equipment, supplies, devices, electrical apparatus, wiring and conduit as required to provide new installations at the facility as detailed here-in and on Contract Drawings, and the performance of all operations necessary for the installation of electrical facilities, including a new electric utility service, in and about the structure and around the grounds, as indicated on the Contract Documents.

B. This work shall include all costs involved, but is not limited to, provision of a new electric service with metering to utility standards, panelboard, lighting, switches, receptacles, lighting fixture supports, surge protective device, grounding system, etc.

C. Without limiting the scope of work, the following is included in this project:

1. All wiring and conduits for new receptacles.
2. Provision of new panel board for power distribution.
3. Provision of ground electrode system and ground bonding.
4. Provision of new lighting, switches, controls, and fixture supports.
5. Provision of wiring for overhead door operators and controls provided under another specification section.
7. Obtain and pay for all required permits, inspections, etc.

1.3 WORK OF OTHER SECTIONS

A. Refer to project index.

1.4 SUBMITTALS

A. Shop Drawings:

1. Submit shop drawings in accordance with the requirements of the General Conditions and in the manner described therein. Shop drawings shall indicate specifications section and paragraph requiring equipment indicated.

a. Shop drawings are required on all major pieces of equipment in the following list, but not necessarily limited thereto: panelboard, pull junction, and terminal boxes; disconnect switches; wiring devices, conduits; wire and cable, lighting fixtures and supports, etc.

B. Samples:

1. Submit samples of all materials requested by the Engineer. Samples shall be prepared and submitted in accordance with the requirements of General Conditions, all postage and transportation costs being paid by the Contractor submitting same.

C. Record Drawings:

1. In accordance with requirements of the Supplementary General Conditions, the Contractor shall furnish and keep on the job at all times one complete set of blue line prints of the electrical work, on which shall be clearly, neatly and accurately noted, promptly as the work progresses, all electrical changes, revisions and additions to the work. Wherever work is installed otherwise than as shown on the Contract Drawings, such changes shall be noted.

2. The Contractor shall indicate on these prints the daily progress by coloring in the various apparatus and associated appurtenances as they are installed.

3. No approval of requisition for payment for work installed will be given unless supported by record prints as required above.

4. At the conclusion of work, prepare record drawings in accordance with the requirements of the Supplementary General Conditions.

D. Operating Instructions and Maintenance Manual:

1. The Contractor shall instruct, to the Owner's satisfaction, such persons as the Owner designates in the proper operation and maintenance of systems and their parts.

2. Parties indicated above sign affidavits stating that the above instructions were given by the Contractor.

3. Furnish three copies of operating and maintenance manuals and forward same to the Engineer for transmittal to the Owner.

4. The operating instructions shall be specific for each system and shall include copies of posted specific instructions.

5. For maintenance purposes, provide shop drawings, parts lists, specifications and manufacturer's maintenance bulletins for each piece of equipment. Provide name, address and telephone number of the manufacturer's representative and service company, for each piece of equipment so that service or spare parts can be readily obtained.

E. Manufacturer's Data:

1. Within ten days of award of Contract, the Contractor shall submit for Engineer's approval a complete list of manufacturer's names of all materials and equipment proposed for the project.

2. After approval of the above list, the Contractor shall submit for Engineer's approval complete detailed manufacturer's data consisting of bulletins, shop drawings, and parts lists of the materials and equipment to be furnished, as required.

3. Shop drawings and manufacturer's data submitted must bear the Contractor's stamp stating that the shop drawings and data have been checked and meet the plans and specifications before being submitted for Engineer's approval, or they will not be considered and will be returned for resubmission. If the shop drawings and data show proposed variations from the requirements of the plans and specifications because of standard practice or other reason, specific mention shall be made of such variations in the letter of transmittal.

4. The Contractor shall assume the entire cost and responsibility for any changes in the work, which may be occasioned by approval of materials other than those specified.

5. Errors, omissions and coordination of shop drawings shall be the sole responsibility of the Contractor whether or not the shop drawings are approved.

6. In the event that any specified manufacturer's number has been superseded by a new number since the writing of this specification, the new manufacturer's number shall be immediately submitted to the Engineer for approval. It shall be the responsibility of the Contractor to notify the Engineer of any superseded manufacturer's numbers mentioned in these specifications.

1.5 QUALITY ASSURANCE

A. Applicable Standards, Permits and Codes

1. The installation shall comply with all laws applying to electrical installations in effect in Enfield, Maine, and with regulations of any other governmental body or agency having jurisdiction with regulations of the National Electrical Code where such regulations do not conflict with those laws, with the regulations and standards of the electrical utility company involved, with the telephone utility (if applicable), and with ASHRAE Standard 70, as amended or its replacement standard.

2. File all required notices and plans. Obtain and pay for all permits, inspections, licenses, and certificates required for work under this Section.

3. If any portion of the electrical plans or specifications conflict with the laws or ordinances with regard to type of materials, equipment or fixtures to be used, the Contractor shall bring it to the Engineer's attention at least seven days before submitting the bid. Otherwise, the cost of all work necessary to make the installation comply with said laws or ordinances shall be paid by the Contractor and shall become a part of this Contract.

1.6 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. Before submitting prices or beginning work, thoroughly examine the site and Contract Documents.

B. No claim for extra compensation will be recognized if difficulties are encountered which an examination of site conditions and Contract Documents prior to executing the Contract would have revealed.

1.7 DRAWINGS

A. The Contractor shall refer to the Contract Drawings etc., and the site and floor plans and details for a full comprehension of the extent and detail of the work to be performed. These drawings are intended to be supplementary to the specifications, and any work indicated, mentioned or implied in either is to be constructed as specified by both.

B. All work shown on the Drawings is intended to be approximately correct to the scale of the drawings, but figured dimensions and detailed drawings are diagrammatic and are not intended to show every detail of construction or the exact location of equipment. Where building construction makes it advisable or necessary to change the location of equipment, the Contractor shall perform such work without cost to the Owner on written request of the Engineer. Any doubt as to the intended location of equipment shall be resolved by the Engineer before proceeding with the installation.

C. The intent is to obtain an electrical installation of all systems, complete in every detail within and about the building, and with all facilities properly interconnected with power and telephone (if applicable). The Contractor shall complete the systems in accordance with the best trade practice and to the satisfaction of the Engineer. Upon completion, the electrical systems and all equipment throughout the structures shall operate properly and adequately and function as intended.

D. In any discrepancy between requirements of any Section, between notes on the drawings, between drawings, between details in the specifications, or between drawings and specifications, that which is in the best interest of the Owner shall apply.

1. Testing by Contractor: Provide equipment and personnel for operating test of electrical system.

2. Changes by Contractor: The contract drawings indicate the extent and schematic arrangement of the conduit and wiring systems. If changes from the drawings are deemed necessary by the Contractor, submit details of such changes within 30 days of award of Contract. Make no changes without written authorization of Engineer. Where conduit routings are not indicated, coordinate with Engineer and Owner to ensure no conflicts resulting from routings selected.

1.8 ELECTRICAL REFERENCE SYMBOLS

A. Standard symbols have been employed where such will meet the need. These are augmented and modified to illustrate as necessary. The chart on the Contract Drawings is intended to illustrate all symbols and explain the function and installation method of the device represented. When not clear, or where one has been inadvertently omitted, it shall be the responsibility of the Contractor to obtain a ruling on the intent before proceeding with any work.

1.9 TEMPORARY CONSTRUCTION POWER

A. The Owner will allow the Contractor to utilize the existing facility power service for temporary/construction purposes where such use does not adversely affect the Owner's facility operations during the construction. If the Contractor requires use of construction equipment that can not be accommodated with the present facility service, it shall be the Contractor's responsibility to provide either an independent utility service for construction power or provide any required portable generator to accommodate construction equipment. When needed the Contractor shall furnish and install temporary service and feeders of proper capacity power required for his equipment while under construction. The Contractor shall provide all required transformer(s), panels, etc. Sufficient outlets shall be installed at convenient locations so that extension cords of not over 50 feet will reach all areas requiring power.

B. The Contractor will pay for the energy consumed while on any separate/independent temporary/construction power .

C. If the existing facility service is adequate for the Contractor's equipment during construction without interfering with the Owner's operations which will continue during the construction period, the Owner will not bill the Contractor for such construction power utilized on the existing facility's service.

1.10 GUARANTEE

A. Contractor's guarantee for items furnished covers and includes:

1. Faulty or inadequate design of equipment provided.
2. Improper installation.
3. Defective workmanship and materials.

B. Warranties of Manufacture

1. Not less than one year.
2. As specified.
3. As normally supplied if greater than one year.

1.11 ALTERATIONS

A. This is not applicable for this project.

1.12 SCHEDULING

A. The Electrical Subcontractor shall schedule his work in accordance with Contract Requirements.

1.13 BID ALLOWANCES AMND/OR ALTERNATE BIDS (if any)

A. Items indicated as bid allowances shall be carried at the allowance values stated in the Contract Documents in the preparation of the bid.

B. The payment to the Electrical Subcontractor for work and/or materials and/or Subcontractor invoices will be limited to the actual, documented costs incurred under the allowance, with no mark-ups or profit adders. If costs exceed allowance values, the Electrical Subcontractor must obtain formal approval as with any change order before exceeding the stated allowance amounts.

C. Items indicated as bid alternates shall be entered on the Contractor's bid form and shall include all added or reduced costs to implement the bid alternate as described in the Contract Documents.

1.19 ARC FLASH WARNING STUDY AND LABEL REQUIREMENTS

A. All new and/or modified electrical equipment including control panels, switchboards, panel boards, meter socket enclosures, MCC, VFD assemblies, etc., must have an Arc-Flash Hazard Analysis (AFHA) conducted, and shall be field marked to warn qualified personnel of potential electric arc flash hazards.

Warning labels shall be clearly visible and shall be provided in accordance with NEC 110.16 and NFPA 70E.

B. All work shall be performed in strict compliance with all applicable local and state codes. In addition, all practices shall be in accordance with the latest editions of the National Electrical Code (NEC) of the NFPA, the National Electrical Safety Code, and OSHA.

C. Provide an ANSI Z535.4 compliant(size 4 in. x 6 in.) thermal transfer or equivalent type two color die cut arc flash label as provided by Dura-Label or Brady for each work location analyzed and included in this project. Material type shall be suitable for the locations; ie: indoor, outdoor, chemical resistant, etc.

D. If the equipment will be energized prior to the application of the final labels, provide temporary labels until the final labels are applied. Temporary labels do not need to be of the materials specified above. Temporary labels shall be suitable for the environment(example: 110 pound paper or 30 pound paper in a plastic "page protector"). [Note: label information to meet required criteria outlined herein for permanent labeling. Once final labels are available, remove temporary labeling and provide permanent labels as indicated.]

E. The label shall have either an orange header with black lettering and the wording, "WARNING, ARC FLASH HAZARD", or red header with white lettering and the wording, "DANGER, ARC FLASH HAZARD" . Include the ANSI Safety Symbol in the header as recommended. The Danger signal wording shall be provided for all incident energy values calculated greater than 40 Cal/ sq. cm; Warning to be used for all incident energy values calculated less than 40 Cal/ sq. cm. These labels shall include the following information:

1. Location designation
2. Shock Hazard Information including: Nominal Voltage, Limited Approach, Restricted Approach, and Prohibited Approach.
3. Flash protection boundary
4. Hazard/Risk category (HRC) including PPE Category
5. Incident energy
6. Working distance
7. Reference actual listing of clothing and glove requirements.

F. Labels shall be machine printed, with no field markings. The size of the lettering is to be in accordance with ANSI-Z535.4 recommendations for a safe viewing distance of 3 feet minimum based on favorable viewing conditions and information to be included.

G. Arc Flash labels shall be provided in the following manner and all labels shall be based on recommended over-current device settings. Coordinate the data provided with the Arc Flash Study results and the ANSE labeling requirements.

H. Quantities outlined below are considered minimum quantities necessary. Provide additional labeling as may be required by Regulatory or Inspection Agencies at no added cost to the project.

1. For each transformer, 480 and applicable 240 and/or 208 volt panelboard, individually mounted circuit breaker and safety disconnect device, one arc flash label shall be provided.

2. For each motor control center, one arc flash label shall be provided at the top of each vertical section (see footnote below).

3. For each low voltage switchboard, one arc flash label shall be provided at the top of each vertical section (see footnote below)

4. For each low or medium voltage switchgear, one arc flash label shall be provided at the top of each vertical section (see footnote below)

5. For medium voltage switches one arc flash label shall be provided at the top of each vertical section (see footnote below)

6. For each motor power terminal box, 25 horsepower and larger, one arc flash label shall be provided

7. Additional arc flash labels to address installations and specific equipment requirements shall be provided on an individual evaluation basis

8. General Use Safety Labels shall be installed on equipment in coordination with Arc Flash Labels. The General Use Safety Labels shall warn of general electrical hazards associated with shock, arc flash, and explosions, and instruct workers to turn off power prior to work.

(Footnote: Where control center, switchboard, or switchgear assemblies are dual-fed, provide on arc flash label at each main entrance device or section as well as at any "Tie" device location. For equipment that is front and rear accessible, provide the same labeling on the rear sections as outlined above).

I. Labels shall be field installed by the Contractor at the conclusion of the project.

J. Provide written maintenance procedures and guidelines in accordance with NFPA-70E, Latest Edition, for Owner.

K. In conjunction with the foregoing, provide a written report prepared by a Professional Engineer duly licensed to practice in the state where the project is located. The report shall include:

1. Equipment ID

2. Available Fault Current

3. Method and software used in the calculations

4. Any other relevant data used to support the calculations

5. One Line Diagram

6. Coordination verification of overcurrent protective devices.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. All materials, devices, and equipment, unless specifically excerpted, shall be new.

B. Services: The service is 240/120-volt, single phase, 3 wire, 60 Hertz.

2.2 IDENTIFICATION

A. All materials shall bear UL labels where such have been established for the particular device.

B. All devices shall show make, type, serial number (where applicable), voltage, amperage, wattage, motor ratings, and all other pertinent data.

C. All wire shall have make, type of insulation, size, and voltage rating clearly marked upon it.

2.3 SLEEVES/JUNCTION BOXES/ANCHORS

A. The Contractor shall provide for all sleeves, openings, anchors, supports, conduits, and boxes.

B. Any penetrations required of masonry or concrete shall be made with core drilling and shall not utilize vibratory hammers or similar equipment.

C. Any below grade drilled penetrations of masonry or concrete shall be sealed with Kor Seal or approved equal products.

2.4 CONDUITS

A. Exterior Below Grade: (if any)

1.. Direct buried conduit and conduit in concrete in earth shall be schedule 40 PVC unless required to be schedule 80 PVC by the utility. All elbows and/or offsets shall be rigid galvanized steel.

2.. PVC conduit shall be type II by Carlon Products or approved equal. All plastic joints shall be cemented or heat welded.

3. Provide expansion fittings on all conduits rising from below grade at the exterior of poles and/or other structures and elsewhere as required by codes, ordinances and/or utility standards.

4. .Provide manufactured PVC or other nonmetallic spacers to maintain uniform separation of all conduits in common trench/ditch installations. Maintain any utility, code and/or ordinance specified separation between conduits for electric power and conduits provided for other utilities.

B. Interior, all locations.

1. Where interior conduits are required, they may be electrical metallic tubing where not located within any classified area. They shall be rigid galvanized steel where located within any classified areas.

2. Fittings, boxes and related items for interior work for metallic conduits shall be flush mounted, sheet metal type with pre-punched knock-outs, sized for the installation involved, where in spaces with finished walls and surface mounted where located in unfinished areas.

3. Minimum size conduit for light and power wiring, where required, shall be 3/4", unless otherwise specifically noted or required my equipment manufacturers.

C. Exterior above grade.

1. Exterior above grade conduits shall conform to the below.

2. Rigid Galvanized Steel conduit may be used.

3. Fittings, boxes and related items for interior work shall be cast type as manufactured by Crouse-Hinds or approved equal where installed on surfaces of walls or ceilings. Material shall match the conduit. Bell style boxes will not be accepted.

4. Minimum size conduit for light and power wiring, where required, shall be 3/4", unless otherwise specifically noted.

D. General:

1. The use of nonmetallic conduit or raceway within a building is NOT permitted for this project.

2. Liquid-tight flexible metallic conduit shall be used to tie in all motors or similar equipment. It shall be UL listed and labelled.

3. PVC conduit shall be Schedule 40 by Cantex Products or approved equal.

4. EMT conduit and fittings are approved for use on this project for interior wiring.

5. All terminations of conduits shall have smooth, rounded bushings. All conduit 1" or larger shall have insulation which may be integral with the bushing connector, or an insulated bushing may be added.

6. All rigid conduit joints shall be threaded. Do not use any type of clamp on fittings.

7. Provide expansion fittings where underground conduits rise to above grade at any building or other structure and elsewhere as required by Code. Fittings shall be of the same material/construction as the conduit. Where required such fittings shall accommodate expansion and deflection.

8. Provide fire stopping on all conduits that penetrate fire rated walls, ceilings, or floors.

9. Where conduits pass between the exterior of structures and the interior of structures, the Contractor shall provide suitable sealing per NEC Article 300, 300.7 (A).

2.5 WIRE AND CABLE

A. All cable and wire shall comply with the latest requirements and specifications of the NFPA and/or the Insulated Power Cable Engineers Association (IPCEA) and shall be as manufactured by General Cable, General Electric, Anaconda, Phelps Dodge, or approved equal, unless otherwise specified or indicated.

B. All conductors used in the wiring system shall be soft-drawn copper wire having a conductivity of not less than 98% of that of pure copper, unless otherwise indicated or specified. Wire No. 10 AWG or smaller may be solid and wire No. 8 AWG and larger shall be stranded.

C. All wire and cable shall be stamped approximately every two feet to indicate voltage, type, temperature rating, UL listing, manufacturers' name, size, etc.

D. All underground conductors shall enter manholes, building walls, or termination points through a protective galvanized steel conduit sleeve of appropriate size.

E. All cable and wire shall be: 600 volt; installed in approved raceways or conduits; not less than No. 12 AWG (except that No. 14 AWG may be used for control wiring).

F. Insulation for cable and wire installed in conduit and wireways shall be as follows:

All Areas XHHW-2, THWN-2

G. All branch circuit wiring from panelboards to any outlet on the circuit over 50' but under 100' shall be No. 10 AWG for the first half of the circuit, over 100' but under 175', use No. 8 AWG for the first half. All exit or emergency wiring shall be No. 10 AWG as a minimum. (The intent being that maximum voltage drop at the most remote device on any circuit shall not exceed 3%).

H. The following color code shall be used for all conductors. The colors must be fast, fadeless, and capable of withstanding cleaning.

	240/120 Volt: single phase
Phase A	Black
Phase B	Red
Phase C	-------
Neutral	White
Bond	Green

I. All circuit wires shall be tagged in cabinets, etc., with 1/16" thick tags securely fastened to the conductors with a heavy type of linen wrap at time wires are pulled in and tested. Circuit numbers shall be indicated on the tags. Tags shall not be removed for any reason.

J. At least 8" loops or ends shall be left at each outlet for the installation of devices or fixtures in the future. All wires in outlet boxes not for the connection to fixtures at that outlet shall be rolled up, connected together, and taped.

K. Wires and cables shall be carefully handled during installation.

L. When a lubricant is necessary for pulling wires, it must be listed by UL and be of such consistency that it will leave no obstruction or tackiness that will prevent pulling out old wires or pulling in new wires or additional wires. No soap flakes or vegetable soaps will be permitted.

M. Conductors shall be continuous from panelboard to outlet and from outlet to outlet. No splices shall be made except within junction or outlet boxes.

N. Splices and tapes in wires No. 8 AWG and larger shall be made with Burndy "Polytap" or equal solder less connectors designed for the purpose. All connections between wires on circuits operating at not over 120 volts AC at fixtures and boxes shall for general purpose receptacles be made with UL approved 600 volt wet location listed pressure connectors equal to ideal "Wire-Nut" or "Wing-Nut". Instrument and control wires shall be connected through terminal block connections.

O. Type NM, NMC or similar cables shall not be permitted on this project. Type MC cable with ground conductor will be permitted where acceptable per Code and installed neatly perpendicular and parallel to walls and building framing materials.

P. All conductors and connections shall be free of grounds, shorts, and opens.

2.6 OUTLET BOXES

A. All boxes shall be held to wood surfaces by wood screws. On metal surface, boxes shall be held by metal-to-metal screws or by machine bolts.

2.7 PULL BOXES AND JUNCTION BOXES

A. Pull boxes and junction boxes shall be constructed of code gauge sheet metal of a material that matches the associated metal conduit and of not less than the minimum size recommended by the National Electrical Code. Boxes shall be furnished with screw-fastening covers. Where several feeders pass through a common pull box, they shall be tagged to indicate clearly their electrical characteristics, circuit number and panel designation. Where pull boxes must be used in finished areas, the Architect and the Owner shall be consulted for the location, style of cover, and finish of box. The location shall always be as inconspicuous as possible. Where shown on the drawings, sizes of pull boxes, terminal boxes and junction boxes shall be followed or next larger standard trade size shall be used. Add pull boxes when such are deemed advantageous.

2.8 PULLING CABLES

A. All raceways are to be equipped with conductors. Swab all conduit before cable is drawn into them. Any crushed raceways shall be replaced before drawing in cable. Where cable pulling compounds are required, materials specifically intended for that purpose may be utilized.

2.9 DISCONNECTS

A. Where shown on the Drawings, or when NEC required whether or not shown, install disconnect switches appropriate for the application. When serving motors, they shall be motor rated. Those for equipment outdoors or in damp or wet areas shall be in NEMA 4X stainless steel or reinforced nonmetallic Krydon enclosures, or as otherwise indicated on Contract Drawings. Those located exterior to buildings shall be capable of being padlocked in the "ON" and in the "OFF" positions.

B. Switches shall be heavy duty, quick make and break type. They may be non-fused by a solid copper bar, silver plated on motors over 2 HP. For small motors (1/3 HP and less), a toggle switch, motor rated, may be used; otherwise, they shall be similar to Square D type HU in NEMA 4X SS enclosures as noted. Manual starters with overload protection built in are approved when NEC is acceptable.

2.10 WIRE CONNECTORS AND DEVICES

A. All wire joints shall be made with a pressure squeezed connector such as T & G Stakon and Ideal, or bolted clamp such as made by Dossert. UL listed and wet location labeled twist-on type wire nuts are also permitted for general lighting and receptacle circuits, only. Make up to terminals shall be mechanical squeeze connector. Wherever only a screw connector is available, install a conductor terminal like T & G Stakon spade or donut and designed for the application and compression set to the conductor.

B. Cover all joints made with non-insulated clamp devices with Scotch brand plastic electrical tape. Type #88 may be used at any joint and shall be used whenever the temperature of joint or the room is below 50 degrees F. In the summer, or when temperature is above 60°F, new type #33 plus may be used. Triple wrap joints, each wrap having a 50% overlay.

2.11 SWITCHES AND PLATES

A. Switches shall be specification grade, 20 amperes at 120/277 volts, with ivory handle, such as Bryant 4901-I, for SPST or 4903-I for three way applications. All switches shall have clamp type terminals screw set.

B. Mount all switches vertically, wall surface, and at a height of 4'-0", unless otherwise specified.

C. All switches must have machine screw held wire and be back wired. Automatic grips will not be permitted. All switches must be classed as heavy duty.

D. All plates for flush mounted, color to match switch, nylon plates, one piece construction for all grouped switches. Plates shall not leave exposed edges when installed on surface mounted boxes.

E. Switches and plates shall be a product of Bryant or Hubbell.

2.12 CONVENIENCE AND OTHER OUTLETS AND PLATES

A. Ground Fault Receptacles shall be Bryant GFR 53 FTI, 20 Ampere, and shall also be corrosion resistant. Each receptacle noted as "GFI" is to be an individually protected GFI unit. Standard receptacles shall be approved equal to Bryant 5352 (if any).

B. Automatic grip set outlets are not permitted.

C. All plates for flush mounted devices are to be nylon plates, one-piece construction. Plates shall not leave exposed edges when installed on surface mounted boxes.

D. Outlets and plates shall be a product of Bryant or Hubbell.

2.13 MOTORS

A. This is not applicable for this project as the only identified motors will be part of the overhead door equipment as specified in another specification section.

2.14 SECONDARY SERVICE

A. Electrical utility service shall be provided overhead for the facility as shown on the Contract Drawings. No telephone and CATV services are planned are required for this project.

B. The Contractor shall include all costs for all conduits, all wiring, and all labor, including materials for risers at the meter in his bid. Any charges by the electric utility are to be included in the Contractor's bid and those costs, if any, will be paid directly by the Contractor.

2.15 2ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM

A. Electric utility company shall provide the electrical service of the characteristics as shown on the drawings. The Contractor's work will begin where the utility company's work ends.

B. All costs chargeable by the utility company are part of the Electrical Contractor's work and the Contractor shall include them in the bid.

C. The Contractor shall furnish all labor, materials, etc. necessary for complete approved electrical services as required by the project, including inspection and approval by the utility and local inspection departments.

D. The Contractor shall notify the utility company in writing, with a copy to the Engineer, no later than ten days after signing construction contracts, as to when the project work will be undertaken and their assistance needed.

2.16 OVERHEAD ELECTRICAL SERVICE

A. Overhead service shall comply with all the requirements of the National Electric Code, National Electric Safety Code, local utility company standards, and local code enforcing authority.

B. The intent of this project is to obtain new overhead electrical service to indicated metering location.

2.17 PRIMARY POWER SERVICE

A. No primary power system modifications have been identified by the serving electric utility. If this changes and the utility indicates there will be such modifications, the Contractor shall include costs for the utility to make these changes in his bid.

2.18 METERING

A. The Electrical Contractor shall furnish and install all equipment and meter trim for metering, in accordance with utility company requirements and standards, except that the utility meter will be provided by the local utility.

B. The Electrical Contractor shall provide meter sockets to the local utility's specifications.

C. Any utility charges for poles, service cable, meter sockets, etc., in connection with the provision of the temporary power shall be paid in full by the Electrical Contractor under this Section; this does not include the cost of temporary power used as covered elsewhere.

2.19 PANEL BOARDS

A. Panel boards shall be provided with main lugs or main breakers and branch circuit breakers, according to the scheduled on the Drawings.

B. The general requirements for the panels are shown on the Drawings including mounting and gutters. Mount the panels 6'-6" up to top of roughing cabinets. Gutters shall not be less than 5". Breaker frame size is shown on the Drawings. Handle ties will not be permitted anywhere. Multi-pole breakers shall have common trip and one handle.

C. All breakers shall be trip-free, suitable for switching, and thermal magnetic. All breakers shall be bolted to bus type secured in place by holding bolt. "Space" means provisions for adding breakers. Breakers or busses shall contain terminations or tapings designed for these attachments. All points of contact between bus and sub-bus shall be of copper full silvered between all contact surfaces. All breakers shall have a minimum interrupting capacity of not less than 22,000 amperes at 240 volts AC (symmetrical RMS amperes) for 240/120 volt, single phase panel boards. If the utility documentation indicates an available utility fault current greater than 22,000 AIC for the 240 volt service, the Contractor shall provide the panel board and breakers with a manufacturer's rating that exceeds the utility's available fault current at no added cost to the Owner. A copy of the utility's documented AIC requirements at 240 volts, single phase must be provided with shop drawings or they will not be approved. **All branch circuit breakers shall provide arc fault protection.**

D. Note that the breakers supplying the receptacles in damp/wet locations are not the ground fault interrupter type. Design requires GFI receptacles, specifically.

E. Provide a typewritten tabulation indicating fixture outlets, devices, machines, or apparatus served by each breaker and their room location. This shall follow coding on the Drawings with breakers numbered from top to bottom. Mount tabulation inside the door in a frame for the purpose, with a transparent plastic cover. Panel door shall be "door-in-door" construction.

F. Panelboards provided under this Contract shall be Square D, Siemens, or approved equal.

G. Panel boards shall be NEMA 1 enclosed.

2.20 BALANCING OF LOADS

A. The Contractor shall balance all loads between phases in all panels, etc., around the neutral. Neutral conductors shall be the same size as phase conductors unless specifically noted otherwise. Common neutrals shall not be installed.

B. All circuits shall be distributed among the phases so as to restrict any phase load imbalance to less than 10% at any panel board.

C. After completion of the installation, record under full load conditions the current flow in each phase feeder. Upon request, submit four copies to the Engineer giving name and location of each panel, etc.

2.21 LIGHTING FIXTURES

A. Wire directly to an outlet box for each lighting fixture in and on the structures. General building wire is to be used to these outlets. From outlet to fixture use minimum No. 14 AWG silicon rubber insulated, color coded wire to connect to the fixture socket, ballast, or driver supply leads. Add a bond wire to ground all fixtures.

B. The lighting fixtures listed on the Drawings are to indicate quality, appearance, lamping and photometric characteristics acceptable. Alternative fixtures may be proposed for the project where they provide the equivalent characteristics, quality and appearance, and subject to the Engineer's approval. The Subcontractor must provide manufacturer's point-by-point lighting print-outs with manufacturer's fixture cuts for any proposed fixture substitutions and shall include all assumptions used in performing the calculations. Proposed substitutes must be approved by Addenda no less than 14 working days (Monday - Friday) before bid opening, otherwise they will be rejected.

2.22 LAMPS, DRIVERS AND ACCESSORIES

A. There are no fluorescent fixtures specified for this project.

B. LED light fixtures shall be Reduction of Hazardous Substances (RoHS) compliant and the LED drivers, modules, and housing shall be products of the same manufacturer.

C. LED drivers shall include the following features unless otherwise indicated:

a. Minimum efficiency: 85% at full load.

b. Minimum Operating Ambient Temperature: -20 degrees C. (-4 degrees F).

c. Input voltage: 120 - 277 V (+/- 10%) at 60 Hz.

d. Integral short circuit, open circuit, and overload protection.

e. Power Factor not less than 95%.

f. Total Harmonic Distortion: No greater than 10 %.

g. Comply with FCC 47 CFR Part 15.

D. LED modules shall include the following features unless otherwise indicated:

a. Comply with IES LM-79 and LM-80 requirements.

b. Minimum CRI 80 and color temperature 3000 degrees Kelvin unless otherwise indicated in the fixture schedule.

c. Minimum rated life: 50,000 hours per IES L70

2.23 EMERGENCY LIGHTS, EXIT SIGNS

A. No emergency lighting is included in this project as the facility is not heated or regularly occupied.

2.24 WIRING OF MECHANICAL AND OTHER EQUIPMENT

A. The Contractor shall wire all power to, providing and installing local disconnects for, all mechanical equipment and other equipment per Contract Drawings. This shall include but not be limited to: wiring of the motor operated overhead doors and their associated controls.

2.25 FIRE AND SECURITY SYSTEMS

A. There are no fire alarm or security systems in this Contract.

2.26 NAMEPLATES & PLACARDS/SIGNS

A. Provide nameplates for all items of equipment on all panelboards, controllers, selector switches, starters, safety switches, push-button stations, feeder switches and relay and equipment enclosures.

B. Nameplates shall be black laminated plastic or bakelite, approximately 3/4" x 2-1/2" x 1/16", with four edges neatly beveled. Lettering shall be engraved, white, with a height of approximately 3/16" x 1/4".

C. Provide two holes in nameplate and secure to equipment with non-ferrous screws. If adequate space is not available on item to which nameplate is to be affixed nameplate may be installed adjacent to and as close to the item as possible, and in a position where it is readily visible.

D. Notations on nameplates shall be exactly the same as corresponding notations that appear on the Drawings. Submit proposed engraving list for approval before obtaining.

E. Provide all required placards and signs required by Codes and ordinances, including but not limited to signage that indicates where all power shut-down controls are physically located.

2.27 EQUIPMENT SUPPORTS

A. Provide all structural supports required for proper attachment of all equipment. Wall mounted equipment may be directly secured to supports, with the supports secured to the wall with approved anchors.

B. Maintain at least 1/2" air space between equipment and supporting walls. Groups or arrays of equipment may be mounted on adequately sized stainless steel channels, angles or bars. Prefabricated galvanized steel channels equal to those manufactured by Unistrut or Kindorf are acceptable.

C. Equipment suspended from ceilings shall be supported by adjustable threaded steel rods of adequate strength. No hangers may be secured to furred or suspended ceilings or attached to or carried through duct work.

D. All hardware items shall be steel.

2.28 FUSES (if any)

A. Provide a complete set of fuses for each fusible switch. Time current characteristic curves of fuses serving motors or connected in series with circuit breakers or other circuit protective devices shall be coordinated for proper operation; submit coordination data for approval. Fuses shall have a voltage rating not less than circuit voltage.

B. Cartridge Fuses, Current-limiting Type (Class R): UL 198E, Class RK-1 time-delay type. Associated fuse holders shall be Class R only.

C. Cartridge Fuses, Current-limiting Type (Classes J and L): UL 198C, Class J for 0 to 600 amps and Class L for 601 to 6000 amps.

D. New fuses and fuse holders will be required for the new SPD enclosure.

2.29 DELIVERY, STORAGE AND PROTECTION

A. The Contractor shall be responsible for the work and equipment until finally inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to the site. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material.

B. Each Contractor shall protect work and material of all trades from damage that might be caused by that Subcontractors work or workers and shall make good a damage thus caused.

PART 3 - INSTALLATION

3.1 GENERAL

A. The entire work provided in this specification shall be constructed and finished in every respect in a workmanlike and substantial manner.

B. The Contractor shall obtain detailed information from the manufacturer of apparatus as to the proper method of installing and connecting same.

C. Before installing any of the work, the Contractor shall see that it does not interfere with the clearances required.

D. Work installed by the Contractor which interferes with or modifies the building design shall be changed as directed by the Engineer, and all costs incidental to such changes shall be paid by the Contractor.

E. In any and all cases of discrepancy in figures, plans or specifications the matter shall be immediately submitted to the Engineer for decision.

3.2 SITE VISITS

A. The Contractor will be required to visit the site as the work progresses and to carefully investigate the structural and finished conditions affecting all details of the work, and shall arrange such work required to meet such conditions.

3.3 CUTTING AND PATCHING

A. It is the duty of the Contractor to furnish and install all sleeves required in the performance of this Contract and it shall be the duty of the Contractor to provide the required openings during project construction.

B. Any penetrations of concrete structure shall be made with a hole saw type of equipment. Vibratory hammer types of equipment will not be acceptable for the provisions of such penetrations.

C. Before performing any penetrations of concrete or other materials the Contractor shall carefully check that there are no concealed pipes, conduits, to structural members on either side of the proposed penetration or within the material to be penetrated. If damages do occur to existing items concealed within the material being penetrated or on the exterior faces of such materials, it shall be the Contractor's responsibility to repair or replace the damaged item or items at no added cost to the Owner, with such repair or replacements being to the satisfaction of the Owner and Engineer.

3.4 INTERIOR CONDUIT SYSTEMS

A. The Contractor shall coordinate with Engineer and Owner as to locations, sizes and number of conduit sleeves to be installed through cast concrete.

B. Exposed runs of conduit shall have supports not more than 8'-0" apart and shall be installed with runs parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings with right angle turns consisting of cast metal fittings or symmetrical bends. Conduit bends and offsets shall be

avoided where possible, but where necessary, shall be made with an approved hickey or conduit bending machine. Conduit which has been crushed or deformed in any way shall not be installed. Expansion fittings shall be used to provide for expansion joints. Wooden plugs inserted in masonry or concrete shall not be used to secure conduits or boxes. Conduits shall be supported on approved types of stainless steel wall brackets, ceiling trapeze, straphangers or pipe straps, secured by means of stainless steel toggle bolts in hollow masonry units, expansion bolts in concrete or brick, and stainless steel machine screws on metal surfaces. Conduit shall be installed in such a manner as to insure against trouble from the collection of condensation, and all runs of conduit shall be so arranged as to be devoid of traps wherever possible. The Contractor shall exercise the necessary precautions to prevent the lodgement of dirt, trash, or plaster in conduits, fittings or boxes during the course of installation. A run of conduit which has become clogged shall be entirely freed of the accumulation or shall be replaced. Conduits may be installed exposed where conduits are provided.

C. Conduits shall be securely fastened to all metal outlets, junction boxes, pull boxes, and panelboards with locknuts and bushings that match conduit material or stainless steel, care being taken to establish a firm mechanical and electrical contact between the box and the conduit.

D. Flexible conduit shall be installed only where necessary to overcome vibration at motor connection, and shall be as short as possible between the motor terminal box and the junction box on the branch circuit rigid conduit. All flexible conduit shall be of the liquid-tight type similar to "Sealtite", with stainless steel fittings.

E. All rigid metallic conduit shall utilize threaded fittings.

F. Pull boxes, junction boxes and cabinet boxes shall be constructed of code gauge sheet metal of not less than the minimum size recommended by the National Electrical Code. Boxes shall be furnished with screw fastened covers. Where pull boxes are used in finished areas, the Engineer shall be consulted as to the location, type of cover, and finish of box and cover. Locations shall be as inconspicuous as possible.

3.5 CONDUCTORS

A. A complete system of conductors shall be installed in the raceway system, except where otherwise noted. Conductors shall be continuous from outlet to outlet, and no splices shall be made except within outlet or junction boxes. Compression type connectors properly taped shall be utilized for all splices.

3.6 OUTLETS

A. Outlets shall be installed in locations as indicated on the Contract Drawings. The Contractor shall study the general building plans in relation to the spaces surrounding each outlet in order that the work may fit the other work required by these specifications. Where necessary, the Contractor shall relocate outlets so that installed fixtures are symmetrically located according to room layout and will not interfere with other work or equipment.

3.7 DEVICE PLATES

A. Device plates shall be installed on each outlet to suit the device installed therein. Plates shall normally be installed vertically, with an alignment tolerance of 1/16".

3.8 GROUNDING

A. The conduit system and the neutral conductor of the wiring system shall be grounded. The ground connection between the Electrical system neutral and the conduit system shall be made at the main electrical service breaker. A bare copper conductor sized per NEC shall be installed in nonmetallic conduit from the breaker enclosure to the entrance of the water service, to two 3/4 inch diameter by 10 foot long copperweld ground rods driven 10 feet apart outside the building, to any building structural steel framing, and to reinforcing steel in the building foundation. Connection to the water pipe shall be made by a suitable ground clamp or a lug connection to a plugged tee. If flanged pipes are encountered, the connection shall be made with the lug bolted to the street side of the connection. Connection at driven ground rods shall be by exothermic connectors. NOTE: A new ground electrode system and wiring is part of the project.

B. If nonmetallic water lines are provided on the project, the ground electrode conductor shall be connected by a process approved equal to "Cadweld" process to copper weld ground rods, ¾" diameter by 10 feet long. Provide certified test by recognized testing agency that ground resistance does not exceed 25 ohms.

C. Ground wires shall be grouped and bonded to panel boxes, not to system neutrals. The ground terminals or receptacles shall be bonded to outlet boxes with #12 AWG bare or green insulated wire, or other suitable means per the National Electric Code.

D. Where flexible metallic conduit is used, it shall be suitable for grounding service.

E. All electrically powered equipment shall be grounded.

F. Conduit and/or raceway shall not be utilized as the bonding conductor.

3.9 EXPLOSION PROOF REQUIREMENTS

A. If any classified environments are encountered, equipment shall be rated for the Class, Division, and Group as defined in applicable Codes and/or Ordinances. Areas up to 18 inches above the finished floor are to be considered Class 1 areas.

3.10 PULLING CABLES

A. Cables shall be installed utilizing pulling equipment designed for the types of wireways or conduits installed. Where lubricating material is required, it shall be a material manufactured for and designated by UL label as suitable for the types of insulation involved on the conductors. Care shall be taken during cable pulling so as not to cause kinks or sharp bends in the conductors. If insulation on conductors is cut or knicked during pulling, the conductors involved shall be removed and replaced at no added cost to the Owner. During pulling, the maximum strain applied to the conductors shall not exceed 50% of the ultimate strength of the conductors.

3.11 EXAMINATION AND APPROVAL OF WORK

A. No work shall be covered before examination and approval by the Engineer and by all inspectors and authorities having jurisdiction. Replace any imperfect or condemned work with work conforming to requirements and satisfactory to the Engineer, without extra cost to the Owner. If work is covered before due inspection and approval, the Contractor shall pay all costs of uncovering and reinstating the work.

END OF SECTION