

PROJECT MANUAL FOR

MAINE DEPARTMENT OF AGRICULTURE,
CONSERVATION AND FORESTRY, BUREAU OF
PARKS AND LANDS

MOUNT BATTIE TOWER RESTORATION
CAMDEN HILLS STATE PARK, CAMDEN,
MAINE

WITH PRIVATE FUNDING FROM LOCAL SOURCES

PREPARED BY

JAMM Civil and Structural Engineering
20 Independence Drive Suite 3a
Freeport, Maine 04032

For
Maine Bureau of Parks and Lands

January 22, 2016 (revision 2)
BGS PROJECT PT 2501
ENGINEER'S JOB NO. 2014027

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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 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.

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 sum of the lowest acceptable bid plus any Alternate Bids the Owner elects to include.
- 2.3 The Owner is exempt from the payment of Federal Excise Taxes and Federal Transportation Tax on all shipments, as well as Maine State Sales and Use Taxes on items "...physically incorporated in real property ...". The bidder shall not include these taxes in their bid. See Section 00 72 13 for additional information.

00 21 13
Instructions to Bidders

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 sixty calendar days following the Project bid opening date and time.
- 3.3 A bid that contains an escalation clause is considered invalid.
- 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 shall include the cost of Performance and Payment Bonds in the bid amount if the bid amount will result in a construction contract value over \$125,000, inclusive of alternate bids that may be awarded in the contract. Pursuant to 14 M.R.S.A., Section 871, Public Works Contractors' Surety Bond Law of 1971, subsection 3, the selected Contractor is required to provide these bonds before a contract can be executed. The form of bonds are shown in section 00 61 13.13 and 00 61 13.16.
- 3.6 Bidders may modify bids in writing 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 shall acknowledge on the bid form all Addenda issued in a timely manner. The Architect shall not issue Addenda affecting bidders less than 72 hours prior to the bid closing time. 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 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.
- 3.10 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.

00 11 13
Notice to Contractors

Mount Battie Tower Restoration

Project includes the restoration of the stone masonry tower including concrete repair, epoxy crack injection, masonry pointing, internal drainage improvements, coatings and preservatives.

The cost of the work is approximately \$ 80,0000. The work to be performed under this contract shall be completed on or before *October 15, 2016*. *Once work is begun, work must be completed within 60 calendar days.*

1. Sealed Contractor bids for the project noted above, in envelopes plainly marked "Bid for *Mount Battie Tower Restoration*" and addressed to:
David Schoenherr
Bureau of General Services
4th Floor, Cross State Office Building, 111 Sewall Street
77 State House Station
Augusta, Maine 04333-0077
will be opened and read aloud at *the address shown above* at **2:00 p.m.** on **February 25, 2016**. Bids submitted after the noted time will not be considered and will be returned unopened.
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.
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.
4. Performance and Payment Bonds *are required* on this project.
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.
5. Filed Sub-bids *are not required* on this project.
6. There *are no* Pre-qualified General Contractors on this project.
The Pre-qualified General Contractors are listed below.
 //

00 11 13
Notice to Contractors

7. An on-site pre-bid conference *will* be conducted for this project.
The pre-bid conference is *mandatory* for General Contractors and optional for Subcontractors and suppliers. Contractors who arrive late or leave the meeting early may be prohibited from participating in this meeting and bidding. *Meeting will be on site on February 18, 2016 at 10:00 am. This project was previously bid in September of 2015. Contractors who attended the previous preconstruction conference will be considered as having attended this one for purposes of bidding.*

8. Bid Documents - full sets only - will be available on or about *February 5, 2016* and may be purchased *at cost* from:
Am-At-Uer Service
213 Oxford Street
Portland, ME 04101
207-772-7006 camatuer@maine.rr.com

9. Bid Documents may be examined at:

<i>AGC Maine</i>	<i>Construction Summary</i>
<i>188 Whitten Road</i>	<i>734 Chestnut Street</i>
<i>Augusta, ME 04332</i>	<i>Manchester, NH 03104</i>
<i>Phone 207-622-4741 Fax 207-622-1625</i>	<i>Phone 603-627-8856 Fax 603-627-4524</i>

00 41 13 Contractor Bid Form
Mount Battie Tower Restoration, Camden Hills State Park, Camden, Maine

To: *David Schoenherr*
Bureau of General Services
77 State House Station
Augusta, Maine 04333-0077

The undersigned, or "Bidder", having carefully examined the form of contract, general conditions, specifications and drawings dated January 22, 2016, prepared by JAMM for Maine Department of Agriculture, Conservation & Forestry, Bureau of Parks and Lands, as well as 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:

_____ Dollars
\$ _____

Allowances *are not included* on this project.

1. Alternate bids *are included* on this project but are not included in the Base Bid amount above.
 - a. Alternate #1 – Repointing of stone masonry joints on the inside of the structure not included in the base bid along with application of sealer to joints as further described on the contract drawings.
_____ Dollars \$ _____
 - b. Alternate #2- Remove existing steel railing and replace with galvanized steel railing as further described on the drawings.
_____ Dollars \$ _____
 - c. Alternate #3 – Remove damaged concrete and repair, coat and seal as further described on the contract drawings.
_____ Dollars \$ _____

2. The Bidder acknowledges receipt of the following addenda to the specifications and drawings:

Addendum No. ____ Dated: _____
Addendum No. ____ Dated: _____

3. Bid security *is required* on this project.
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 this completed bid form submitted to the Owner.

00 41 13 Contractor Bid Form
Mount Battie Tower Restoration, Camden Hills State Park, Camden, Maine

4. Filed Sub-bids *are not required* on this project.
The bid amount includes the following Filed Sub-bids which were submitted to the Bidder and to the Maine Construction Bid Depository.

5. The Bidder agrees, if this bid is accepted by the Owner, to sign the designated Owner-Contractor contract and deliver it, with any and all bonds and affidavits of insurance specified in the Bid Documents, 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, a Saturday, or a Sunday, in which case the aforementioned documents must be received before 12:00 noon on the day following the holiday or 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.

6. This bid is hereby submitted by:

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: _____

00 43 13
Contractor Bid Bond

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 day, i.e.: 8th day of select month, select year, which is the same date as that of the bid due date.

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.

**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 day, i.e.: 8th day of select month, select year, which is the same date as that of the bid due date.

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.

STATE OF MAINE
Bureau of General Services
CONSTRUCTION CONTRACT

THIS AGREEMENT made the date day of month in the year 2016 by and between the State of Maine through the Maine Department of Agriculture, Conservation & Forestry, Bureau of Parks and Lands hereinafter called the *Owner* and Contractor company name hereinafter called the *Contractor*.

BGS Project No.: PT 2501

Other Project No.: _____

The *Owner* and the *Contractor* for the consideration hereinafter named agree as follows:

ARTICLE 1 SCOPE OF WORK

§ 1.1 The *Contractor* shall furnish all of the materials and perform all the work described in the specifications and shown on the drawings for the project entitled: Mount Battie Tower Restoration and shall include alternates #1, #2 and #3 {edit as required}.

§ 1.2 The specifications and the drawings have been prepared by JAMM, acting as Designer and named in the documents as the Architect or Engineer. This firm has responsibilities for defining the scope of work governed by their agreement with the *Owner*, the specifications and the drawings, and the General Conditions and Special Provisions of the contract.

ARTICLE 2 COMPLETION DATE

§ 2.1 The work to be performed under this contract shall be completed on or before October 15, 2016. Once the contractor begins work, work shall be completed within 60 calendar days. For each calendar day the project remains uncompleted \$750.00 if the contract is over \$100,000 or \$0.00 if less, shall be charged as liquidated damages.

ARTICLE 3 CONTRACT SUM

§ 3.1 The *Owner* shall pay the *Contractor* for the performance of the contract, subject to additions and deductions provided by approved Change Orders in current funds as follows: amount in words dollars and 00cents, \$0.00

ARTICLE 4 CONTRACT BONDS

§ 4.1 Contract bonds are not required if the contract amount is less than \$125,000 unless bonds are specifically mandated by the contract documents.

§ 4.2 On this project, the *Contractor* ***shall*** furnish the *Owner* the appropriate contract bonds in the amount of 100% of the contract amount.

ARTICLE 5 PROGRESS PAYMENTS

§ 5.1 The *Owner* shall make payments on account of the contract as provided therein as follows: Each month 95% of the value, based on contract prices of labor and materials incorporated in the work and of materials suitably stored at the site thereof up to the first day of that month, as certified by the Architect or Engineer.

§ 5.2 The *Owner* may cause the *Contractor* to be paid such portion of the amount retained hereunder as he deems advisable.

ARTICLE 6 FINAL PAYMENT

§ 6.1 Final payment shall be due 30 days after completion and acceptance of the work, provided the *Contractor* has submitted evidence satisfactory to the *Owner* that all payrolls, material bills and other indebtedness connected with the work has been paid.

ARTICLE 7 CONTRACT DOCUMENTS

§ 7.1 The General Conditions of the contract, instructions to bidders, bid form, Special Provisions, the written specifications and the drawings, and any Addenda, together with this agreement, form the contract; they are as fully a part of the contract as if hereto attached or herein repeated.

§ 7.2 Specifications: ***Project Manual Mount Battie Tower Restoration, Dated January 22, 2016 and prepared by JAMM***

§ 7.3 Drawings: ***As listed on Cover Sheet J-001***

§ 7.4 Addenda: ***each addenda number and date, or "none"***

ARTICLE 8 OTHER PROVISIONS

§ 8.1 The *Owner* and the *Contractor* are required to comply with applicable provisions of the American Recovery and Reinvestment Act (ARRA), and the Qualified School Construction Bonds (QSCB) program, including, but not limited to, the Buy American criteria, federal wage rates, and program-specific reporting requirements, for those projects funded through ARRA and QSCB.

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 day, i.e.: 8th day of select month, select year, which is the same date as that of 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.

**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 day, i.e.: 8th day of select month, select year, which is the same date as that of 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.

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 day, i.e.: 8th day of select month, select year, which is the same date as that of 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.

**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 day, i.e.: 8th day of select month, select year, which is the same date as that of 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.

**00 63 63
Change Order Form**

[Project name] _____
 [location] _____
 [address] _____
 [city state zip] _____

C. O. Number:

Date: _____

To: **[Contractor company name]** _____

Other Project Number: _____

BGS Project Number: _____

- > Number and briefly summarize each Change Order item below. Include description of and reason for work, and cost.
- > Attach appropriate supporting documentation including drawings and specifications.
- > Change Order is not valid until signed by all parties.

No.	Description	Cost
1	[Replace this text. Please keep the description brief so the text is completely visible when printed. Indicate item number at left and cost at right. Repeat below for items as needed.]	
Total:		\$0

	Add	Deduct	Total
Amount of This Change Order	\$0	\$0	\$0
Amount of Previous Change Orders	\$0	\$0	\$0
Net Change Orders to Date	\$0	\$0	\$0
Original Contract Amount			\$0
Contract Total to Date			\$0

Current Completion Date: _____

Extend Completion Date by This Number of Days: _____

New Completion Date: _____

Architect/Engineer
 [Firm name] _____
 [address] _____
 [city state zip] _____

Contractor
 [Company name] _____
 [address] _____
 [city state zip] _____

Owner
 [Agency name] _____
 [address] _____
 [city state zip] _____

 [type name here - signature above]
 date: _____

 [type name here - signature above]
 date: _____

 [type name here - signature above]
 date: _____

> approved by: **Bureau of General Services** _____ date: _____

00 71 00
Definitions

1. Definitions

- 1.1 *Addendum*: A document issued by the Architect 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*: The Architect or Engineer acting as Professional-of-Record for the project. The Architect is responsible for the design of the Project.
- 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 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.
- 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 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.
- 1.12 *Certificate of Substantial Completion*: A document developed by the Architect 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 also include a provisional list of items (a "punch

00 71 00
Definitions

list") remaining to be corrected by the Contractor, if any, and identifies a 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 Architect and approved by the Bureau.
- 1.15 *Change Order Proposal (COP)*: Change proposed by the Contractor in the contract amount, requirements, or time, which becomes a Change Order when approved by the Owner.
- 1.16 *Clerk of the Works*: The authorized representative of the Architect on the job site. Clerk of the Works is also called Architect's representative.
- 1.17 *Construction Change Directive (CCD)*: A written order prepared by the Architect and signed by the Owner and Architect, 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 Price*: The dollar amount of the construction contract, also called *Contract Sum*.
- 1.22 *Contract Time*: The designated duration of time to execute the Work of the contract, with a specific date for completion.
- 1.23 *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.
- 1.24 *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.

00 71 00
Definitions

- 1.25 *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.
- 1.26 *Final Completion*: Project status indicating when the Work is fully completed in compliance with the Contract Documents. Final Completion is documented by a date on which the Contractor's obligations under the contract are complete and accepted by the Owner and final payment becomes due and payable.
- 1.27 *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.
- 1.28 *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 Architect and Contractor.
- 1.29 *Owner's Representative*: The individual or entity contracted by the Owner to be an advisor and information conduit regarding the Project.
- 1.30 *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.
- 1.31 *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.
- 1.32 *Post-Bid Addendum*: Document issued by the Architect 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.
- 1.33 *Project*: The construction project proposed by the Owner to be constructed according to the Contract Documents. The entire public improvement project may also include separate construction and other activities conducted by the Owner or other contractors. The Owner shall inform all contractors of the scope of the entire public improvement project relative to each individual contract.
- 1.34 *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.

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A proposal shall include all costs for overhead and profit. After acceptance by all parties a proposal amends the contract and is implemented by the Contractor.

- 1.35 *Proposal Request (PR)*: An Owner's written request to the Contractor for a Change Order Proposal.
- 1.36 *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.
- 1.37 *Request For Information (RFI)*: A Contractor's written request to the Architect 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 Work.
- 1.38 *Request For Proposal (RFP)*: An Owner's written request to the Contractor for a Change Order Proposal.
- 1.39 *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*.
- 1.40 *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.)
- 1.41 *Sample*: A physical example provided by the Contractor which illustrates materials, equipment or workmanship and establishes standards by which the Work will be judged.
- 1.42 *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.
- 1.43 *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*.
- 1.44 *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.
- 1.45 *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.
- 1.46 *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

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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.

- 1.47 *Substantial Completion*: Project status indicating 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.
- 1.48 *Superintendent*: The representative of the Contractor on the job site, authorized by the Contractor to receive and fulfill instructions from the Architect.
- 1.49 *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.
- 1.50 *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

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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 Architect. The purpose of this conference is to:
- a) introduce all parties who have a significant role in the Project, including:
 - Owner (State Agency)
 - Bureau of General Services (BGS)
 - Architect
 - Consultants
 - Clerk-of-the-works
 - Contractor (GC)
 - Superintendent
 - Subcontractors
 - Other State agencies
 - Owner's Representative
 - Construction testing company
 - Commissioning agent
 - Special Inspections agent;
 - b) review the responsibilities of each party;
 - c) review any previously-identified special provisions of the Project;
 - d) review the Schedule of the Work calendar submitted by the Contractor to be approved by the Owner and Architect;
 - e) review the Schedule of Values form submitted by the Contractor to be approved by the Owner and Architect;
 - f) establish routines for Shop Drawing approval, contract changes, requisitions, et cetera;
 - g) discuss jobsite issues;
 - h) discuss Project close-out procedures;
 - i) provide an opportunity for clarification of Contract Documents before work begins;
 - j) 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 Architect and authorized in writing by the Architect, 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 Architect in writing of such errors or omissions. The Architect shall make any corrections or clarifications necessary in such a situation to document the true intent of the Contract Documents.

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3. Additional Drawings and Specifications

- 3.1 The Owner shall provide to the Contractor, at no additional expense to the Contractor, a reasonable quantity of additional Drawings and Specifications for the execution of the Work.
- 3.2 The Architect shall promptly furnish additional revised Drawings and Specifications that are created due to corrections or clarifications made by the Architect. 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. Record of Documents

- 4.1 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 Architect.
- 4.2 The Contractor shall maintain, continuously updated, complete records of Requests for Information, Architectural Supplemental Instructions, Information Bulletins, supplemental sketches, Change Order Proposals, Change Orders, Shop Drawings, testing reports, et cetera, for access by the Owner and Architect.

5. Ownership of Contract Documents

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

6. Shop Drawings

- 6.1 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.
- 6.2 The Architect 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.
- 6.3 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.
- 6.4 The Contractor shall make any corrections required by the Architect, and shall submit a quantity of corrected copies as may be needed. The acceptance of Shop Drawings or schedules by the Architect 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 Architect at the time of submission and secured the Architect's written approval. The acceptance of Shop Drawings or schedules by the Architect does not relieve the Contractor from responsibility for errors in Shop Drawings or schedules.

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7. Samples

- 7.1 The Contractor shall furnish for approval, with reasonable promptness, all samples as directed by the Architect. The Architect 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.

8. Substitutions

- 8.1 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.
- 8.2 The Contractor may submit detailed information about a proposed substitution to the Architect 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 Architect. The request for substitution shall include a cost comparison and a reason or reasons for the substitution.
- 8.3 The Architect 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 Architect should briefly state the rationale for the decision. The decision shall be considered final.
- 8.4 The duration of a substitution review process can not be the basis for a claim for delay in the Schedule of the Work.

9. Patents and Royalties

- 9.1 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.
- 9.2 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.

10. Surveys, Layout of Work

- 10.1 The Owner shall furnish all property surveys unless otherwise specified.
- 10.2 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

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- 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.
- 10.3 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 Architect prior to commencing work.
11. Permits, Laws, and Regulations
- 11.1 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.
- 11.2 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.
- 11.3 The Owner is responsible for obtaining any federal agency project approvals necessary to complete the Work, unless otherwise indicated in the Contract Documents.
- 11.4 The Owner is responsible for obtaining all easements for permanent structures or permanent changes in existing facilities.
- 11.5 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.
- 11.6 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 Architect 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.
- 11.7 The Contractor shall comply with local, state and federal regulations regarding construction safety and all other aspects of the Work.
12. Taxes
- 12.1 The Owner is exempt from the payment of Federal Excise Taxes on articles not for resale and from the Federal Transportation Tax on all shipments, as well as Maine State Sales and Use Taxes. Pricing in all Change Order Proposals from the Contractor and Subcontractors shall not include these taxes.
- 12.2 Maine statute (36 M.R.S.A. §1760) allows "...an exemption from sales and use tax on items which will be physically incorporated in real property of an exempt organization. This exemption only applies to lumber, hardware, doors and windows, nails, insulation and other building materials actually affixed to realty. Tools, wearing apparel, consumable supplies, machinery and equipment used by the Contractor are taxable even if purchased specifically for the exempt job."
- 12.3 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.A. §1760 and detailed in Rule 302 (18-125 CMR 302).

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13. Labor and Wages

- 13.1 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.
- 13.2 The Architect 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.
- 13.3 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.
- 13.4 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.
- 13.5 The Contractor shall conform to Maine statute by providing to the Owner 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.
- 13.6 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.
- 13.7 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.
- 13.8 The Contractor may contact the Maine Department of Labor, 54 State House Station, Augusta, Maine 04333 for guidance on labor issues.

14. Insurance Requirements

- 14.1 The Contractor shall not commence work under this contract until the Contractor has obtained all insurance required under this article and such insurance has been approved by the Owner. The Contractor shall not allow any Subcontractor to commence work on a subcontract until all similar insurance required of the Subcontractor has been so obtained and approved.
- 14.2 The Owner does not warrant or represent that the insurance required under this article constitutes an insurance portfolio which adequately addresses all risks faced by the Contractor or its Subcontractors. The Contractor and Subcontractors of every tier shall satisfy themselves as to the existence, extent and adequacy of insurance prior to commencement of work.
- 14.3 The Contractor and any Subcontractor shall procure and maintain for the duration of the Project insurance of the types and limits set forth under this article and such insurance as will protect themselves from claims which may arise out of or result from the Contractor's or Subcontractor's execution of the work, whether such execution be by themselves or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable. The insurance coverage provided by the Contractor and any Subcontractor will be primary coverage.

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14.4 Workers' Compensation Insurance

Worker's Compensation insurance for all employees on 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

14.5 Liability Insurance

a) General Liability Insurance

General liability insurance 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. It shall include collapse and underground coverage - as well as explosion coverage if explosion hazards exist. Aggregate limits shall apply on a per 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

b) Automobile Liability Insurance

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	\$1,000,000
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c) Owners Protective Liability Insurance

For Contracts exceeding \$50,000 in total Contract amount, Contractor shall secure an Owners Protective Liability policy naming the Owner as the Named Insured.

Minimum acceptable limits are:

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

d) Pollution Liability Insurance

In the event that any disruption, handling, abatement, remediation, encapsulation, removal, transport, or disposal of contaminated or hazardous material is required, the Contractor or its Subcontractor shall secure a pollution liability policy in addition to any other coverages contained in this section. The insurance shall be provided on an occurrence based policy and shall remain in effect for the duration of the Project.

Minimum acceptable limit is:

Each occurrence limit	\$1,000,000
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14.6 Property Insurance

a) New Construction Only

The Contractor shall procure and maintain Builder's Risk insurance naming the Owner, Contractor and all Subcontractors as insureds as their interest may appear. The covered cause of loss form shall be Risks of Direct Physical Loss, endorsed to include flood, earthquake, testing and ensuing loss and shall include coverage for materials in transit and materials stored off site. Coverage shall be on a replacement cost and a completed value basis. Unless specifically authorized by the Owner, the limit of insurance shall not be less than the contract amount and coverage shall apply during the entire contract period until the Certificate of Substantial Completion is accepted by the Owner.

b) Renovations within and Additions to Existing Buildings Insured by State of Maine Risk Management Division

Insurance shall be provided by the Owner. The Owner shall provide the following Project information to the State of Maine Risk Management Division prior to commencement of the Work in order to initiate the insurance coverage: building name, street address and municipality, brief project description, project start date and completion date, contract dollar value, and Contractor name and address. Said insurance shall name the Contractor and all Subcontractors as insureds as their interest may appear. The covered causes of loss form shall be Risks of Direct Physical Loss, endorsed to include flood, earthquake, testing and ensuing loss and shall include coverage for materials in transit and materials stored off site. Theft coverage is not included and exclusions common to commercial property policies are applicable. The Contractor shall be responsible for a \$500 deductible per occurrence. Unless specifically authorized by the Owner, the limit of insurance shall not be less than the contract amount and coverage shall apply during the entire contract period until the Certificate of Substantial Completion is accepted by the Owner. Verification of insurance will be furnished to the Contractor upon request. The Contractor may independently acquire, at the Contractor's expense, coverage in excess of that maintained by the State of Maine.

- 14.7 The Contractor shall provide four original copies of all certificates of insurance in a form, and issued by, companies acceptable to the Owner prior to commencement of work. The certificates shall name the Owner as certificate holder. The certificates shall contain a provision that coverage afforded under the insurance policies will not be canceled or materially changed unless at least thirty (30) calendar days prior written notice by registered letter has been given to the Owner.

15. Contract Bonds

- 15.1 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 addition or deductions of the contract.
- 15.2 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.

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16. Allowances

- 16.1 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.
- 16.2 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.

17. Assignment of Contract

- 17.1 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.

18. Separate Contracts

- 18.1 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.
- 18.2 The Contractor shall promptly report to the Architect 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.
- 18.3 Similarly, the Contractor shall promptly report to the Architect and Owner any apparent deficiencies in their own work that would impact the proper execution or results of the Owner's other contractors.
- 18.4 The Contractor shall report to the Architect 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.
- 18.5 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.

19. Subcontracts

- 19.1 The Contractor shall not subcontract any part of this contract without the written permission of the Owner.
- 19.2 The Contractor shall submit a complete list of named Subcontractors and material suppliers to the Architect 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.

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- 19.3 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.
- 19.4 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.
- 19.5 Neither the Contract Documents nor any Contractor-Subcontractor contract shall indicate, infer or create any direct contractual relationship between any Subcontractor and the Owner.

20. Contractor-Subcontractor Relationship

- 20.1 The Contractor shall be bound to the Subcontractor by all the obligations in the Contract Documents that bind the Contractor to the Owner.
- 20.2 The Contractor shall pay the Subcontractor, in proportion to the dollar value of the work completed by the Subcontractor, the dollar amount allowed to the Contractor at the time each Contractor's Requisition for Payment is approved by the Owner.
- 20.3 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.
- 20.4 The Contractor shall pay the Subcontractor on demand for subcontract work or materials as far as executed and fixed in place, less retainage, at the time the Contractor's Requisition for Payment is approved by the Owner, even if the Architect fails to certify a portion of the Requisition for Payment for a cause not the fault of the Subcontractor.
- 20.5 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.
- 20.6 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.
- 20.7 The Contractor shall give the Subcontractor an opportunity to present and to submit evidence in any progress conference or disputes involving subcontract work.
- 20.8 The Contractor shall pay the Subcontractor a just share of any fire insurance payment received by the Contractor.
- 20.9 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.
- 20.10 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.
- 20.11 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 Architect's instructions.

21. Supervision of the Work

- 21.1 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.

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- 21.2 The superintendent represents the Contractor on the jobsite. Directives given by the Architect 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 Architect and Owner are not responsible for the acts or omissions of the superintendent or assistant superintendents.
- 21.3 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 Architect. 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 Architect that was not revealed by the superintendent in a timely way.

22. Observation of the Work

- 22.1 The Contractor shall allow the Owner, the Architect 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.
- 22.2 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.
- 22.3 The Contractor shall schedule inspections and obtain all required certificates of inspection for inspections by a party other than the Architect.
- 22.4 The Architect 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 Architect, the Contractor shall notify the Architect of the construction schedule in this regard. Work concealed or buried prior to the Architect's approval may need to be uncovered at the Contractor's expense.
- 22.5 The Architect 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.
- 22.6 The Bureau shall periodically observe the Work during the course of construction and make recommendations to the Contractor or Architect as necessary. Such recommendations shall be considered and implemented through the usual means for changes to the Work.

23. Architect's Status

- 23.1 The Architect represents the Owner during the construction period, and observes the work in progress on behalf of the Owner. The Architect 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 Architect has authority to stop the work whenever such an action is necessary, in the Architect's reasonable opinion, to ensure the proper execution of the contract.
- 23.2 The Architect is the interpreter of the conditions of the contract and the judge of its performance. The Architect shall favor neither the Owner nor the Contractor, but shall use the Architect's powers under the contract to enforce faithful performance by both parties.

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23.3 In the event of the termination of the Architect'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 Architect relative to this contract shall be that of the former Architect.

24. Management of the Premises

- 24.1 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 Architect's directions shall not cause the use of premises to be impeded for the Contractor or Owner.
- 24.2 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.
- 24.3 The Contractor shall enforce the Architect'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.
- 24.4 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.

25. Safety and Security of the Premises

- 25.1 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.
- 25.2 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.
- 25.3 The Contractor shall designate, and make known to the Architect and the Owner, a safety officer whose duty is the prevention of accidents on the site.
- 25.4 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.
- 25.5 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.
- 25.6 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.
- 25.7 Damage to the Work, including that which is reasonably protected, shall be repaired or replaced at the expense of the party who caused the damage.
- 25.8 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 Architect may consult with the Contractor on such means and methods of construction, however, the ultimate responsibility lies with the Contractor.

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- 25.9 The Contractor shall not jeopardize any work in place with subsequent construction activities such as blasting, drilling, excavating, cutting, patching or altering work. The Architect 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.
- 25.10 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.
- 25.11 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.

26. Changes in the Work

- 26.1 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.
- 26.2 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.
- 26.3 The Architect shall prepare the Construction Change Directive representing a complete scope of work, with proposed Contract Price and Contract Time revisions, if any, clearly stated.
- 26.4 The Contractor shall promptly carry out a Construction Change Directive which has been signed by the Owner and the Architect. 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.
- 26.5 The method of determining the dollar value of extra work shall be by:
- a) an estimate of the Contractor accepted by Owner as a lump sum, or
 - b) unit prices named in the contract or subsequently agreed upon, or
 - c) cost plus a designated percentage, or
 - d) cost plus a fixed fee.
- 26.6 The Contractor shall determine the dollar value of the extra work for both the lump sum and cost plus designated percentage methods using the following rates. The rates include all overhead and profit expenses.
- a) Contractor - for any work performed by the Contractor's own forces, 20% of the cost;
 - b) Subcontractor - for work performed by Subcontractor's own forces, 20% of the cost;
 - c) Contractor - for work performed by Contractor's Subcontractor, 10% of the amount due the Subcontractor.
- 26.7 The Contractor shall keep and provide records as needed or directed for the cost plus designated percentage method. The Architect shall review and certify the appropriate amount which includes the Contractor's overhead and profit. The Owner shall make payments based on the Architect's certificate.

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- 26.8 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.
- 26.9 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.
- 26.10 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.
- 26.11 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.
- 26.12 The Architect may order minor changes in the Work, not involving extra cost, which is consistent with the intent of the design or project.
- 26.13 The Contractor shall immediately give written notification to the Architect 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 Architect. The Architect shall promptly investigate the conditions and respond to the Contractor's notice with direction that avoids any unnecessary delay of the Work. The Architect shall determine if the discovered conditions warrant a Change Order.
- 26.14 The Contractor shall, within ten calendar days of receipt of the information, give written notification to the Architect if the Contractor claims that instructions by the Architect will constitute extra cost not accounted for by Change Order or otherwise under the contract. The Architect shall promptly respond to the Contractor's notice with direction that avoids any unnecessary delay of the Work. The Architect shall determine if the Contractor's claim warrants a Change Order.
27. Correction of the Work
- 27.1 The Contractor shall promptly remove from the premises all work the Architect 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.
- 27.2 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 Architect. 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.
- 27.3 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.

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The Owner shall promptly give notice of observed defects to the Contractor and Architect. The Architect shall determine the status of all claimed defects.

- 27.4 The Architect 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.

28. Owner's Right to do Work

- 28.1 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 Architect 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.
- 28.2 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.

29. Termination of Contract and Stop Work Action

- 29.1 The Owner may, owing to a certificate of the Architect 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: if the contractor is adjudged bankrupt, or makes a general assignment for the benefit of its creditors, or if a receiver is appointed due to the Contractor's insolvency, or if the Contractor persistently or repeatedly refuses or fails to provide enough properly skilled workers or proper materials, or if the Contractor fails to make prompt payment to Subcontractors or material or labor suppliers, or if the Contractor persistently disregards laws, ordinances or the instructions of the Architect, or is otherwise found guilty of a substantial violation of a provision of the Contract Documents.
- 29.2 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 Architect shall certify the expense incurred by the Contractor's default. This obligation for payment shall continue to exist after termination of the contract.
- 29.3 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 Architect, terminate this contract. The Contractor may then recover from the Owner payment for all work executed, any proven loss and reasonable profit and damage.

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29.4 The Contractor may, if the Architect 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 Architect, with seven days written notice to the Owner and the Architect, stop the Work or terminate this Contract.

30. Delays and Extension of Time

30.1 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 Architect, 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 Architect shall determine the status of all claimed causes.

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

30.3 The contract shall not be extended due to failure of the Architect to furnish drawings if no schedule or agreement is made between the Contractor and the Architect indicating the dates which drawings shall be furnished and fourteen calendar days has passed after said date for such drawings.

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

31. Payments to the Contractor

31.1 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 Architect. The Architect 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.

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

31.3 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.

31.4 The Architect shall verify and certify each Requisition for Payment which appears to be complete and correct prior to payment being made by the Owner. The Architect 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.

31.5 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

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- in the Work, the full amount previously allowed shall be deducted from subsequent payments unless the Contractor satisfactorily replaces said material.
- 31.6 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 Architect 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.
- 31.7 Subcontractors may request, and shall receive from the Architect, copies of approved Requisitions for Payment showing the amounts certified in the Schedule of Values.
- 31.8 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.
- 31.9 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 (M.R.S.A. 5, Section 1746).

32. Payments Withheld

- 32.1 The Architect 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:
- a) defective work not remedied;
 - b) claims filed or reasonable evidence indicating probable filing of claims;
 - c) failure to make payments properly to Subcontractors or suppliers;
 - d) a reasonable doubt that the contract can be completed for the balance then unpaid;
 - e) liability for damage to another contractor.

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

33. Liens

- 33.1 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.

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33.2 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.

34. Indemnification

34.1 The Contractor shall indemnify and hold harmless the Owner, its officers, agents, and employees from and against any and all claims, liabilities and costs, including reasonable attorney's fees, for any or all injuries to persons, property or claims for money damages arising from the negligent acts or omissions of the Contractor, its employees or agents, officers or subcontractors in the performance of work under this Agreement.

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 Architect'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 Architect 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 Architect at the Contractor's expense.

35.4 The Contractor shall request clarification or revision of any design work by the Architect, 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 Architect 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 Architect 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 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 exactly cleaning is specified. The Contractor shall wash all windows and glass immediately prior to the final inspection, unless otherwise directed.

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- 36.2 The Owner may conduct the cleaning of the premises where the Contractor, duly notified by the Architect, 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, generally called the "punch list", to be corrected by the Contractor. The Architect shall document the successful completion of the Work in a dated Certificate of Substantial Completion, to be signed by Owner, Architect, and Contractor.
- 36.4 The Contractor shall not call for final inspection of any portion of the Work that is not complete and permanent 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 Architect 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 Architect determines has followed the expected rate of progress.
- 37.4 The Architect 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.

<u>If the original contract amount is:</u>	<u>The per day Liquidated Damages shall be:</u>
More than \$100,000 and less than \$2,000,000	\$750
More than \$2,000,000 and less than \$10,000,000	\$1,500
More than \$10,000,000	\$1,500 plus \$250 for each \$2,000,000 over \$10,000,000

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38. Dispute Resolution

38.1 Mediation

- a) In the event of a dispute between the parties which arises under this Agreement in which the dispute cannot be resolved through informal negotiation, the dispute shall be submitted to a neutral mediator jointly selected by the parties.
- b) 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.
- c) In any mediation between the Owner and the Architect, the Owner has the right to consolidate related claims between Owner and Contractor.

38.2 Arbitration

- a) 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.
- b) 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.
- c) The costs of the arbitration, including the arbitrators’ fees shall be borne equally by the parties to the arbitration, unless the arbitrator orders otherwise.
- d) In any arbitration between the Owner and the Architect, 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)

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Wage Determination Schedule

End of Section 00 73 46

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

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

Title of Project -----Mount Battie Tower Restoration

Location of Project -Camden, Knox County

**2016 Fair Minimum Wage Rates
Building 2 (other than 1 & 2 family homes) Knox County**

<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>	<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>
Asbestos/Lead Removal Worker	\$12.00	\$0.45	\$12.45	Insulation Installer	\$19.00	\$1.54	\$20.54
Assembler - Metal Building	\$13.63	\$3.38	\$17.01	Ironworker - Reinforcing	\$21.00	\$6.80	\$27.80
Boom Truck (Truck Crane) Operator	\$21.00	\$2.85	\$23.85	Ironworker - Structural	\$25.50	\$20.52	\$46.02
Bricklayer	\$21.25	\$2.00	\$23.25	Laborers (Incl. Helpers & Tenders)	\$13.25	\$0.34	\$13.59
Bulldozer Operator	\$17.63	\$3.24	\$20.87	Laborer - Skilled	\$16.00	\$1.20	\$17.20
Carpenter	\$20.50	\$2.88	\$23.38	Loader Operator - Front End	\$17.21	\$2.66	\$19.87
Carpenter - Acoustical	\$15.00	\$2.68	\$17.68	Mechanic - Maintenance	\$20.13	\$2.79	\$22.92
Carpenter - Rough	\$18.00	\$1.07	\$19.07	Mechanic - Refrigeration	\$22.00	\$3.69	\$25.69
Cement Mason/Finisher	\$17.38	\$2.15	\$19.53	Millwright	\$23.95	\$19.19	\$43.14
Communication Equipment Installer	\$24.71	\$9.73	\$34.44	Oil/Fuel Burner Servicer & Inst(licensed)	\$24.43	\$6.13	\$30.56
Concrete Pump Operator	\$24.25	\$5.40	\$29.65	Painter	\$17.00	\$0.75	\$17.75
Crane Operator <15 Tons	\$21.25	\$2.58	\$23.83	Paperhanger	\$17.00	\$3.16	\$20.16
Crane Operator =>15 Tons	\$24.50	\$6.61	\$31.11	Pipe/Steam/Sprinkler Fitter	\$26.25	\$13.84	\$40.09
Crusher Plant Operator	\$15.80	\$3.76	\$19.56	Pipe Layer	\$19.33	\$2.37	\$21.70
Dry-Wall Applicator	\$19.00	\$2.89	\$21.89	Plasterer	\$43.93	\$27.43	\$71.36
Dry-Wall Taper & Finisher	\$22.00	\$1.99	\$23.99	Plumber (Licensed)	\$24.50	\$3.10	\$27.60
Electrician - Licensed	\$25.00	\$4.63	\$29.63	Plumber Helper/Trainee (Licensed)	\$17.48	\$2.53	\$20.01
Electrician Helper/Cable Puller (Licensed)	\$16.39	\$2.17	\$18.56	Propane & Natural Gas Service & inst.	\$21.00	\$3.87	\$24.87
Elevator Constructor/Installer	\$53.30	\$26.30	\$79.60	Roofer	\$15.75	\$1.40	\$17.15
Excavator Operator	\$19.06	\$2.44	\$21.50	Sheet Metal Worker	\$18.50	\$3.50	\$22.00
Fence Setter	\$15.25	\$1.32	\$16.57	Sider	\$22.75	\$4.33	\$27.08
Flagger	\$16.70	\$7.95	\$24.65	Stone Mason	\$17.80	\$0.00	\$17.80
Floor Layer	\$19.50	\$4.51	\$24.01	Tile Setter	\$21.25	\$4.76	\$26.01
Furniture Installer/Assembler	\$13.75	\$0.85	\$14.60	Truck Driver - Light	\$15.00	\$0.99	\$15.99
Glazier	\$20.82	\$2.71	\$23.53	Truck Driver - Medium	\$15.00	\$0.10	\$15.10
Grader/Scraper Operator	\$17.50	\$1.04	\$18.54	Truck Driver - Heavy	\$14.00	\$0.78	\$14.78
Heating, Ventilation, Air Conditioning	\$25.63	\$3.27	\$28.90	Truck Driver - Tractor Trailer	\$16.24	\$3.28	\$19.52

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

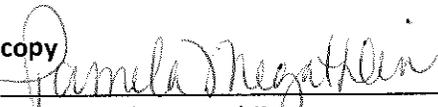
Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at \$50,000 or more and any subcontractors to such a contractor.

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 with the Secretary of State.

Determination No: B2-014-2016
Filing Date: January 19, 2016

Expiration Date: 12-31-2016

A true copy
Attest: 
Pamela Megathlin
Director
Bureau of Labor Standards

SikaTop® 122 PLUS

Two-component, polymer-modified, cementitious, trowel-grade mortar plus Sika FerroGard® 901 penetrating corrosion inhibitor

Description	SikaTop® 122 PLUS is a two-component, polymer-modified, portland cement based, fast-setting, trowel-grade mortar. It is a high performance repair mortar for horizontal and vertical surfaces and offers the additional benefit of Sika FerroGard® 901, a penetrating corrosion inhibitor.
Where to Use	<ul style="list-style-type: none"> ■ On grade, above and below grade on concrete and mortar. ■ On horizontal surfaces. ■ As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams, ramps, floods, etc. ■ To level concrete surfaces. ■ As an overlay system for topping/resurfacing concrete.
Advantages	<ul style="list-style-type: none"> ■ Extremely low shrinkage proven by four industry standard test methods. ■ High compressive and flexural strengths. ■ High abrasion resistance. ■ Increased freeze/thaw durability and resistance to deicing salts. ■ Compatible with coefficient of thermal expansion of concrete - Passes ASTM C-884. ■ Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting water vapor transmission (not a vapor barrier). ■ Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete. ■ USDA certifiable for the food industry. ■ ANSI/NSF Standard 61 potable water complaint.
Coverage	0.51 cu. ft./ unit mortar; 0.75 cu. ft./unit concrete; (mixed mortar + 42 lbs. 3/8 pea gravel)
Packaging	Component 'A' - 1-gal. plastic jug; 4/carton. Component 'B' - 61.5-lb. multi-wall bag.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)
RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened packaging.		
Storage Conditions	Store dry at 40°-95°F. Condition material to 65°-75°F before using. Protect Component 'A' from freezing. If frozen, discard.		
Color	Concrete gray when mixed.		
Mixing Ratio	Plant-proportioned kit, mix entire unit.		
Application Time	Approximately 30 minutes.		
Finishing Time	50-120 minutes		
Note:	All times start after adding Component 'B' to Component 'A' and are highly affected by temperature, relative humidity, substrate temperature, wind, sun and other job site conditions.		
Density (wet mix)	ASTM C 138		136 lbs./ft ³ (2.18 kg./l)
Flexural Strength	ASTM C 293	28 days	1,500 psi
Split Tensile	ASTM C 496	28 days	500 psi
Bond Strength	ASTM C 882 (modified)	28 days	2,000 psi
Compressive Strength	ASTM C 109		
		1 day	2,500 psi
		7 days	5,300 psi
		28 days	7,000 psi
Shrinkage	ASTM C 157		
	(mod. ICRI 320.3R)		
Specimen Size 1"x1"x11-1/4"		28 days	<0.05%
Specimen Size 3"x3"x11-1/4"		28 days	<0.021%
Ring Test (days)	ASTM C 1581		>70 days
Ring Test - Average Max Strain	ASTM C 1581		-9 µstrain
Ring Test - Average Stress Strain	ASTM C 1581		0.49 psi/day
Ring Test - Potential for Cracking	ASTM C 1581		Low
Baenzinger Block		90 days	No cracking
Freeze/Thaw Durability (300 cycles)	ASTM C 666		98%
Cl Permeability	ASTM C 1202		<500 Coulombs.
Direct Bond Strength	ASTM C 1583		
		7 days	400 psi
		28 days	>300 psi
Modulus of Elasticity	ASTM C 531		3.00x10 ⁶ psi
Initial Set Time (min)	ASTM C 266		40-70

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Construction



How to Use

Substrates	Concrete, mortar, and masonry products.									
Surface Preparation	<p>Remove all deteriorated concrete, dirt, oil, grease and all bond inhibiting materials from surface. Be sure repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, scabblor, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of $\pm 1/16$ inch (CSP-5); $\pm 1/8$ inch (CSP-6). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.</p> <p>Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatex® 110 EpoCem (Consult Product Data Sheet).</p> <p>Priming Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatex® 110 EpoCem (consult Product Data Sheet). Alternately, a scrub coat of SikaTop® 122 PLUS can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.</p>									
Mixing	<p>Pour approximately 7/8 of Component 'A' into the mixing container. Add Component 'B' (powder) while mixing continuously. Mix mechanically with a low-speed drill (400- 600 rpm) and mixing paddle or mortar mixer. Add remaining Component 'A' (liquid) to mix if a more loose consistency is desired. Mix to a uniform consistency, maximum 3 minutes. Thorough mixing and proper proportioning of the two components is necessary.</p> <p>For SikaTop® 122 PLUS concrete: Pour all of Component 'A' into mixing container. Add all of Component 'B' while mixing, then introduce 3/8 inch coarse aggregate at desired quantity. Mix to uniform consistency, maximum 3 minutes. Addition rate is 42 lbs. per bag (approx. 3.0 to 3.5 gal. by loose volume). The aggregate must be non-reactive (reference ASTM C 1260, C 227 and C 289), clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C 33 size number 8 per Table 2. Note: Variations in the quality of the aggregate will affect the physical properties of SikaTop® 122 PLUS. The yield is increased to 0.75 cu. ft./unit with the addition of the aggregate (42 lbs.). Do not use limestone aggregate.</p>									
Application	SikaTop® 122 PLUS must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then screed. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface, or broom or burlap-drag for a rough finish.									
Tooling & Finishing	As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based* compatible curing compound (ASTM C 309 compliant). Curing compounds adversely affect the adhesion of following layers of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. Protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended.									
Limitations	<table border="1"> <thead> <tr> <th>Application thickness:</th> <th>Min.</th> <th>Max. in one lift</th> </tr> </thead> <tbody> <tr> <td>Neat</td> <td>1/8 inch (3 mm)</td> <td>1 inch (25 mm)</td> </tr> <tr> <td>Extended</td> <td>1 inch (25 mm)</td> <td>4 inches (100 mm)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application. Addition of coarse aggregates may result in variations of the physical properties of the mortar. Do not use solvent-based curing compound. Size, shape and depth of repair must be carefully considered and consistent with practices recommended by ACI or ICRI. For additional information, contact Technical Service. For additional information on substrate preparation, refer to ICRI Guideline No.310.2R Coatings, Polymer Overlays, and Concrete Repair. If aggressive means of substrate preparation is employed, substrate strength should be tested in accordance with ACI 503 Appendix A prior to the repair application. As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® 32, Hi-Mod. 	Application thickness:	Min.	Max. in one lift	Neat	1/8 inch (3 mm)	1 inch (25 mm)	Extended	1 inch (25 mm)	4 inches (100 mm)
Application thickness:	Min.	Max. in one lift								
Neat	1/8 inch (3 mm)	1 inch (25 mm)								
Extended	1 inch (25 mm)	4 inches (100 mm)								

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SikaTop® 123 PLUS

Two-component, polymer-modified, cementitious, non-sag mortar plus Sika FerroGard® 901 penetrating corrosion inhibitor

Description	SikaTop® 123 PLUS is a two-component, polymer-modified, Portland cement-based, fast-setting, non-sag mortar. It is a high performance repair mortar for vertical and overhead surfaces and offers the additional benefit of Sika FerroGard® 901, a penetrating corrosion inhibitor included in its formulation.
Where to Use	<ul style="list-style-type: none"> ■ On grade, above and below grade on concrete and mortar. ■ On vertical and overhead surfaces. ■ As a structural repair material for parking structures, industrial plants, walkways, bridges, tunnels, dams and ramps. ■ Approved for repairs over cathodic protection systems
Advantages	<ul style="list-style-type: none"> ■ Extremely low shrinkage proven by four industry standard test methods. ■ High compressive and flexural strengths. ■ Increased freeze/thaw durability and resistance to deicing salts. ■ Compatible with coefficient of thermal expansion of concrete - Passes ASTM C 884. ■ Increased density - improved carbon dioxide resistance (carbonation) without adversely affecting water vapor transmission (not a vapor barrier). ■ Enhanced with Sika FerroGard® 901, a penetrating corrosion inhibitor - reduces corrosion even in the adjacent concrete. ■ USDA certifiable for incidental food contact ■ ANSI/NSF Standard 61 potable water approved complaint.
Coverage	0.39 cu. ft./ unit.
Packaging	Component 'A' - 1-gal. plastic jug; 4/carton. Component 'B' - 44-lb. multi-wall bag.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened packaging.		
Storage Conditions	Store dry at 40°-95°F. Condition material to 65°-75°F before using. Protect Component 'A' from freezing. If frozen, discard.		
Color	Concrete gray when mixed.		
Mixing Ratio	Plant-proportioned kit, mix entire unit.		
Application Time	Approximately 15 minutes.		
Finishing Time	20-60 minutes		
Note:	All times start after adding Component 'B' to Component 'A' and are highly affected by temperature, relative humidity, substrate temperature, wind, sun and other job site conditions.		
Density (wet mix)	ASTM C 138		132 lbs./ft ³ (2.2 kg./l)
Flexural Strength	ASTM C 293	28 days	1,500 psi
Split Tensile	ASTM C 496	28 days	900 psi
Bond Strength	ASTM C 882 (modified)	28 days	2,000 psi
Compressive Strength	ASTM C 109	1 day	3,000 psi
		7 days	4,000 psi
		28 days	6,000 psi
Shrinkage	ASTM C 157		
	(mod. ICRI 320.3R)		
Specimen Size 1x1x11-1/4"		28 days	0.05%
Specimen Size 3x3x11-1/4"		28 days	0.038%
Ring Test (days)	ASTM C 1581		>70 days
Ring Test - Average Max Strain	ASTM C 1581		-36 µstrain
Ring Test - Average Stress Strain	ASTM C 1581		4.92 psi/day
Ring Test - Potential for Cracking	ASTM C 1581		Low
Baenzinger Block		90 days	No cracking
Freeze/Thaw Durability (300 cycles)	ASTM C 666		98%
Cl Permeability (coul)	ASTM C 1202		<500 Coulombs.
Direct Bond Strength	ASTM C 1583	28 days	500 psi (substrate failure)
Modulus of Elasticity	ASTM C 531		2.94 x 10 ⁶ psi
Initial Set Time (min)	ASTM C 266		20-40
Final Set Time (min)	ASTM C 266		<75

Construction



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How to Use

Substrates	Concrete, mortar, and masonry products.
Surface Preparation	<p>Remove all deteriorated concrete, dirt, oil, grease and all bond inhibiting materials from surface. Be sure repair area is not less than 1/8 inch in depth. Preparation work should be done by high pressure water blast, scabblor, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of $\pm 1/16$ inch (CSP-5). Saturate surface with clean water. Substrate should be saturated surface dry (SSD) with no standing water during application.</p> <p>Reinforcing Steel: Steel reinforcement should be thoroughly prepared by mechanical cleaning to remove all traces of rust. Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water after mechanical cleaning. For priming of reinforcing steel use Sika® Armatec® 110 EpoCem (consult Product Data Sheet).</p> <p>Priming Concrete Substrate: Prime the prepared substrate with a brush or sprayed applied coat of Sika® Armatec® 110 EpoCem (consult Product Data Sheet). Alternately, a scrub coat of SikaTop® 123 PLUS can be applied prior to placement of the mortar. The repair mortar has to be applied into the wet scrub coat before it dries.</p>
Mixing	Pour Component 'A' into mixing container. Add Component 'B' while mixing continuously. Mix mechanically with a low-speed drill (400 - 600 rpm) and mixing paddle or mortar mixer. Mix to a uniform consistency, maximum 3 minutes. Manual mixing can be tolerated only for less than a full unit. Thorough mixing and proper proportioning of the two components is necessary.
Application	SikaTop® 123 PLUS must be scrubbed into the substrate, filling all pores and voids. Force material against edge of repair, working toward center. After filling repair, consolidate, then screed. Material may be applied in multiple lifts. The thickness of each lift, not to be less than 1/8 inch minimum or more than 1.5 inches maximum. Where multiple lifts are required score top surface of each lift to produce a roughened surface for next lift. Allow preceding lift to reach initial set, 30 minutes minimum, before applying fresh material. Saturate surface of the lift with clean water. Scrub fresh mortar into preceding lift. Allow mortar or concrete to set to desired stiffness, then finish with wood or sponge float for a smooth surface.
Tooling & Finishing	As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water based*, compatible curing compound (ASTM C 309 complaint). Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings. Moist curing should commence immediately after finishing. If necessary protect newly applied material from direct sunlight, wind, rain and frost. *Pretesting of curing compound is recommended.
Limitations	<ul style="list-style-type: none"> ■ Application thickness: Minimum 1/8 inch (3 mm). Maximum in one lift - 1.5 in. (38 mm). ■ Minimum ambient and surface temperatures 45°F (7°C) and rising at time of application. ■ Do not use solvent-based curing compound. ■ Size, shape and depth of repair must be carefully considered and consistent with practices recommended by ACI or ICRI. For additional information, contact Technical Service. ■ For additional information on substrate preparation, refer to ICRI Guideline No. 310.2R re: Polymer Overlays and Concrete Repair. ■ If aggressive means of substrate preparation is employed, substrate strength should be tested in accordance with ACI 503 Appendix A prior to the repair application. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® 32, Hi-Mod.

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Sikadur® 35, Hi-Mod LV

High-modulus, low-viscosity, high-strength epoxy grouting/sealing/binder adhesive

Description	Sikadur® 35, Hi-Mod LV is a 2-component, 100% solids, moisture-tolerant, low-viscosity, high-strength, multi-purpose, epoxy resin adhesive. It conforms to the current ASTM C-881, Types I, II, and IV, Grade-1, Class C* and AASHTO M-235 specifications. * Except for gel time
Where to Use	<ul style="list-style-type: none"> ■ Pressure-injection of cracks in structural concrete, masonry, wood, etc. ■ Gravity-feed of cracks in horizontal concrete and masonry. ■ Epoxy resin binder for epoxy mortar patching and overlay of interior, horizontal surfaces. ■ Seal interior slabs and exterior above-grade slabs from water, chlorides, and mild chemical attack; also improves wearability.
Advantages	<ul style="list-style-type: none"> ■ Super low viscosity. ■ Convenient easy mix ratio A:B = 2:1 by volume. ■ Unique, high-strength, structural adhesive for “can’t dry” surfaces. ■ Deep penetrating and tenacious bonding of cracks in structural concrete. ■ High-early-strength developing adhesive. ■ Excellent chemical resistance for flooring systems.
Coverage	1 gal. yields 231 cu. in. of adhesive and grout. 1 gal. of adhesive, when mixed with 5 gal. by loose volume of oven-dried aggregate, yields approximately 808.5 cu. in. of epoxy mortar.
Packaging	3 gal. units; 1 gal. units; 12 fl.-oz. units, 12/case.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIX DESIGNS, MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATIONS METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS

Shelf Life	2 years in original, unopened containers.					
Product Storage	Store dry at 40°-95°F (4°-35°C).					
Product Conditioning	Condition material to 65°-75°F (18°-24°C) before using.					
Color	Clear, amber.					
Mixing Ratio	Component A : Component B=2:1 by volume.					
Viscosity (Mixed)	Approximately 375 cps.					
Pot Life	Approximately 25 minutes. (60 gram mass)					
Tack Free Time (3-5 mils) Neat	40°F (4°C)	73°F (23°C)	90°F (32°C)			
	14-16 hrs.	3-3.5 hrs.	1.5-2 hrs.			
Tensile Properties (ASTM D-638)	Neat			Mortar		
7 day	Tensile Strength	8,900 psi (61.4 MPa)	14 day	840 psi (5.8 MPa)		
	Elongation at Break	5.4%		0.3%		
14 day	Modulus of Elasticity	4.1 X 10 ⁵ psi (2,800 MPa)		7.6 X 10 ⁵ psi (5,200 MPa)		
Flexural Properties (ASTM D-790)						
14 day	Flexural Strength (Modulus of Rupture)	14,000 psi (96.6 MPa)		2,200 psi (15.2 MPa)		
	Tangent Modulus of Elasticity in Bending	3.7 x 10 ⁵ psi (2,600 MPa)		9.5 X 10 ⁵ psi (6,500 MPa)		
Shear Strength (ASTM D-732)						
14 day	Shear Strength	5,100 psi (35.2 MPa)		2,300 psi (15.9 MPa)		
Heat Deflection Temperature (ASTM D-648)						
7 day	[fiber stress loading = 264 psi (1.8 MPa)]	124°F (51°C)		129°F (54°C)		
Bond Strength (ASTM C-882): Hardened concrete to hardened concrete						
2 day (moist cure)	Bond Strength	4,000 psi (27.6 MPa)				
14 day (moist cure)	Bond Strength	2,900 psi (20.0 MPa)				
2 day (dry cure)	Bond Strength	2,800 psi (19.3 MPa)				
Water Absorption (ASTM D-570)	7 day	(24 hour immersion)0.27 %				
Compressive Properties (ASTM D-695)						
Compressive Strength, psi (MPa)	Neat			Mortar (1:5)		
	40°F (4°C)	73°F (23°C)	90°F (32°C)	40°F (4°C)	73°F (23°C)	90°F (32°C)
4 hour	-	-	-	-	-	800 (5.5)
8 hour	-	180 (1.2)	3,200 (22.1)	-	-	4,100 (28.3)



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16 hour	-	4,500 (31.1)	6,300 (43.5)	-	400 (2.8)	5,700 (39.3)
1 day	-	6,000 (41.4)	9,100 (62.8)	120 (0.8)	5,000 (34.5)	6,900 (47.6)
3 day	4,000 (27.6)	10,700 (73.8)	10,500 (72.5)	6,200 (42.8)	6,800 (46.9)	7,000 (48.3)
7 day	6,800 (46.9)	11,000 (75.9)	10,500 (72.5)	6,300 (43.5)	7,900 (54.5)	8,800 (60.7)
14 day	10,300 (71.1)	12,000 (82.8)	10,500 (72.5)	6,800 (46.9)	8,500 (58.7)	8,800 (60.7)
28 day	12,400 (85.6)	13,000 (89.7)	10,500 (72.5)	7,000 (48.3)	8,600 (59.3)	8,800 (60.7)
Compressive Modulus		Neat		Mortar		
	7 day	3.2 X 10 ⁵ psi (2,200 MPa)		28 day	8.1 X 10 ⁵ psi (5,600 MPa)	

How to Use

Surface Preparation Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles and disintegrated materials.

Concrete - Blast clean, shot blast or use other approved mechanical means to provide an open roughened texture.

Steel - Should be cleaned and prepared thoroughly by blast cleaning.

Mixing Proportion 1 part Component 'B' to 2 parts Component 'A' by volume into a clean pail. Mix thoroughly for 3 minutes with Sika Paddle on low-speed (400- 600 rpm) drill until uniformly blended. Mix only that quantity that can be used within its pot life.

To prepare an epoxy mortar, slowly add 4-5 parts by loose volume of an oven-dried aggregate to 1 part of the mixed Sikadur[®] 35, Hi-Mod LV and mix until uniform in consistency.

Application **To gravity feed cracks** - Blow vee-notched crack clean with oil-free compressed air. Pour neat Sikadur[®] 35, Hi-Mod LV into vee-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflect through.

To pressure-inject cracks - Use automated injection equipment or manual method. Set appropriate injection ports based on system used. Seal ports and crack with Sikadur[®] 31, Hi-Mod Gel or Sikadur[®] 33. When the epoxy adhesive seal has cured, inject Sikadur[®] 35, Hi-Mod LV with steady pressure. Consult Technical Service for additional information.

To seal slabs - Spread neat Sikadur[®] 35, Hi-Mod LV over slab. Allow penetration. Remove excess to prevent surface film. Seal interior slabs and above-grade exterior slabs only.

For an epoxy mortar - Prime prepared surface with neat Sikadur[®] 35, Hi-Mod LV. Place prepared epoxy mortar before primer becomes tack-free. Place the epoxy mortar using trowels. Compact and level with vibrating screed or trowels. Finish with finishing trowel. Sikadur[®] 35, Hi-Mod LV mortar is for interior use only.

Limitations

- Minimum substrate and ambient temperature 40°F (4°C).
- Do not thin with solvents. Consult Technical Service at 800-933-7452.
- Use oven-dried aggregate only.
- Maximum epoxy mortar thickness is 1.5 in. (38 mm) per lift.
- Epoxy mortar is for interior use only.
- Do not seal exterior slabs on grade.
- Minimum age of concrete must be 21-28 days, depending on curing and drying conditions, for mortar and to seal slabs.
- Porous substrates must be tested for moisture-vapor transmission prior to application.
- Not for injection of cracks under hydrostatic pressure at the time of application.
- Do not inject cracks greater than 1/4 in. (6 mm) Consult Technical Service.
- Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

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Sikadur® 35, Hi-Mod LV LPL

High-modulus, low-viscosity, high-strength, extended pot life, epoxy adhesive

Description	Sikadur® 35, Hi-Mod LV LPL is a 2-component, 100% solids, moisture-tolerant, low-viscosity, high-strength, multi-purpose epoxy resin adhesive. It conforms to the current ASTM C-881, Types I, II, and IV, Grade-1, Class-C** and AASHTO M-235 specifications. **except for bond strength
Where to Use	<ul style="list-style-type: none"> ■ Low pressure and high pressure injection of cracks in structural concrete, masonry, wood, etc. ■ Gravity-feed of cracks in horizontal concrete and masonry. ■ Epoxy resin binder for epoxy mortar patching and grouting. ■ Seal interior slabs and exterior above-grade slabs from water, chlorides and mild chemical attack; also improves wearability. ■ Epoxy resin binder for epoxy mortar repair for structural pile members.
Advantages	<ul style="list-style-type: none"> ■ Extended pot life. ■ Low viscosity and excellent penetrating ability. ■ Slow reaction rate and low exotherm. ■ Convenient, easy mix ratio; A:B = 2:1 by volume. ■ Unique, high-strength, structural adhesive for "can't dry" surfaces. ■ Deep, penetrating and tenacious bonding of cracks in structural concrete. ■ Excellent chemical resistance.
Coverage	1 gal. yields 231 cu. in. of adhesive and grout. 1 gal. of adhesive, when mixed with 5 gal. by loose volume of oven-dried aggregate, yields approximately 808.5 cu. in. of epoxy mortar. Typical coverage is 150-175 ft. ² /gal. (3.7-4.3 m ² /L) for surface sealing. Coverage varies with porosity and surface profile of substrate. Higher porosity concrete will reduce coverage.
Packaging	3 gal. units. 165 gal. units.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	2 years in original, unopened containers	
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using.	
Color	Clear, amber.	
Mixing Ratio	Component 'A' : Component 'B' = 2:1 by volume	
Viscosity (Mixed)	Approximately 250 cps.	
Pot Life	Approximately 90 minutes (250 grams). Approximately 40 minutes (250 grams) @ 100°F (38°C)	
Tensile Properties (ASTM D-638)	60°F (15°F)	73°F (23°F)
7 day Tensile Strength	7,200 psi (49.6 MPa)	7,500 psi (51.8 MPa)
Elongation at Break	4.0 %	4.8%
Heat Deflection Temperature (ASTM D-648) 7 day	(Fiber Stress Loading = 264 psi) 120°F (49°C)	
Bond Strength (ASTM C-882): Hardened concrete to hardened concrete		
2 day (moist cure)	Bond Strength 1,100 psi (7.6 MPa)	
14 day (moist cure)	Bond Strength 1,300 psi (9.0 MPa)	
Water Absorption (ASTM D-570) 24 hrs.	(24 hr. immersion) 0.35%	
Compressive Properties (ASTM D-695):		
Compressive Strength	73°F (23°C)	90°F (32°C)
1 day	1,450 psi (10.0 MPa)	7,100 psi (49.0 MPa)
3 day	9,600 psi (66.2 MPa)	10,000 psi (69.0 MPa)
7 day	11,800 psi (81.3 MPa)	11,100 psi (76.6 MPa)
28 day	13,000 psi (89.6 MPa)	11,300 psi (78.0 MPa)
Compressive Modulus 7 day	270 psi (1,863 MPa)	



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How to Use

Surface Preparation	<p>Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.</p> <p>Preparation Work: Concrete - Should be cleaned and prepared thoroughly to achieve a laitance and contaminant free, open textured surface by blast cleaning or equivalent mechanical means.</p> <p>Steel - Should be cleaned and prepared thoroughly by blast cleaning or other equivalent mechanical means.</p>
Mixing	<p>Proportion 1 part Component 'B' to 2 parts Component 'A' by volume into a clean pail. Mix thoroughly for 3 minutes with a low-speed (400 - 600 rpm) drill using Sika Paddle until uniformly blended. Mix only that quantity that can be used within its pot life.</p> <p>To prepare an epoxy mortar slowly add 4-5 parts by loose volume of an oven-dried aggregate to 1 part of the mixed Sikadur® 35, Hi-Mod LV LPL and mix until uniform in consistency.</p>
Application	<p>To gravity feed cracks - Blow vee-notched surface of crack clean with oil-free compressed air. Pour neat Sikadur® 35, Hi-Mod LV LPL, into vee-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflect through.</p> <p>To seal slabs - Spread neat Sikadur® 35, Hi-Mod LV LPL over slab. Allow penetration. Remove excess to prevent surface film. Seal interior slabs and above-grade exterior slabs only.</p> <p>For an epoxy mortar - Prime prepared surface with neat Sikadur® 35, Hi-Mod LV, LPL. Place prepared epoxy mortar before primer becomes tack-free. Place the epoxy mortar using trowels. Compact and level with vibrating screed or trowels. Finish with finishing trowel. Epoxy mortar is for interior use only.</p> <p>To pressure inject cracks - Suitable for low or high pressure injection. Use automated injection equipment or manual method. Set appropriate injection ports based on system used. Seal ports and crack with Sikadur® 31, Hi-Mod Gel or Sikadur® 33. When the epoxy adhesive seal has cured, inject Sikadur® 35, Hi Mod LV LPL with steady pressure. Consult Technical Service for additional information.</p>
Limitations	<ul style="list-style-type: none"> ■ Minimum application temperature 40°F (4°C). ■ Do not thin with solvents. ■ Use oven-dried aggregate only. ■ Maximum epoxy mortar thickness is 1.5 in. (38 mm) per lift. ■ Epoxy mortar is for interior use only. ■ Do not seal exterior slabs on grade. ■ Minimum age of concrete must be 21-28 days, depending upon curing and drying conditions, for mortar applications. and to seal slabs. ■ Porous substrates must be tested for moisture-vapor transmission prior to mortar or sealing slabs. ■ Not for injection of cracks under hydrostatic pressure. ■ Do not inject cracks greater than 1/4 in. (6 mm) Consult Technical Service. ■ Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.

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SikaTop® 144

Polymer-modified portland-cement coating

Description	SikaTop® 144 is a polymer-modified, 2-component, cementitious coating. Designed for use on concrete, mortar, and masonry substrates. Easily applied by brush, roller, or spray equipment. This fine-textured, abrasion-resistant coating is used for protection against deicing salts and for damp-proofing/waterproofing.
Where To Use	<ul style="list-style-type: none"> ■ Use on grade, above, and below grade on concrete, masonry, and mortar. ■ Use on horizontal, vertical, and overhead surfaces, both interior and exterior. ■ Potable water tanks. ■ Use as a coating over newly repaired concrete to provide a monolithic/uniform appearance. ■ Use as a protective coating to reduce the affect of deicing salt on concrete. ■ Use as a protective coating for waterproofing, damp-proofing, and improved resistance to weathering. ■ Use on concrete and masonry substrates to improve abrasion resistance to foot traffic and light pneumatic-tire traffic. ■ Use to coat the backside of architectural curtain wall panels to prevent water intrusion from the outside.
Advantages	<ul style="list-style-type: none"> ■ Bond strength ensures superior adhesion. ■ Increases resistance of substrate to deicing salts. ■ Does not create a vapor barrier. ■ No mix water needed, liquid co-polymer triggers special blend of cements, fillers, and admixtures. ■ Superior abrasion resistance. ■ No batching, factory proportioned unit ensures consistent composition and high quality. Non-flammable; low odor. ■ Easily applied to clean, sound substrates. ■ Approved for use in contact with potable water. ■ USDA-approved for incidental food contact. ■ May be overcoated with Sikagard® protective coatings.
Coverage	First Coat 100-150 ft./gal. Second Coat 150-200 ft./gal. Coverage is dependent upon substrate texture and porosity.
Packaging	5-gal. unit consisting of 3.5-gal. plastic pail of Component 'A' and a 45-lb. multi-wall bag of Component 'B'.

Typical Data (Material and curing conditions @ 73°F and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	1 year in original, unopened packaging.
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 60°-75°F before using. Component 'A' must be protected from freezing. If frozen, discard.
Color	White and cement-gray.
Mixing Ratio	Factory proportioned unit. Mix entire contents.
Pot Life	Approximately 4 hours.
Tack-Free Time	Approximately 30 minutes.
Recoat Time	Allow 2 hours minimum between coats.
Application Thickness	8-16 mils/coat.
Abrasion Resistance (ASTM D-968 modified)	
7 day	55 liters/mil
Bond Strength (Elcometer)	
7 day	concrete substrate failure
Water-Vapor Transmission: (ASTM E-96)	
7 day	1 coat 27 grains/hr./ft. ²
	2 coats 24 grains/hr./ft. ²



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How to Use	
Substrate	Concrete, mortar, and masonry.
Surface Preparation	All surfaces to be coated must be clean, sound, and saturated surface dry with no standing water at the time of application. Remove all dust, laitance, grease, oils, curing compounds, waxes, impregnations, and other contaminants. Should substrate require repair, patch with appropriate SikaTop® PLUS repair system. Preparation work must be done by mechanical equipment, i.e., blast cleaning, water blasting, or a combination of the two.
Mixing	All mixing must be done mechanically using a low-speed drill (400-600 rpm) and Sika paddle. Place approximately 1/2 Component 'A' into a clean mixing container. While mixing, slowly add all of Component 'B' and continue to mix until you achieve a uniform paste with no lumps. Be sure to scrape down sides of the mixing container at this time. Add remainder of Component 'A' and continue to mix until uniformly blended.
Application	SikaTop® 144 should only be applied over properly prepared surfaces with high-quality brushes, rollers, or "hopper-type" spray equipment. Surface should be saturated surface dry prior to application. Two coats are recommended for maximum performance. Recommended thickness per coat is 8 to 16 mils. Apply thoroughly mixed coating generously with loaded brush or roller. Always finish off with light strokes blending back into coated area for uniform appearance. For application in direct sun or on a hot substrate, pre-wet surface and allow surface water to dissipate before coating.
Tooling & Finishing	Curing: Protect newly applied SikaTop® 144 from direct sunlight, wind, rain and freezing.
Limitations	<ul style="list-style-type: none"> ■ Maximum thickness of applications is 16 mils/coat, thicker application can result in cracking. ■ Do not apply when rain is expected. ■ Minimum ambient and substrate temperature is 45°F and rising at the time of application. ■ For spray application, coating must be screened prior to loading of the spray hopper. ■ Coating may chalk and show water marks due to weathering. ■ For applications where coating will be subjected to immersion, a 3-day cure is recommended. ■ Coating will slightly yellow with age and exposure to UV light. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32.

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Sikalastic® 621 TC (US)

Durable and versatile base and top coat for Sikalastic RoofPro roofing and waterproofing systems

Construction

Description	Sikalastic 621 TC (US) is a cold applied, highly elastic, aliphatic, single component, moisture-triggered polyurethane base and top coat designed for easy application as part of Sikalastic RoofPro roofing and waterproofing systems.
Where to Use	<p>Sikalastic RoofPro 10, 15, 20 and 25 year systems, including Sikalastic RoofPro Direct, Recover, Inverted, Green and Built Up systems for both new construction and refurbishment</p> <ul style="list-style-type: none"> ■ Ideal for roofs displaying complex details and geometry or when accessibility is limited. ■ Effective and cost efficient life cycle extension of existing roofs. ■ Highly reflective Sikalastic 621 TC (US) in White (RAL 9016) suitable for cool roofs and solar roof assemblies.
Advantages	<ul style="list-style-type: none"> ■ Proven technology with over 25 year track record ■ Single component - no mixing and ready to use ■ Fully reinforced with highly conformable Sika Reemat ■ Moisture triggered chemistry that is rapidly weatherproof after application ■ Highly elastic and crack bridging ■ Seamless and fully adhered ■ Vapor permeable ■ Resistant to UV and common atmospheric chemicals
Approvals	<ul style="list-style-type: none"> ■ FM Approval Standard 4470 for Class 1 Roof Covers ■ ASTM E-108-00 Spread of Flame meets Class A at a slope of 1 in 12 ■ Simulated wind Uplift pull testing meets Class 1-990 ■ Simulated hail damage testing meets rating of SH ■ Miami-Dade County NOA for Roof Maintenance Coating Systems and Roof Systems over Concrete and Steel Decks ■ USGBC LEED rating: Conforms to LEED SS Credit 7.2 for Heat Island Effect - Roof with SRI >=78 ■ Energy Star approval for Sikalastic 621 TC (US) White (RAL 9016) ■ Meets ASTM D7311-07: Standard Specification for Liquid-Applied, Single-Pack, Moisture-Triggered, Aliphatic Polyurethane Roofing Membrane.
Areas of Application	Sound concrete and cementitious screed, metals, wood, modified bitumen, mineralized felt, EPDM, hypalon, TPO, sprayed polyurethane foam, brick and stone, slate and tile, and existing liquid applied membranes.
Packaging	5 gal. pails

Typical Data

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	9 months from date of production if stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between 40 and 85 degrees F (4-30 degrees C).	
Storage	Store dry at 40-85 degrees F (4-30 degrees C).	
Product Conditioning	Condition material to 65-85 degrees F (18-30 degrees C) before using.	
Chemical Base	Single component, moisture-triggered, aliphatic polyurethane	
VOC	183 g/l	
Density	12.0 lbs/gal (1.44 kg/l) (all values at +23 degrees C)	
Solids Content	81.3% by volume / 87.4% by weight	
Flash Point	144 degrees F (62 degrees C)	
Service Temperature	-22 to 176 degrees F (-30 to 80 degrees C) intermittent	

621 TC (US) White (RAL 9016)

Solar Reflectance (Initial)	0.88 (ASTM C1549)
SRI (Solar Reflectance Index - Initial)	110 (ASTM E1980)

	RoofPro Metal	RoofPro 10	RoofPro 15	RoofPro 20	RoofPro 25
Tensile Strength (ASTM D2370)	1400 psi	1300 psi	1350 psi	1750 psi	1500 psi
Tear Strength		3750 psi	4750 psi	6800 psi	7500 psi
Elongation (ASTM D2370)	250%	35%	45%	50%	75%
Vapor Permeability	1.18 perms	0.56 perms	0.55 perms	0.49 perms	0.32 perms



Colors	White (RAL 9016), Pearl Gray, Steel Gray, Mushroom, Copper Green; custom colors available with minimum order
Chemical Resistance	<p>Strong resistance to a wide range of reagents, including paraffin, petrol, fuel oil, white spirit, acid rain, detergents and moderate solutions of acids and alkalis. Some low molecular weight alcohols can soften the material. Contact Technical Service for specific recommendations.</p> <ul style="list-style-type: none"> ■ Salt spray to ASTM B117 (1000 hours continuous exposure) and adhesion testing to ASTM G85-94: Annex A5 (1000 hours cyclic exposure).
Application	<u>Cementitious substrates (e. g. Concrete)</u>
Substrate Evaluation	<p>New concrete should be allowed a minimum of 14 days before priming – ideally 28 days and should have a minimum tensile bond strength of 1.4 mpa (200 psi). Inspect the concrete, including upstands and all areas should be hammer tested. Concrete must be suitably finished, preferably by wood float or steel pan. A power float finish is acceptable where the surface is prepared to avoid laitance (a tamped finish is not acceptable). The surface finish must be uniform and free from defects such as laitance, voids or honeycombing.</p> <p><u>Gypsum based roof boards</u> Roof boards should be clean, dry and dust free. Damaged or contaminated boards should be removed and replaced.</p> <p><u>Brick and stone</u> Mortar joints must be sound and preferably flush pointed.</p> <p><u>Ceramic tiles</u> Ensure all tiles are sound and securely fastened, replacing obviously broken or missing sections.</p> <p><u>Asphalt</u> Asphalt contains volatiles which can cause bleeding and slight non-detrimental staining. The asphalt must be carefully assessed for moisture and/or air entrapment, grade and surface finish prior to any coating works being carried out.</p> <p><u>Bituminous felt</u> Ensure that Bituminous felt is firmly adhered or mechanically fixed to the substrate. Bituminous felt should not contain badly degraded areas.</p> <p><u>Bituminous coatings</u> Bituminous coatings should not have sticky or mobile surfaces, volatile mastic coatings, or old coal tar coatings.</p> <p><u>Metals</u> Metals must be in sound condition.</p> <p><u>Wooden substrates</u> Plywood and timber based panel roof decks must be in good condition, firmly adhered and mechanically fixed. All plywood should be identified as conforming to PS 1 for construction and industrial plywood by grade, APA (American Plywood Association) trademark, or equivalent. For maximum smoothness, EXT Type APA, Grade A-C should be used, and the “A” side should be positioned to receive the coating. Plywood decks to receive coating directly should be at least 1/2 inch thick and attached and supported according to APA guidelines, using only non-rusting screw, spiral or coated nail type fasteners. A good practice would be to recess or counter sink fasteners 1/8 to 1/4 inch and fill with Sikaflex sealant. Suitable edge support to prevent differential deflection between panels should be provided. Panel edges should be tongue and groove or supported on solid blocking. Space panels 1/8 to 3/16 inch at panel ends, and fill joints flush with Sikaflex sealant.</p> <p><u>Paints and coatings</u> Ensure the existing material is sound and firmly adhered.</p> <p><u>Existing Sikalastic RoofPro System</u> The existing Sikalastic RoofPro System should still be soundly adhered to the substrate.</p>
Surface Preparation	<p><u>Concrete and cementitious</u> Cementitious or mineral based substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and to achieve an open textured surface (CSP 3-5 per ICRI guidelines). Loose friable material and weak concrete must be completely removed and surface defects such as blowholes and voids must be fully exposed. The amount of embedment coat required may increase over rough or highly porous surfaces. Repairs to the substrate, filling of joints, blowholes/voids and surface levelling must be carried out. Consult Sika for product recommendations based on project requirements. High spots must be removed by grinding or similar method. Outgassing is a naturally occurring phenomenon of concrete that can produce pinholes in applied coatings. The concrete must be carefully assessed for moisture content, air entrapment, and surface finish prior to any coating work. Particular requirements for priming must also be considered. Installing the membrane either when the concrete temperature is falling or stable can reduce outgassing. It is generally beneficial, therefore, to apply the embedment coat in the late afternoon or evening.</p> <p><u>Gypsum based roof boards</u> Roof boards should be clean, dry and dust free. Damaged or contaminated boards should be removed and replaced.</p> <p><u>Brick and stone</u> Power wash and use biodegradable non-sudsing detergent with clean water rinse as required.</p>

Ceramic tiles

Tiles must be well adhered to the substrate. Otherwise they need to be removed. Power wash and use biodegradable non-sudsing detergent with clean water rinse as required.

Asphalt

Power wash and use biodegradable non-sudsing detergent with clean water rinse as required. All major cracks should be sealed to allow continuity of the Sikalastic RoofPro system. Asphalt must be carefully assessed for moisture and/ or air entrapment, grade and surface finish prior to any coating works being carried out.

Bituminous felt

Power wash and use biodegradable non-sudsing detergent with clean water rinse as required. Treat blisters by star cutting and removing any underlying water. Allow to dry and re-adhere using suitable adhesive.

Bituminous coatings

Remove any loose or degraded coatings.

Metals

Ferrous metals should be thoroughly cleaned by grinding or blast cleaning prior to priming. Where blasting is not permitted, clean metal preparation by pin hammer or other suitable means is acceptable.

Non-ferrous metals are prepared as follows. Remove any deposits of dust and oxidation and abrade to bright metal. Wire brushing can be used for soft metal such as lead. The surface must be clean and free from grease which, if present, must be removed with a proprietary solution. Wash with detergent, rinse and dry.

Wooden substrates

Timber and timber based panel roof decks may require a complete layer of Sikalastic Baseply bonded using suitable adhesive prior to the application of the chosen system. The substrate should then be treated as a felt roof. Small timber protrusions and suitable decks may be treated directly, provided that the timber is of exterior quality, e.g. plywood, oil tempered hardboard, etc.

Paints/Coatings

Remove any loose or degraded coatings. Ensure the surface is clean and free from grease.

Sikaplan®/Sarnafil® membranes

Clean membranes with non-sudsing detergent and clean water rinse. Consult Sika regarding primer.

Existing Sikalastic RoofPro Systems

Clean the membrane using a water jet at approximately 140bar (2000 psi) and biodegradable non-sudsing detergent with clean water rinse. Allow to dry.

Application

Priming

Refer to Priming Guide to select primer for properly evaluated and prepared substrate. Refer to separate Product Data Sheet for selected primer for application methods, coverage rates, cure times and recoat windows. Always allow primer to cure thoroughly before applying detail or base coat.

Sikalastic RoofPro Priming Guide

Substrate	Remark	CONCRETE PRIMER	DTE EPOXY Primer	Bonding Primer	EP PRIMER/ SEALER	Consult Sika
CONCRETE	(1)	▲	▲	▲	▲	
LIGHTWEIGHT STRUCTURAL CONCRETE	(1)		▲			▲
GYPSUM BASED ROOF BOARDS		▲		▲		
BRICK, STONE	(3)			▲		▲
BITUMINOUS SUBSTRATE						
-asphalt, bituminous felts, bituminous coatings, granulated or smooth SBS & APP cap sheets	(2,3)				▲	
SINGLE PLY ROOFING MEMBRANES						
-HYPALON, TPO, EPDM, PVC	(3)					▲
ROOF TILES (UNGLAZED)	(3,4)			▲		▲
POLYESTER (GLASS FIBER REINFORCED)	(3)			▲		▲
POLYURETHANE FOAM- sprayed or slab stock				▲	▲	
METALS						
-aluminum, galvanized, cast iron, copper, lead, brass, stainless steel, steel, zinc	(3)				▲	
PRE-COATED METAL	(3)					▲
PAINTS						
- paints & coatings	(3)			▲		
- aluminized solar reflective coatings	(3)				▲	
WOOD - TIMBER & PLYWOOD	(5)			▲	▲	▲

- (1) New cementitious substrates must be Portland base and be cured min. 14 days.
- (2) The presence of volatiles may cause discoloration of Sikalastic if not properly primed.
- (3) Surface evaluation and field adhesion testing.
- (4) Glazed tile consult Sika.
- (5) Pressure treated lumber consult Sika

Detailing

Non-structural cracks up to 1/16 inch - Detail application not necessary. Apply embedment/base coat per below.

Non-structural cracks between 1/16 inch and 1/4 inch - Rout and seal with Sikaflex sealant. Apply 40-45 mil detail coat embedded with 3 inch Sika Flexitape Heavy centered over crack. Apply embedment/base coat per below.

Cracks and joints between 1/4 inch and 1 inch - Rout and seal with Sikaflex sealant. Apply bond breaker tape sufficient to span width of crack or joint followed by 40-45 mil detail coat embedded with 6 inch Sika Flexitape Heavy centered over crack or joint. Apply embedment/base coat by terminating Sika Reemat at edges of crack or joint overlapping Sika Flexitape Heavy a minimum of 2 inch on both sides.

Joints greater than 1 inch - Treat as expansion joint. Consult Sika for recommendations.

Metal, plywood and existing bituminous or single-ply seams - Apply 40-45 mil detail coat embedded with 3 or 6 inch Sika Flexitape Heavy centered over seam. Apply embedment coat per below.

Transitions between dissimilar materials - Apply 40-45 mil detail coat embedded with Sika Flexitape Heavy centered over edge. Apply embedment coat per below.

Embedment/Base Coat

Mixing not required. Apply either Sikalastic 601 BC or Sikalastic 621 TC per RoofPro System Guide at 45 mils with a 1/2 inch nap phenolic resin core roller. Material can also be squeegee or spray applied, in which case it should be backrolled prior to embedding Sika Reemat. Place Sika Reemat in wet base coat overlapping seams a minimum of 2 inches (place frayed edge over cut edge of roll) and apply wet roller to topside to saturate completely. After approximately 5 minutes the binder will begin to dissolve allowing the fiber strands to conform to irregular surfaces. Do not over work once the fibers have conformed to the substrate. Allow to cure 12 hours at 70 degrees F and 50 % RH or until tack free before top coating. Keep clean and dry and apply top coat within 7 days. If window exceeded clean with non-sudsing detergent and clean water rinse and allow to dry prior to application of Sika Reactivation Primer.

Top Coats

Mixing not required. Apply Sikalastic 621 TC at the coverage rate in the RoofPro Systems Guide with a 1/2 inch nap phenolic resin core roller. Material can also be squeegee or spray applied, in which case it should also be backrolled. In the case of RoofPro 25 allow the first top coat to cure 12 hours at 70 degrees F and 50% RH or until tack free before applying second top coat. On top of the complete RoofPro system additional top coats may be applied with aggregate for slip resistance - consult Sika for recommendations. Keep clean and dry and apply top coat within 7 days. If window exceeded clean with non-sudsing detergent and clean water rinse and allow to dry prior to application of Sika Reactivation Primer.

Sikalastic RoofPro System Guide					
	RoofPro Metal	RoofPro 10	RoofPro 15	RoofPro 20	RoofPro 25
Substrates	Qualifying Metals	Concrete or cementitious, metals, wood, single-ply or bituminous, spray foam, stone or tile			
Primer	Required - see Substrate Priming Guide				
Detailing	Sika Flexitape Heavy centered over seams, transitions and properly treated cracks and joints				
Reinforcement	Local with Sika Flexitape	Sika Reemat Standard	Sika Reemat Premium embedded in base over entire surface		
601 BC (US)		35 mils wet - 45 sf/gal.	45 mils wet - 35 sf/gal.		
621 TC (US)	20 mils wet - 80 sf/gal.	30 mils wet - 53 sf/gal.	30 mils wet - 53 sf/gal.	45 mils wet - 35 sf/gal.	45 mils wet - 35 sf/gal.
621 TC (US)	20 mils wet - 80 sf/gal.			30 mils wet - 53 sf/gal.	30 mils wet - 53 sf/gal.
621 TC (US)					30 mils wet - 53 sf/gal.
Total Film Thickness	32 mils dry	52 mils dry	59 mils dry	61 mils dry	85 mils dry

Limitations

- To avoid dew point conditions during application, relative humidity must be no more than 95% and substrate temperature must be at least 5 degrees F (3 degrees C) above measured dew point temperatures.
- Minimum ambient and substrate temperature during application and curing of material is 40 degrees F (5 degrees C); maximum is 95 degrees F (35 degrees C). Frequent monitoring of ambient and substrate temperature should always be done when applying polyurethane coatings. Note that low temperatures and low humidity will slow down the cure, and high temperatures and high humidity will accelerate it.
- Do not apply on substrates with moisture content greater than 4% by weight.
- Minimum age of concrete must be 14 days depending on curing and drying conditions.
- Do not thin with solvents.
- Do not store materials outdoors exposed to sunlight and moisture for prolonged periods.
- Do not apply to porous or damp surface where moisture vapor transmission will occur during application and cure.
- Substrate must be dry prior to application. Do not apply to a frosted, wet or damp surface. Allow sufficient time for the substrate to dry after rain or inclement weather, as there is the potential for bonding problems.

- On substrates likely to exhibit outgassing apply during falling ambient and substrate temperature. If applied during rising temperature pinholing may occur.
- Use sunglasses with UV filter when applying highly reflective Sikalastic 621 TC White (RAL 9016).
- Do not use for indoor applications.
- Turn off and seal air intake vents during application and cure.
- Not recommended for direct exposure to heavy or frequent foot traffic.
- Do not apply cementitious products, such as tile mortar directly onto Sikalastic 621 TC See Sikalastic 624 AR Product Data Sheet.
- Areas with high movement or irregular substrates require a complete layer of Sikalastic Baseply.
- Any repairs required to achieve a level surface must be performed prior to application (consult a Sika representative for guidance on various product solutions). Surface irregularities may reflect through the cured system.
- When applying over existing coatings or membranes compatibility and adhesion testing is recommended.
- Opening to traffic prior to cure may result in loss of aggregate or permanent staining and subsequent premature failure.
- On grade, unvented metal pan, split/sandwich slab and buried membrane conditions as well as light weight concrete should not be coated with Sikalastic RoofPro systems.
- Do not subject to continuous immersion.
- Precautions should be taken to prevent odors and/or vapors from entering the building/structure, including but not limited to turning off and sealing air intake vents or other means of ingress for odors and/or vapors into the building/structure during product application and cure.

Caution	WARNING: COMBUSTIBLE, IRRITANT, SENSITIZER: Contains titanium dioxide (CAS: 13463-67-7), 2-methoxy-1-methylethyl acetate (CAS: 108-65-6), triphenyl-phosphate (CAS: 115-86-6), propyl acetate (CAS: 109-60-4), and 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate (CAS: 4098-71-9). Keep away from heat, sparks, electrical equipment, and open flame. DO NOT SMOKE. Use only in well ventilated areas. Harmful in inhaled. May cause eye irritation. May cause allergic skin/respiratory reaction after prolonged contact. May cause gastrointestinal disturbance. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal. WARNING! This product contains a chemical known in the State of California to cause cancer.
Handling & Storage	Keep away from heat, sparks, sunlight, electrical equipment or flame. VAPORS MAY IGNITE AND EXPLODE. DO NOT SMOKE. Open doors and windows during use. Use adequate local and mechanical ventilation. Wear protective equipment (chemically resistant gloves/goggles/clothing) to prevent direct contact with skin and eyes. Use properly fitted NIOSH vapor cartridge respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing after use. Store product in tightly sealed containers in a cool, dry well ventilated area at temperatures between 40° F and 85°F away from ignition sources. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.
Clean Up	In case of spill, eliminate all ignition and heat sources, if safe to do so. Ventilate area. Open doors and windows. Wear chemical resistant gloves/goggles/clothing. In absence of proper ventilation use properly fitted NIOSH respirator. Confine spill, collect using noncombustible absorbent material and place in properly sealed container. Dispose of excess product in accordance with applicable local, state and federal regulations.
First Aid	Eyes – Hold eyelids apart and flush thoroughly with water for 15 minutes. Skin – Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. Inhalation – Remove to fresh air. Ingestion – Do not induce vomiting. Dilute with water. Contact physician. In all cases contact a physician immediately if symptoms persist.

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LIMITED WARRANTY: Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKASHALL NOT BELIEABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKASHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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SikaGrout® 212

High performance, cementitious grout

Description	<p>SikaGrout® 212 is a non-shrink, cementitious grout with a unique 2-stage shrinkage compensating mechanism. It is non-metallic and contains no chloride.</p> <p>With a special blend of shrinkage-reducing and plasticizing/water-reducing agents, SikaGrout® 212 compensates for shrinkage in both the plastic and hardened states. A structural grout, SikaGrout® 212 provides the advantage of multiple fluidity with a single component. SikaGrout® 212 meets ASTM C-1107 (Grade C).</p>
Where to Use	<ul style="list-style-type: none">■ Use for structural grouting of column base plates, machine base plates, anchor rods, bearing plates, etc.■ Use on grade, above and below grade, indoors and out.■ Multiple fluidity allows ease of placement: ram in place as a dry pack, trowel-apply as a medium fluidity, pour or pump as high flow.
Advantages	<ul style="list-style-type: none">■ Easy to use, just add water.■ Multiple fluidity with one material.■ Non-metallic, will not stain or rust.■ Low heat build-up.■ Excellent for pumping: Does not segregate, even at high flow. No build-up on equipment hopper■ Superior freeze/thaw resistance.■ Resistant to oil and water.■ Meets ASTM C-1107 (Grade C).■ Shows positive expansion when tested in accordance with ASTM C-827.■ SikaGrout® 212 is USDA-approved.
Coverage	Approximately 0.44 cu. ft./bag at high flow.
Packaging	50-lb. multi-wall bags; 36 bags/pallet

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	One year in original, unopened bags.		
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.		
Color	Concrete gray		
Flow Conditions (ASTM C-109, Plastic & Flowable; ASTM C-939, Fluid)	Plastic¹	Flowable¹	Fluid²
Typical Water Requirements:	6 pt.+	6.5 pt.	8.5 pt.
Set Time (ASTM C-266):	Initial	3.5-4.5 hr.	4.0-5.0 hr.
	Final	4.5-5.5 hr.	5.5-6.5 hr.
Tensile Splitting Strength, psi (ASTM C-496)			
	28 day	600 (4.1 MPa)	575 (3.9 MPa) 500 (3.4 MPa)
Flexural Strength, psi (ASTM C-293)			
	28 day	1,400 (9.6 MPa)	1,200 (8.2 MPa) 1,000 (6.8 MPa)
Bond Strength, psi (ASTM C-882 modified): Hardened concrete to plastic grout			
	28 day	2,000 (13.7 MPa)	1,900 (13.1 MPa) 1,900 (13.1 MPa)
Expansion % (CRD C-621)	28 day	+0.021%	+0.056% +0.027%
Compressive Strength, psi (CRD C-621)			
	1 day	4,500 (31 MPa)	3,500 (24.1 MPa) 2,700 (18.6 MPa)
	7 day	6,100 (42 MPa)	5,700 (39.3 MPa) 5,500 (37.9 MPa)
	28 day	7,500 (51.7 MPa)	6,200 (42.7 MPa) 5,800 (40 MPa)

¹CRD C-227: 100-124% (plastic), 124-145% (flowable)

²CRD C-611: 10-30 sec efflux time.

Construction



PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

How to Use

Surface Preparation	<p>Remove all dirt, oil, grease, and other bond-inhibiting materials by mechanical means. Anchor bolts to be grouted must be de-greased with suitable solvent. Concrete must be sound and roughened to a CSP 4 or higher to promote mechanical adhesion. Prior to pouring, surface should be brought to a saturated surface-dry condition. Steel should be cleaned and prepared thoroughly by blastcleaning to a white metal finish. Follow standard industry and Sika guidelines for use as an anchoring epoxy.</p> <p>For pourable grout, construct forms to retain grout without leakage. Forms should be lined or coated with bond-breaker for easy removal. Forms should be sufficiently high to accommodate head of grout. Where grout-tight form is difficult to achieve, use SikaGrout® 212 in dry pack consistency.</p>
Mixing	<p>Mix manually or mechanically. Mechanically mix with low-speed drill (400-600 rpm) and Sika mixing paddle or in appropriately sized mortar mixer.</p> <p>Make sure all forming, mixing, placing, and clean-up materials are on hand. Add appropriate quantity of clean water to achieve desired flow. Add bag of powder to mixing vessel. Mix to a uniform consistency, minimum of 2 minutes. Ambient and material temperature should be as close as possible to 70°F. If higher, use cold water; if colder, use warm water.</p> <p>Product Extension: For deeper applications, SikaGrout® 212 (plastic and flowable consistencies only) may be extended with 25 lbs. of 3/8" pea gravel. The aggregate must be nonreactive, clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C33 size number 8 per Table 2. Add the pea gravel after the water and SikaGrout® 212.</p>
Application	<p>Within 15 minutes after mixing, place grout into forms in normal manner to avoid air entrapment. Vibrate, pump, or ram grout as necessary to achieve flow or compaction. SikaGrout® 212 must be confined in either the horizontal or vertical direction leaving minimum exposed surface. SikaGrout® 212 is an excellent grout for pumping, even at high flow. For pump recommendations, contact Technical Service. Wet cure for a minimum of 3 days or apply a curing compound which complies with ASTM C-309 on exposed surfaces.</p>
Tooling & Finishing	<p>After grout has achieved final set, remove forms, trim or shape exposed grout shoulders to designed profile</p>
Limitations	<ul style="list-style-type: none"> ■ Minimum ambient and substrate temperature 45°F and rising at time of application. ■ Minimum application thickness: 1/2 in. ■ Maximum application thickness (neat): 2 in. However, thicker applications can be achieved. Contact Sika's Technical Services Department (800-933-7452) for further information. ■ Do not use as a patching or overlay mortar or in unconfined areas. ■ Material must be placed within 15 minutes of mixing. ■ As with all cement based materials, avoid contact with aluminum to prevent adverse chemical reaction and possible product failure. Insulate potential areas of contact by coating aluminum bars, rails, posts etc. with an appropriate epoxy such as Sikadur® Hi-Mod 32.

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Sikagard® 705 L

Silane based reactive water repellent penetrating sealer

Construction

Description	Sikagard®-705 L is a one part low viscosity, solvent free, reactive impregnation for concrete and cementitious substrates based on silane technology with 99% active ingredient. Sikagard®-705 L complies with the highest requirements of EN 1504-2 for hydrophobic Impregnation (penetration depth class II & resistance to freeze-thaw cycles and chloride ion penetration).
Where to Use	Sikagard®-705 L is used as water-repellent penetrating sealer (hydrophobic treatment) for absorbent substrates such as <ul style="list-style-type: none">■ Parking decks■ Bridge decks■ Concrete highway surfaces■ Ramps and Barriers■ Cooling Towers■ Stadiums■ Natural stone substrates■ Many other traffic bearing/reinforced concrete substrates and structures
Advantages	<ul style="list-style-type: none">■ Excellent penetration (~100% active content)■ Economic and easy to use■ Reduces capillary water absorption, protection against driving rain and splashing on vertical areas.■ Reduction of absorption of aggressive or deleterious agents dissolved in water (i.e. de-icing salts or chloride from marine environment)■ Non vapor barrier■ Long term efficiency, deep penetration■ Increases the resistance of concrete to freeze and thaw cycles and de-icing salts■ Low VOC content■ Resistant to sea water■ Ready and easy to use
Coverage	Dependent on absorbency of the substrate as well as the required penetration depth: 240-360 sq.ft./gal per coat
Cure Mechanism	Sikagard®-705 L does not require any special curing but must be protected from rain for at least 3 hours at +68°F.
Packaging	5 gal. pail, 55 gal. drum

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life	2 years from production date
Storage Conditions	Store in unopened, undamaged and original sealed packaging in dry and cool conditions. Protect from moisture.
Product Conditioning	Condition material between 40°F and 95°F
Sealer Type	Alkylalkoxy Silane
Active Ingredient Content	~100%
VOC	327g/l
Depth of Penetration - OHD L-34	>10 mm
Flash Point	104°F (40°C)
Alberta DOT Type 1c	
Water Repellance after Heavy Abrasion	85.3%
Alkali Resistance	84.8%



PRIOR TO EACH USE OF ANY SIKA PRODUCT, THE USER MUST ALWAYS READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS ON THE PRODUCT'S MOST CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET WHICH ARE AVAILABLE ONLINE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING SIKA'S TECHNICAL SERVICE DEPARTMENT AT 800.933.7452 NOTHING CONTAINED IN ANY SIKA MATERIALS RELIEVES THE USER OF THE OBLIGATION TO READ AND FOLLOW THE WARNINGS AND INSTRUCTIONS FOR EACH SIKA PRODUCT AS SET FORTH IN THE CURRENT PRODUCT DATA SHEET, PRODUCT LABEL AND SAFETY DATA SHEET PRIOR TO PRODUCT USE.

Vapor Transmission	106.9%
NCHRP 244: (125 sq.ft./gal)	
Series II - Absorbed Chloride	88%
Series IV - Absorbed Chloride	98%
Water Absorption - ASTM C642	.06% (24 hrs)/.1% (48 hrs)
Scaling Resistance - ASTM C672	None
90 Day Salt Ponding - AASHTO T 259	82.6% (.5-1")

How to Use

Surface Preparation

Best results are achieved when Sikagard®-705 L is applied on 28 days old concrete – however, due to its high alkali resistance, it is still possible to apply it at a very early age. Best results are achieved on a dry, very absorbent substrate. All surfaces to be sealed must be dry, clean, sound before application. Remove all grease, curing compounds, surface treatments, coatings, oils, etc.

Preparation Work: Concrete, masonry and natural stone surfaces must be prepared using mechanical means (sandblast, shotblast, high pressure water, etc.). Cracks in concrete more than 12 mils must be repaired prior to application of the hydrophobic treatment.

Mixing

Sikagard® -705 L is supplied ready to use and must not be diluted.

Application

Sikagard®-705 L is applied using a low-pressure spray, brush or roller, in a single pass from bottom up taking care not to let the product run. Apply subsequent coats wet on wet. Avoid ponding on the surface.

Over Painting

Can be overcoated with water and solvent based polymer paint - contact the proposed paint manufacturer for recommendations.

Sikagard®-705 L can be used as a water repellent primer under many Sikagard® protective coatings. Penetration of water is thus prevented at possible weak spots or in the event of damage to the top coat and the risk of consequential damages such as paint flaking can be reduced.

Waiting time for Sikagard® overcoating: minimum 5 hours, maximum 1 week.

Limitations

- Best results are achieved when Sikagard®-705 L is applied on 28 days old concrete – however, due to its high alkali resistance, it is still possible to apply it at a very early age.
- Areas such as window frames which still need to be painted must be securely covered to avoid contact with Sikagard®-705 L.
- Areas not to be impregnated such as window panes need to be protected from being accidentally contaminated with Sikagard®-705 L.
- Sikagard®-705 L can damage some coatings and bituminous products.
- Sikagard®-705 L can lead to darkening of concrete, apply sample areas first.
- Cannot be overcoated with limewash or cement paint.
- Refer to the latest Method Statement for detailed information regarding surface preparation, application method, etc.

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KEEP CONTAINER TIGHTLY CLOSED. KEEP OUT OF REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. FOR PROFESSIONAL USE ONLY.

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety related data. Read the current actual Safety Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at <http://usa.sika.com/> or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. SALE OF SIKA PRODUCTS ARE SUBJECT SIKA'S TERMS AND CONDITIONS OF SALE AVAILABLE AT [HTTP://USA.SIKA.COM/](http://usa.sika.com/) OR BY CALLING 201-933-8800.

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MAINE DEPT OF AGRICULTURE, CONSERVATION & FORESTRY

BUREAU OF PARKS AND LANDS

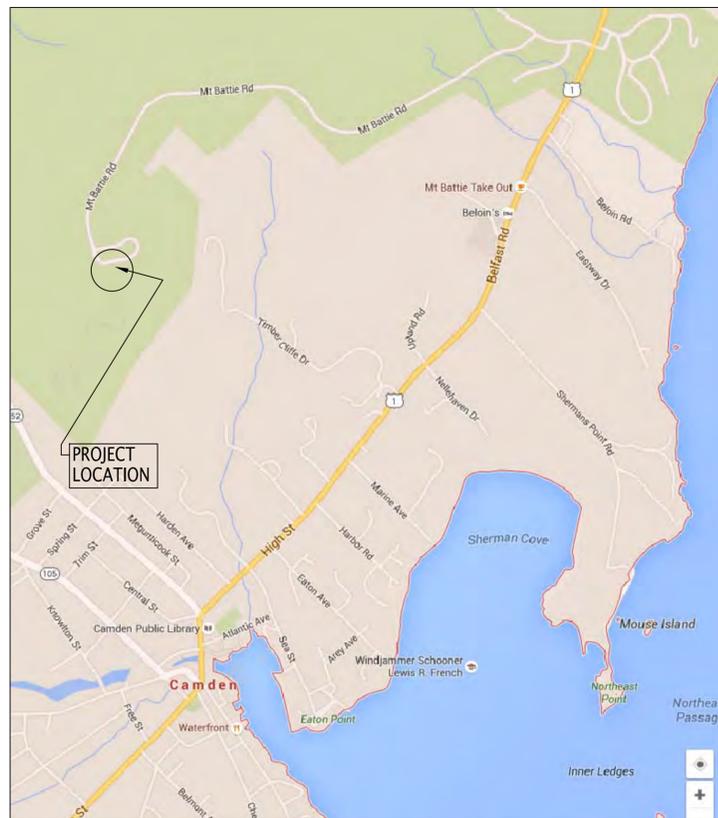
CAMDEN HILLS STATE PARK

MOUNT BATTIE TOWER RESTORATION

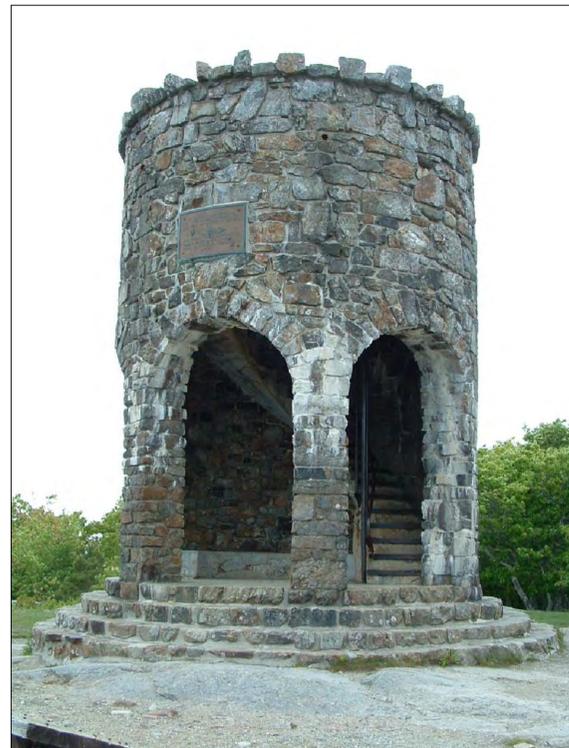
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 JANUARY 22, 2016

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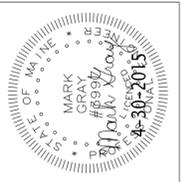
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LOCATION MAP



NO.	DATE	DESCRIPTION
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1	1-22-2016	FOR CONSTRUCTION RE-BIDDING
2	2-2-2016	FOR CONSTRUCTION RE-BIDDING



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 CAMDEN HILLS STATE PARK, CAMDEN, MAINE
 MOUNT BATTIE TOWER RESTORATION

COVER SHEET

DESIGNED M. GRAY	DATE 2-20-2015
DRAWN M. GRAY	SCALE AS SHOWN
CHECKED M. GRAY	JOB. NO. 2014030

SHEET NO.
J-001

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PREPARED BY:
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SPECIFICATION NOTES:

1. WORK INCLUDES REPAIR OF EXISTING STONE MASONRY AND CONCRETE TOWER, LOCATED ON TOP OF MOUNT BATTIE, CAMDEN HILLS STATE PARK, CAMDEN, MAINE.
2. WORK ITEMS INCLUDE:
 - 2.1. REMOVING EFFLORESCENCE FROM STONE MASONRY WALLS
 - 2.2. REMOVING DAMAGED CONCRETE
 - 2.3. REPAIRING DAMAGED CONCRETE
 - 2.4. REPLACING REMOVED CONCRETE
 - 2.5. REPAIR ELEVATED SLAB CONCRETE
 - 2.6. NOT USED
 - 2.7. REMOVING ALL STEEL RAILING AND STAIR NOSINGS.
 - 2.8. PROVIDING AND INSTALLING NEW GALVANIZED STEEL GUARD AND HAND RAILINGS
 - 2.9. REPOINT ALL MORTAR JOINTS WITH WEATHER JOINT.
 - 2.10. RECOAT ALL CONCRETE SURFACES WITH CEMENTITIOUS WASH. (SikaTop 144)
 - 2.11. APPLY SEALER TO ALL MASONRY AND CONCRETE SURFACES (SikaGuard 705L).
 - 2.12. APPLY TRAFFIC COATING TO TOP OF PARAPET (SikaLastic 621 TC). (THIS ELEMENT NOT IN CONTRACT – PER OWNER)
3. BID ALTERNATE DESCRIPTIONS
 - 3.1. BASE BID INCLUDES ALL WORK THAT IS NOT INCLUDED IN BID ALTERNATES AND GENERALLY INCLUDES REMOVAL OF ALL EFFLORESCENCE (BOTH INSIDE AND OUTSIDE), REPOINTING OF ALL STONE MASONRY ON THE OUTSIDE OF THE STRUCTURE INCLUDING THE CIRCUMFERENTIAL STEPS AT THE BASE AND REPOINTING OF STONE MASONRY ON THE TOP AND INSIDE FACE OF THE PARAPET ABOVE THE UPPER LEVEL FLOOR AS WELL AS ALL EPOXY CRACK INJECTION REPAIRS AND APPLICATION OF SEALER TO REPOINTED JOINTS.
 - 3.2. BID ALTERNATE #1 INCLUDES REPOINTING OF THE REMAINING STONE MASONRY JOINTS ON THE INSIDE FACE OF THE STRUCTURE ALONG WITH APPLICATION OF SEALER TO REPOINTED JOINTS.
 - 3.3. BID ALTERNATE #2 INCLUDES THE REMOVAL OF THE EXISTING STEEL RAILING ALONG THE OPEN SIDE OF THE CIRCULAR CONCRETE STAIR AND ALONG THE EXPOSED EDGE OF THE UPPER LEVEL SLAB ALONG WITH PROVIDING AND INSTALLING THE NEW GALVANIZED STEEL RAILING AND HAND RAIL ALONG THE STAIR AND UPPER LEVEL SLAB ALONG WITH INCIDENTAL CONCRETE REPAIRS NECESSARY TO INSTALLATION OF CONCRETE ANCHORS AND FASTENERS.
 - 3.4. BID ALTERNATE #3 INCLUDES THE REMOVAL OF DAMAGED AND DETERIORATED CONCRETE AND STEEL STAIR NOSINGS ON THE UPPER LEVEL SLAB TOP, SIDE AND SOFFIT ALONG WITH STAIR CONCRETE TREADS, RISERS, SIDES AND SOFFIT ALONG WITH THE REMOVAL OF DAMAGED CONCRETE ON THE TOP AND SIDE SURFACES OF THE BENCH ALONG THE INSIDE WALL OF THE LOWER LEVEL UNDER THE STAIR. THIS ALTERNATE ALSO INCLUDES THE REPAIR OF THOSE SURFACES, BRINGING THE SURFACES TO THE ORIGINAL GRADES AND LINES, ESPECIALLY TO THE DRAINAGE PATTERNS REQUIRED ON THE UPPER LEVEL SLAB TO DIRECT SURFACE DRAINAGE TO THE EXISTING STEEL PIPE SCUPPERS DRAINING WATER THROUGH THE MASONRY WALL. THIS ALTERNATE ALSO INCLUDES THE FINISH CONCRETE COATING OF SIKAGUARD 144 AND THE SEALING OF CONCRETE SURFACES WITH SIKAGUARD 705L.
4. SEQUENCE OF WORK AS FOLLOWS:
 - 4.1. REMOVE EFFLORESCENCE INSIDE AND OUTSIDE
 - 4.2. REPOINT EXTERIOR MORTAR JOINTS AND SEAL
 - 4.3. REMOVE PARAPET AND INTERIOR MORTAR JOINTS.
 - 4.4. EPOXY INJECT DESIGNATED CRACKS IN MASONRY WALLS AND PARAPET.
 - 4.5. REPAIR EXTERIOR STONE STEPS (THREE 360 DEGREE TREADS AND ONE TREAD BETWEEN THE THREE ARCHED OPENINGS)
 - 4.6. REMOVE DETERIORATED AND DAMAGED CONCRETE, STAIR RAILS AND STAIR NOSINGS.
 - 4.7. REPAIR EXISTING ELEVATED SLAB.
 - 4.8. NOT USED.
 - 4.9. REPAIR CONCRETE SLABS, BENCH AND STAIR STRUCTURE
 - 4.10. REPOINT INTERIOR WALLS AND PARAPET INCLUDING TOP OF PARAPET.
 - 4.11. COAT ALL CONCRETE SURFACES WITH SIKATOP 144
 - 4.12. SEAL ALL MASONRY AND CONCRETE SURFACES WITH SIKAGUARD 705L.
 - 4.13. INSTALL TRAFFIC COATING ON TOP OF PARAPET (NOT IN CONTRACT).
5. REMOVE EFFLORESCENCE BY ALL MEANS NECESSARY INCLUDING PRESSURE WASHING, GRINDING, SAND BLASTING, HAND BRUSHING, BRUSH BLASTING. COLOR CHANGES DUE TO MECHANICAL REMOVAL SHALL BE BLENDED INTO ADJACENT SECTIONS.
6. REMOVE DAMAGED CONCRETE WITH HIGH PRESSURE WATER WASHER, GRINDING, CHIPPING AND/OR CUTTING. DAMAGED AND WEATHERED SECTIONS OF CONCRETE TO BE REMOVED TO SOUND CONCRETE AND EXPOSED AGGREGATE. DISPOSE OF REMOVED CONCRETE AND MORTAR LEGALLY.

7. REPAIR CONCRETE SECTIONS AS FOLLOWS:

- 7.1. HORIZONTAL CONCRETE ELEVATED SLAB AND LOWER LEVEL SLAB
 - 7.1.1. REMOVE DAMAGED CONCRETE TO SOUND SUBSTRATE
 - 7.1.2. GRIND TOP SURFACE OF SLAB TO ALLOW A MINIMUM OF 1/8" OF REPAIR MORTAR (NEAT).
 - 7.1.3. PREPARE SUBSTRATE AS REQUIRED BY PRODUCT INSTRUCTIONS.
 - 7.1.4. NOT USED.
 - 7.1.5. REPAIR WITH SIKATOP 122 PLUS CONFORMING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. RESTORE ORIGINAL GRADE TO SLAB, DIRECTING SURFACE WATER TO SCUPPERS IN SIDE WALL.
 - 7.2. STAIR TREADS AND RISERS
 - 7.2.1. REMOVE STAIR NOSINGS AND HAND RAIL.
 - 7.2.2. REMOVE DETERIORATED AND DAMAGED CONCRETE TO SOUND SUBSTRATE.
 - 7.2.3. PREPARE SUBSTRATE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. REPAIR WITH SIKATOP 123 PLUS CONFORMING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDING MINIMUM AND MAXIMUM THICKNESSES PER LIFT.
 - 7.2.4. COAT TREADS AND RISERS WITH SIKATOP 144.
 - 7.3. SIDES OF STAIRS, STAIR SOFFIT, UPPER SLAB SOFFIT, AND CONCRETE BENCH ON LOWER LEVEL AND LOWER LEVEL FLOOR SLAB.
 - 7.3.1. HIGH PRESSURE WATER CLEAN CONCRETE AND MASONRY SUBSTRATE REMOVING DETERIORATED CONCRETE, MORTAR AND BRICK TO SOUND SUBSTRATE.
 - 7.3.2. PREPARE SUBSTRATE ACCORDING PRODUCT MANUFACTURER'S INSTRUCTIONS.
 - 7.3.3. REPAIR RUTS, SPALLS, BOLT HOLES AND IMPERFECTIONS WITH SIKATOP 122 PLUS CONFORMING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDING MINIMUM AND MAXIMUM THICKNESSES PER LIFT.
 - 7.3.4. COAT WITH SIKATOP 144 POLYMER-MODIFIED PORTLAND-CEMENT COATING CONFORMING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 8. REPAIR STONE MASONRY WALLS, PARAPET AND STEPS AS FOLLOWS:**
- 8.1. EXTERIOR WALL SURFACES.
 - 8.1.1. REMOVE ALL EFFLORESCENCE USING ALL MEANS NECESSARY INCLUDING PRESSURE WASHING, BRUSH BLASTING, SAND BLASTING AND MECHANICAL REMOVAL WITH GRINDERS. BLEND LIGHTENED AREAS WHERE EFFLORESCENCE HAS BEEN REMOVED INTO ADJACENT UNTREATED AREAS TO MINIMIZE COLOR DIFFERENTIAL.
 - 8.1.2. REMOVE MORTAR IN ALL JOINTS BACK 0.5 TO 0.75" (MINIMUM) OR TO SOUND MORTAR. PRESSURE WASH JOINTS AND STONE SURFACES TO REMOVE SURFACE CONTAMINANTS AND DISCOLORATION TO UNIFORM APPEARANCE.
 - 8.1.3. POINT ALL JOINTS WITH MORTAR USING A "WEATHER JOINT" SLOPING EACH JOINT WITH MORE REVEAL AT THE TOP AND LESS REVEAL AT THE BOTTOM TO ENCOURAGE WATER TO SHED OFF THE JOINT RATHER THAN ENTER IT.
 - 8.1.4. APPLY SIKAGARD 705L TO JOINTS WITH BRUSH OR SPRAY. APPLY TWO COATS.
 - 8.2. EXTERIOR 360 DEGREE STONE STONE STEPS
 - 8.2.1. REMOVE MORTAR IN ALL JOINTS BACK 0.5 TO 0.75" (MINIMUM) OR TO SOUND MORTAR. PRESSURE WASH JOINTS AND STONE SURFACES TO REMOVE SURFACE CONTAMINANTS AND DISCOLORATION TO UNIFORM APPEARANCE.
 - 8.2.2. POINT ALL JOINTS WITH MORTAR .
 - 8.2.3. APPLY SIKAGARD 705L TO MORTAR JOINTS USING BRUSH OR SPRAY. APPLY TWO COATS.
 - 8.3. INTERIOR WALL SURFACES INCLUDING INSIDE OF PARAPET ON UPPER LEVEL
 - 8.3.1. REMOVE EFFLORESCENCE AND THEN REMOVE MORTAR IN ALL JOINTS BACK 0.5 TO 0.75" (MINIMUM) OR TO SOUND MORTAR. PRESSURE WASH JOINTS AND STONE SURFACES TO REMOVE SURFACE CONTAMINANTS AND DISCOLORATION TO UNIFORM APPEARANCE.
 - 8.3.2. PRESSURE INJECT DESIGNATED WALL CRACKS, WORKING FROM THE BOTTOM TO THE TOP. INSTALL PORTS. SEAL CRACKS WITH SIKADUR 31 OR 33. PRESSURE INJECT CRACKS WITH SIKADUR 35 HI-MOD LV OR SIKADUR 35 HI-MOD LV LPL. REMOVE PORTS AND GRIND FILLED CRACK IF NECESSARY. CRACKS WIDER THAN 0.25" USE SIKAGROUT 212.
 - 8.3.3. POINT ALL JOINTS WITH MORTAR USING A "WEATHER JOINT" SLOPING EACH JOINT WITH MORE REVEAL AT THE TOP AND LESS REVEAL AT THE BOTTOM TO ENCOURAGE WATER TO SHED OFF THE JOINT RATHER THAN ENTER IT.
 - 8.3.4. APPLY SIKAGARD 705L TO MORTAR JOINTS USING BRUSH. APPLY TWO COATS.

8.4. TOP OF WALL PARAPET

- 8.4.1. REMOVE MORTAR IN ALL JOINTS BACK 0.5 TO 0.75" OR TO SOUND MORTAR. PRESSURE WASH JOINTS AND STONE SURFACES TO REMOVE SURFACE CONTAMINANTS AND BIOLOGIC GROWTHS.
- 8.4.2. POINT ALL JOINTS WITH MORTAR SMOOTHING THE TOP SURFACE TO THE EXTENT POSSIBLE WHILE MAINTAINING STABLE MORTAR THICKNESS. RESET STONES AS REQUIRED.
- 8.4.3. COAT WITH ELASTOMERIC COATING SYSTEM SIKALASTIC 621 TC CONFORM TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUBMIT COLOR SAMPLES. CARRY COATING UP THE SIDES OF STONES FORMING TOOTHED APPEARANCE ALONG THE TOP OUTSIDE EDGE OF THE PARAPET. END COATING SYSTEM SO THAT IT IS NOT VISIBLE FROM THE OUTSIDE BELOW AND IS AS NEAT AN EDGE AS POSSIBLE ALONG THE INSIDE EDGE. (THIS PARAGRAPH NOT PART OF THE CONTRACT. OWNER WOULD LIKE TO WORK WITH THE CONTRACTOR ON A COST/PLUS, CHANGE ORDER BASIS TO EXPLORE OPTIONS TO SEAL THE TOP OF THE PARAPET WALL TO PERMANENTLY PREVENT ENTRY OF WATER WHILE PRESERVING THE AESTHETIC QUALITIES OF THE STONE MASONRY.)

9. POINTING MORTAR SHALL BE SITE MIXED USING THE FOLLOWING PROPORTIONS.

- | | |
|---|-----------|
| 9.1. PORTLAND CEMENT TYPE 1 | 1 PART |
| 9.2. HYDRATED LIME, TYPE S | 1 PART |
| 9.3. MASON'S SAND | 6 PARTS |
| 9.4. BLACK BEAUTY AGGREGATE | 0.25 PART |
| 9.5. POTABLE MIXING WATER TO CORRECT APPLICATION CONSISTENCY. | |
| 9.6. SOME ADJUSTMENTS IN MORTAR MIX ARE ALLOWABLE TO ACHIEVE DESIRED RESULTS. | |

10. ENVIRONMENTAL CONDITIONS

- 10.1. CONTRACTOR SHALL TENT AND HEAT AS REQUIRED TO CURE ALL MORTAR AND REPAIR, SEAL AND FINISHING PRODUCTS AS REQUIRED BY MANUFACTURER'S LITERATURE.
- 10.2. PROTECT MORTAR FROM FREEZING FOR 24 HOURS AFTER PLACING.
- 10.3. CURE AND PROTECT FROM RAIN, EXCESSIVE TEMPERATURE AND EXCESSIVE DRYING ALL REPAIR AND RESTORATION PRODUCTS ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

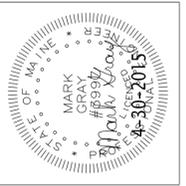
11. STEEL RAILING SHALL BE WELDED OF ASTM A53 STEEL, SCHEDULE 40 OF THE SIZES SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FIELD MEASURE AND VERIFY AND FIELD FIT AS REQUIRED. RAILING ASSEMBLY SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION (6 MILLS). GRIND ALL WELDS SMOOTH PRIOR TO GALVANIZING.

12. NOT USED.

13. EPOXY CRACK INJECTION LOCATIONS MAY NOT BECOME OBVIOUS UNTIL JOINTS HAVE BEEN CUT BACK TO SOUND MORTAR. CONTRACTOR TO CARRY UP TO NINE (9) GALLONS OF SIKADUR 35 IN HIS PROPOSAL ALONG WITH THE NECESSARY AUXILIARY PATCH AND PORTS. IF MORE PRESSURE CRACK INJECTION BECOMES NECESSARY, IT WILL BE WITH A NEGOTIATED CHANGE ORDER.

14. STEEL NOSINGS WILL NOT BE PLACED ON THE REPAIRED STAIR TREADS. NOSINGS WILL BE BUILT OUT WITH SIKATOP 123 TO EXISTING LINES AND GRADES, TREADS AND RISERS WILL BE COATED WITH SIKATOP 144.

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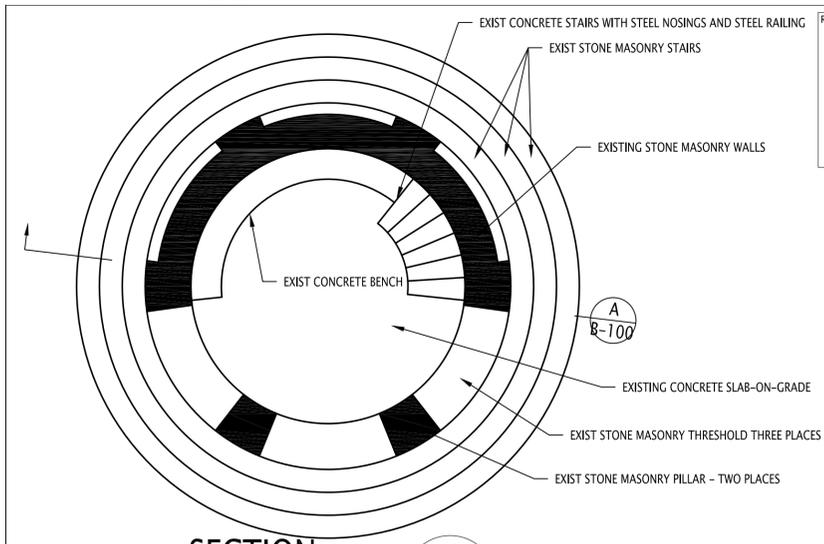
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**MAINE DEPT OF AGRICULTURE,
CONSERVATION & FORESTRY
BUREAU OF PARKS & LANDS**
CAMDEN HILLS STATE PARK, CAMDEN, MAINE
MOUNT BATTIE TOWER RESTORATION

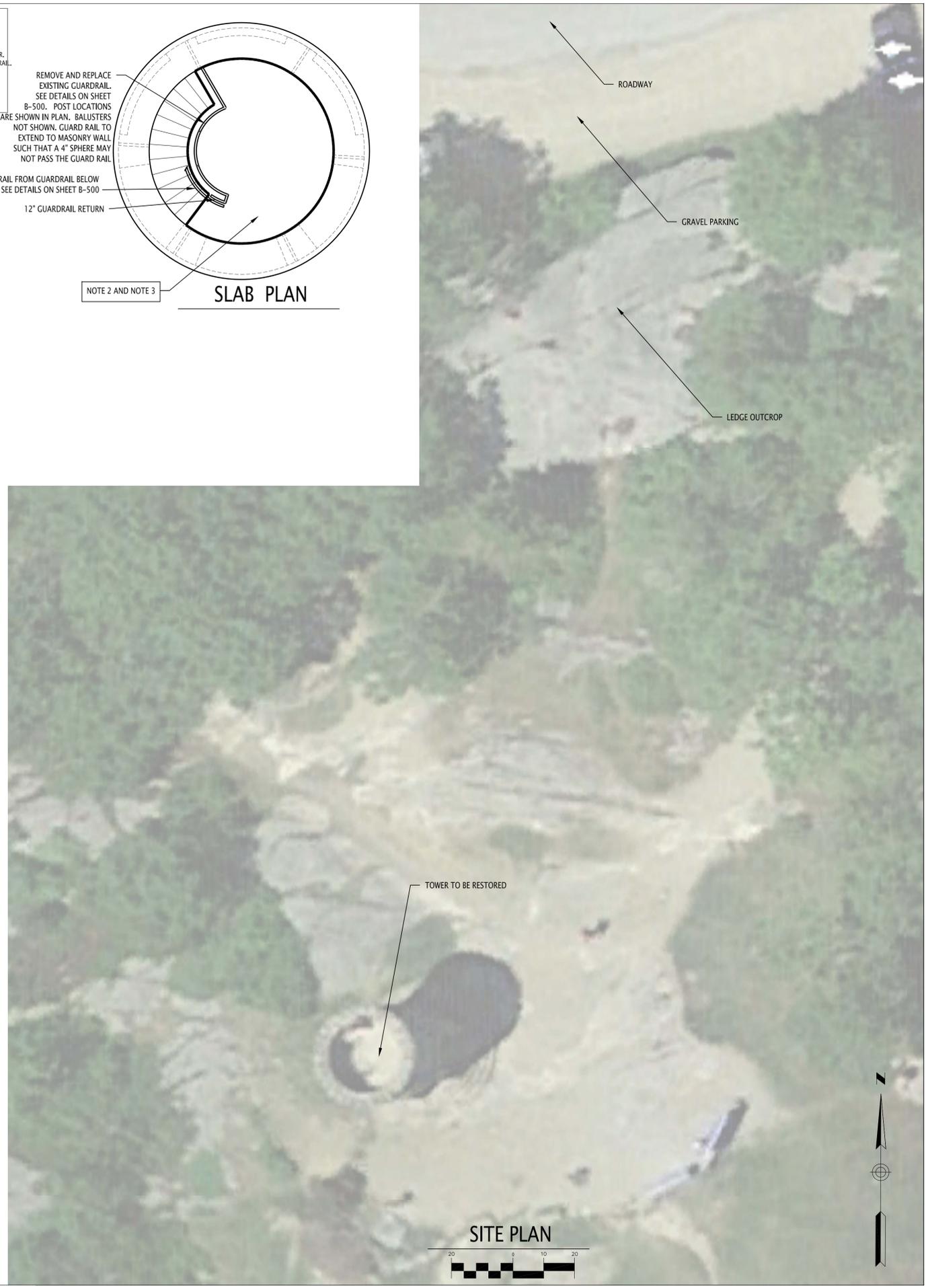
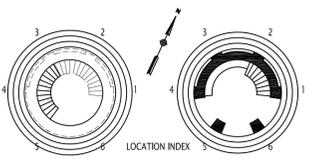
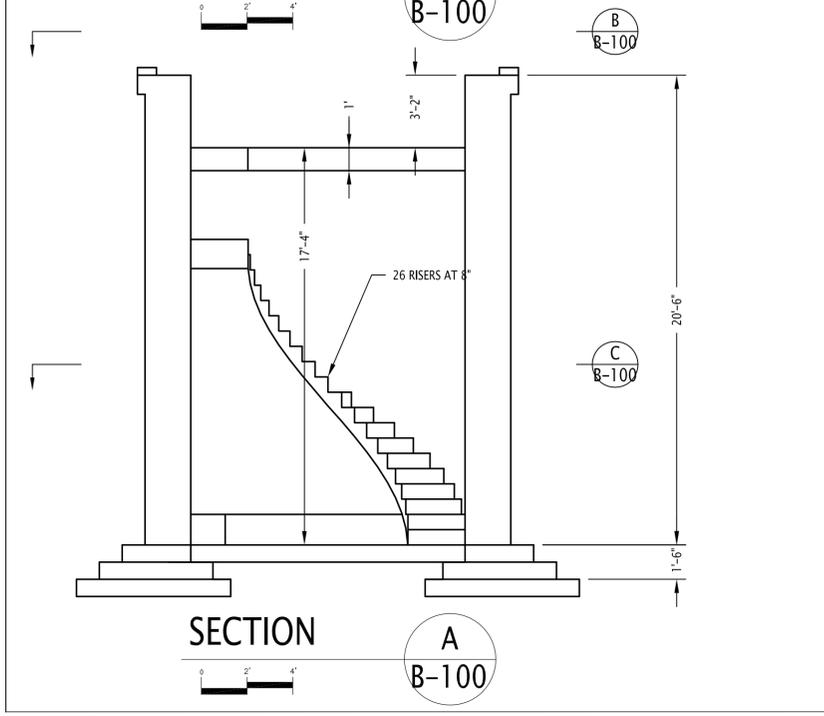
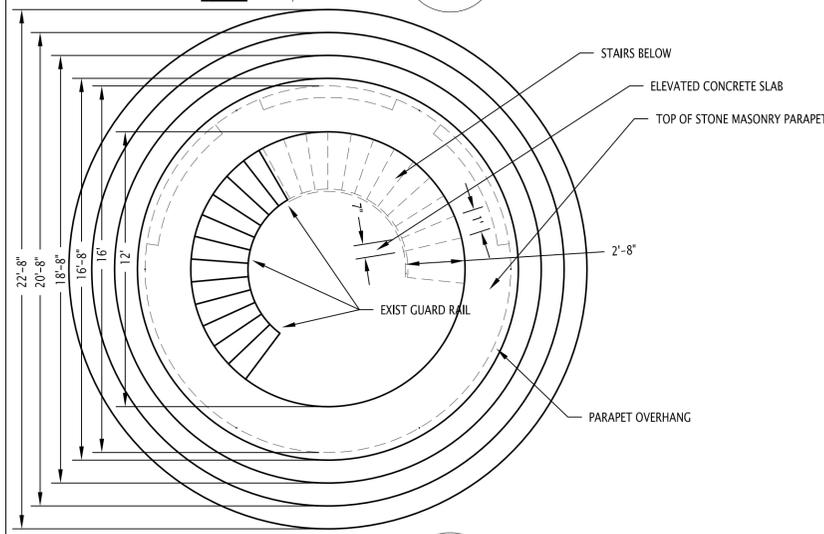
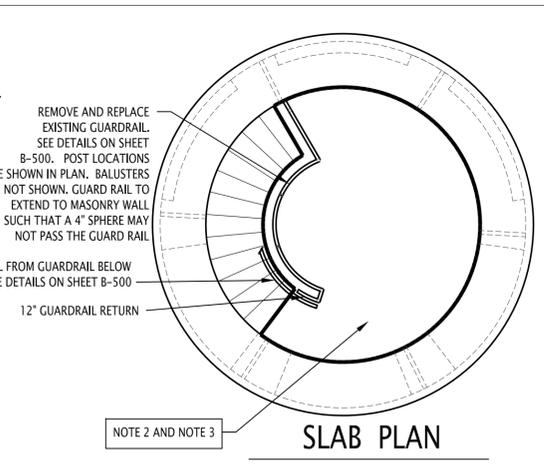
**SPECIFICATION
NOTES**

DESIGNED M. GRAY	DATE 2-20-2015
DRAWN M. GRAY	SCALE AS SHOWN
CHECKED M. GRAY	JOB. NO. 2014030

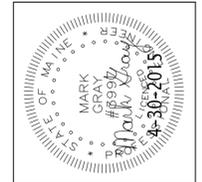
SHEET NO.
J-002



- REPAIR LEGEND**
1. REMOVE EFFLORESCENCE.
 2. REMOVE DAMAGED CONCRETE AND REPAIR.
 3. GRIND SLAB AND REPAIR WITH REPAIR MORTAR.
 4. EPOXY INJECT CRACK.
 5. REMOVE MORTAR IN ALL JOINTS AS DESCRIBED ON SHEET J-002 AND REPLACE WITH NEW POINTING MORTAR.
 6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL.
 7. NOT USED.
 8. NOT USED.
 9. NOT USED.
 10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
 11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).



NO.	DATE	DESCRIPTION
A	APRIL 30-2015	FOR REVIEW
B	8-13-2015	FOR FINAL REVIEW
0	8-24-2015	FOR CONSTRUCTION BIDDING
1	1-22-2016	FOR CONSTRUCTION RE-BIDDING
2	2-2-2016	FOR CONSTRUCTION RE-BIDDING



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 CAMDEN HILLS STATE PARK, CAMDEN, MAINE
 MOUNT BATTIE TOWER RESTORATION

**SITE AND
 STRUCTURE PLAN**

DESIGNED M. GRAY	DATE 2-20-2015
DRAWN M. GRAY	SCALE AS SHOWN
CHECKED M. GRAY	JOB. NO. 2014030

SHEET NO.
B-100

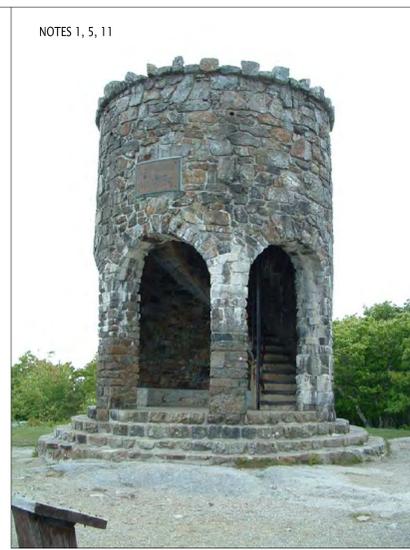
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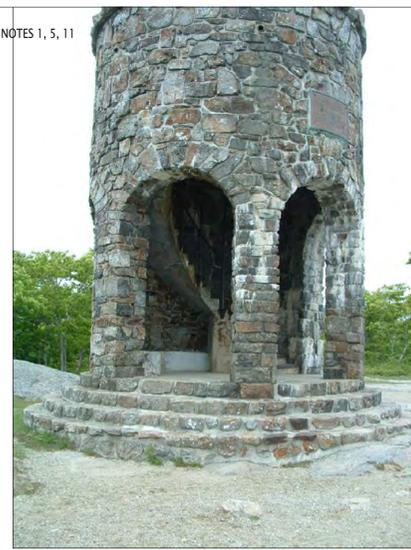
POSITION 2



POSITION 1



POSITION 6



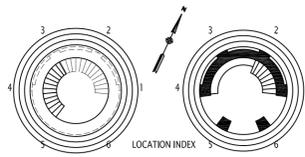
POSITION 5



POSITION 4



POSITION 3



REPAIR LEGEND

1. REMOVE EFFLORESCENCE
2. REMOVE DAMAGED CONCRETE AND REPAIR
3. CRIND SLAB AND REPAIR WITH REPAIR MORTAR.
4. EPOXY INJECT CRACK
5. REMOVE MORTAR IN ALL JOINTS AS DESCRIBED ON SHEET J-002 AND REPLACE WITH NEW POINTING MORTAR.
6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL.
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).



POSITION 2



POSITION 3.5



POSITION 4.5



POSITION 5.5



POSITION 6.5



POSITION 1



POSITION 1.5



POSITION 5



POSITION 1



POSITION 4

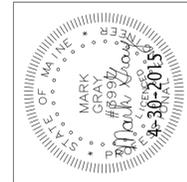


POSITION 3



POSITION 2

NO.	DATE	DESCRIPTION
A	APRIL 30, 2015	FOR REVIEW
B	8-13-2015	FOR FINAL REVIEW
0	8-24-2015	FOR CONSTRUCTION BIDDING
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2	2-2-2016	FOR CONSTRUCTION RE-BIDDING



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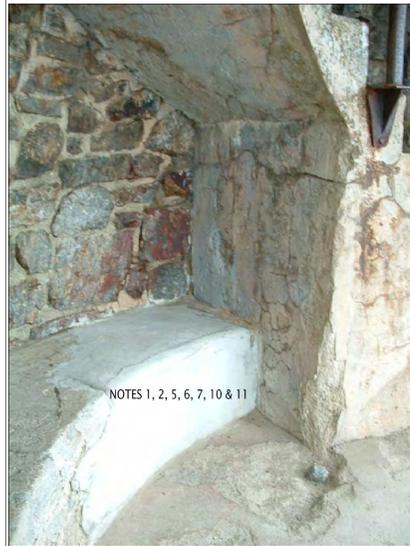
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BUREAU OF PARKS & LANDS
CAMDEN HILLS STATE PARK, CAMDEN, MAINE
MOUNT BATTIE TOWER RESTORATION

ELEVATIONS 1

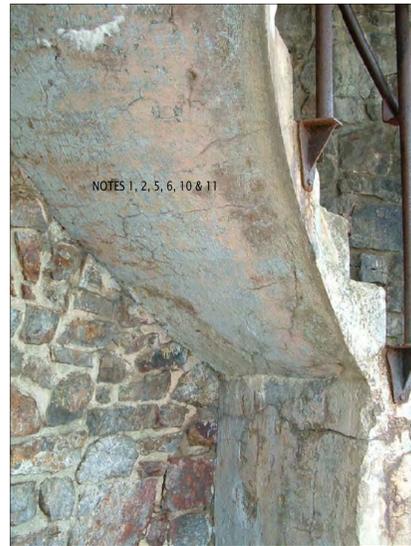
DESIGNED M. GRAY	DATE 2-20-2015
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CHECKED M. GRAY	JOB. NO. 2014030

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B-200

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POSITION 2



POSITION 2



POSITION 6.5



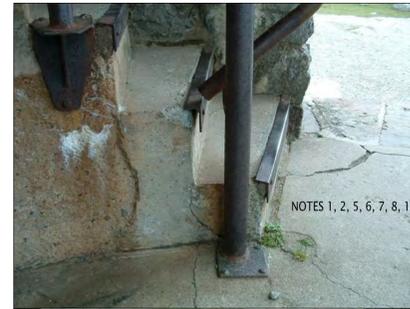
POSITION 1



POSITION 5.5



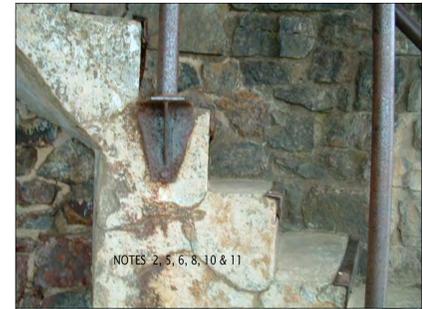
POSITION 1



POSITION 1



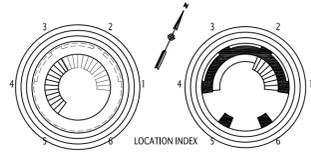
POSITION 4.5



POSITION 1.5



POSITION 1



POSITION 2

REPAIR LEGEND

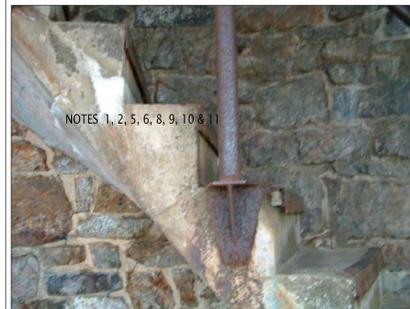
1. REMOVE EFFLORESCENCE
2. REMOVE DAMAGED CONCRETE AND REPAIR
3. GRIND SLAB AND REPAIR WITH REPAIR MORTAR.
4. EPOXY INJECT CRACK
5. REMOVE MORTAR IN ALL JOINTS AS DESCRIBED ON SHEET J-002 AND REPLACE WITH NEW POINTING MORTAR.
6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).

POSITION 1

POSITION 3.5

POSITION 4

POSITION 4.5



POSITION 2



POSITION 2.5



POSITION 3



POSITION 4

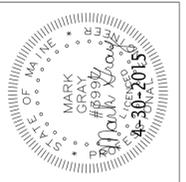


POSITION 4



POSITION 5

NO.	DATE	DESCRIPTION
A	APRIL 30/2015	FOR REVIEW
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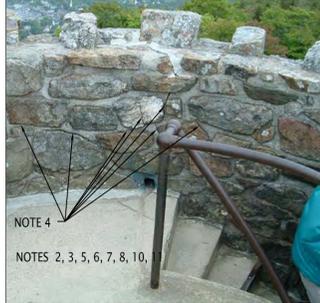
ELEVATIONS 2

DESIGNED M. GRAY	DATE 2-20-2015
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CHECKED M. GRAY	JOB. NO. 2014030

SHEET NO.
B-201

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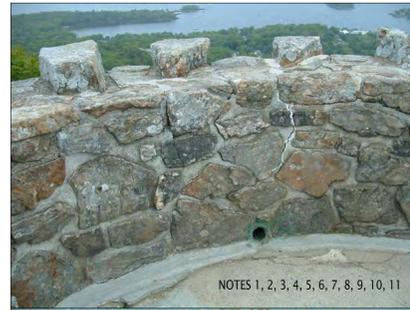
POSITION 5

POSITION 3



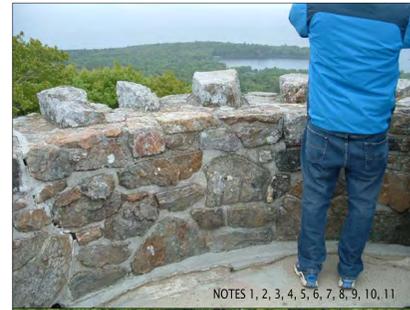
POSITION 3.5

POSITION 6

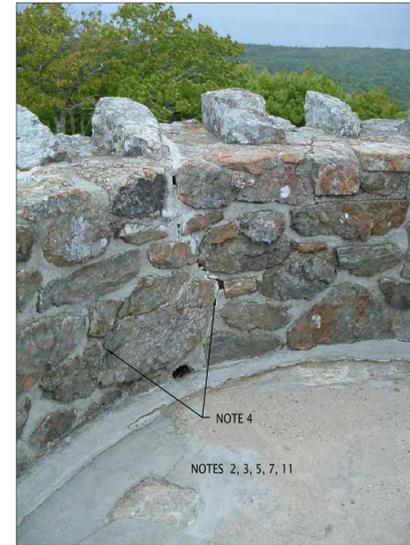


POSITION 5

POSITION 6.5



POSITION 1

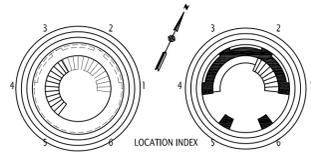


POSITION 2

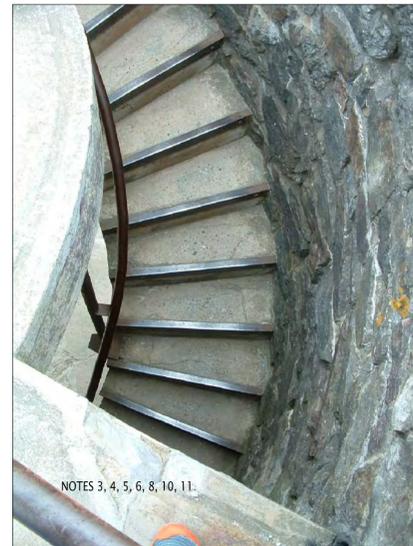
POSITION 4.5



POSITION 5



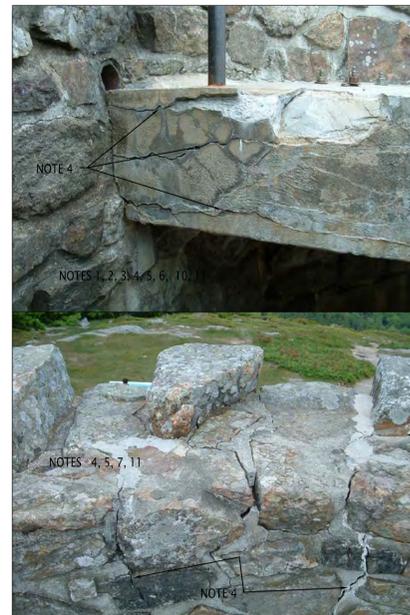
- REPAIR LEGEND
1. REMOVE EFFLORESCENCE
 2. REMOVE DAMAGED CONCRETE AND REPAIR
 3. GRIND SLAB AND REPAIR WITH REPAIR MORTAR.
 4. EPOXY INJECT CRACK
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 6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL.
 7. NOT USED.
 8. NOT USED.
 9. NOT USED.
 10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
 11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).



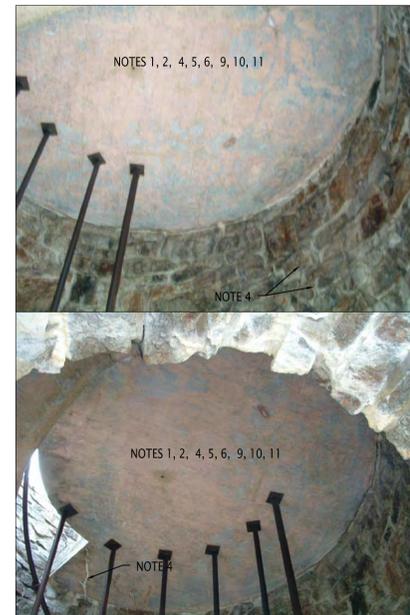
POSITION 4



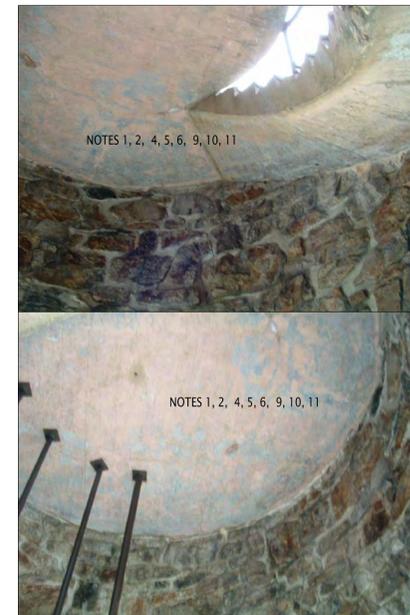
POSITION 5



POSITION 6



POSITION 2.5



POSITION 1

NO.	DATE	DESCRIPTION
A	APRIL 30, 2015	FOR FINAL REVIEW
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ELEVATIONS 3

DESIGNED M. GRAY	DATE 2-20-2015
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CHECKED M. GRAY	JOB. NO. 2014030

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B-202

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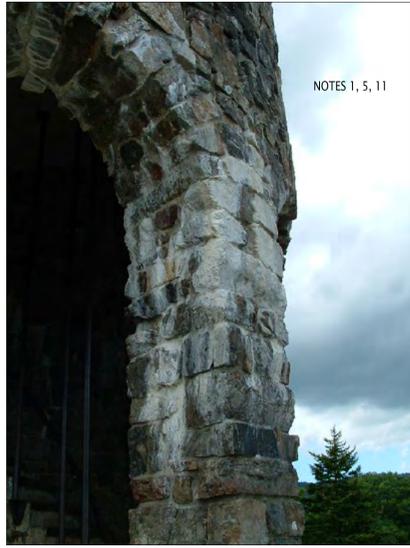
NOTES 1, 5, 11

POSITION 5



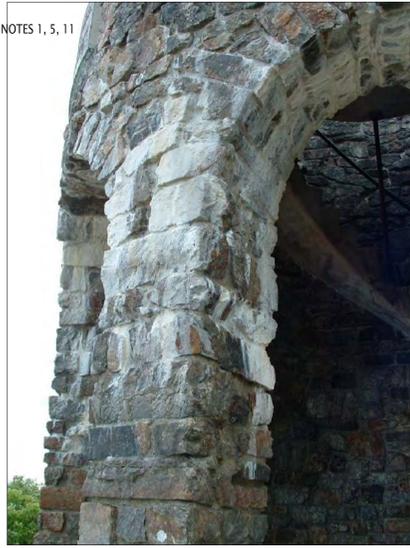
NOTES 1, 5, 11

POSITION 5.5



NOTES 1, 5, 11

POSITION 6



NOTES 1, 5, 11

POSITION 6



NOTES 1, 5, 11

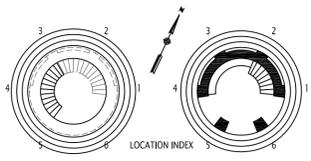
POSITION 6.5



NOTES 1, 2, 4, 5, 6, 8, 10, 11

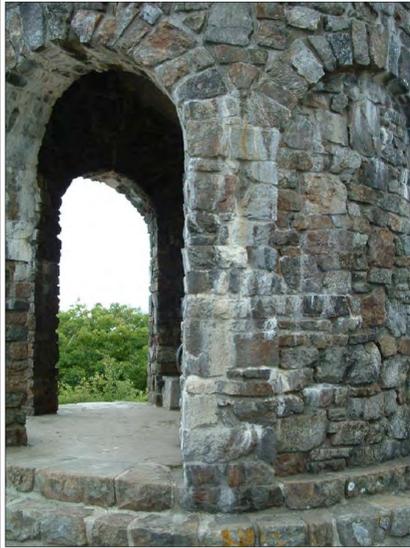
NOTE 4

POSITION 1



LOCATION INDEX

- REPAIR LEGEND
1. REMOVE EFFLORESCENCE
 2. REMOVE DAMAGED CONCRETE AND REPAIR
 3. GRIND SLAB AND REPAIR WITH REPAIR MORTAR.
 4. EPOXY INJECT CRACK
 5. REMOVE MORTAR IN ALL JOINTS AS DESCRIBED ON SHEET J-002 AND REPLACE WITH NEW POINTING MORTAR.
 6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL.
 7. NOT USED.
 8. NOT USED.
 9. NOT USED.
 10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
 11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).



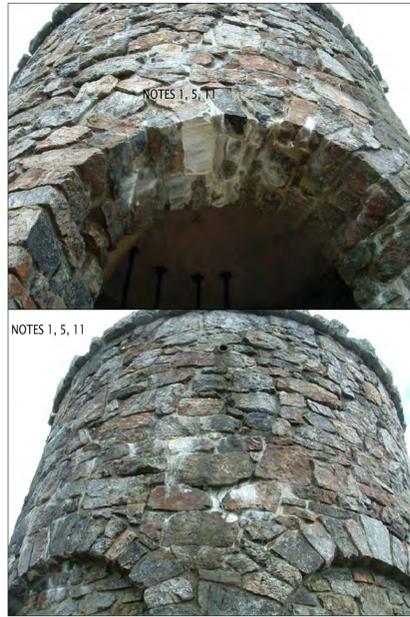
NOTES 1, 2, 5, 7, 10, 11

POSITION 1



NOTES 1, 5, 11

POSITION 2



NOTES 1, 5, 11

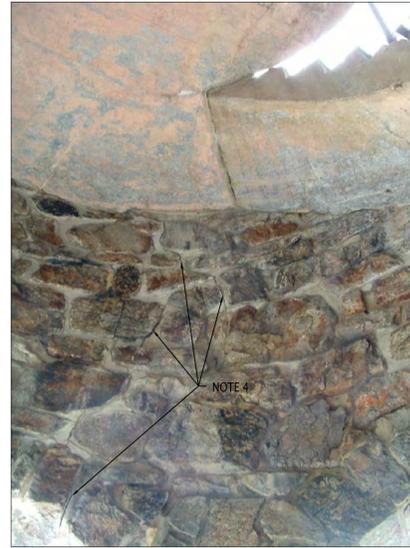
NOTES 1, 5, 11

POSITION 2



NOTES 1, 5, 11

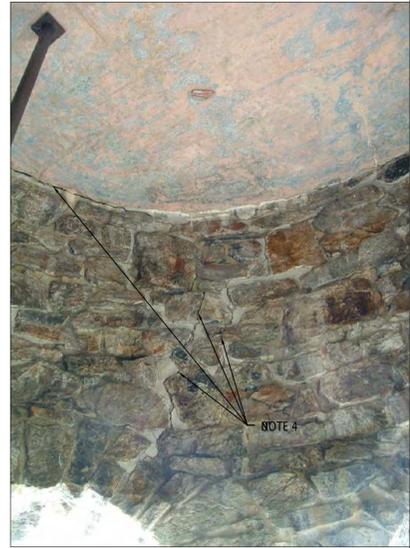
POSITION 1



NOTES 1, 4, 5, 11

NOTE 4

POSITION 5

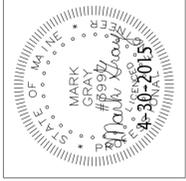


NOTES 1, 2, 4, 5, 6, 9, 10, 11

NOTE 4

POSITION 6

NO.	DATE	DESCRIPTION
A	APRIL 30-2015	FOR REVIEW
B	8-13-2015	FOR FINAL REVIEW
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ELEVATIONS 4

DESIGNED M. GRAY	DATE 2-20-2015
DRAWN M. GRAY	SCALE AS SHOWN
CHECKED M. GRAY	JOB. NO. 2014030

SHEET NO.
B-203

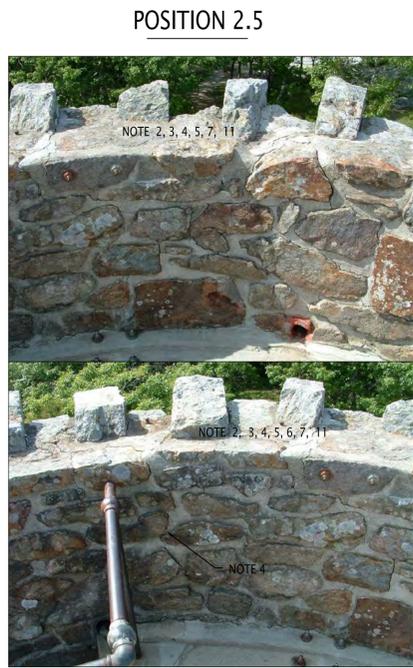
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POSITION 2



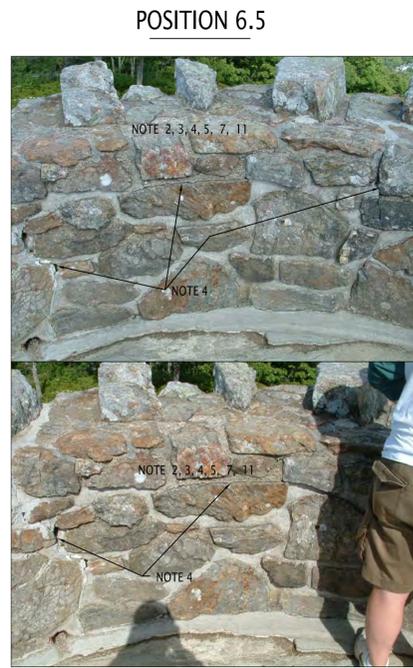
POSITION 2



POSITION 3



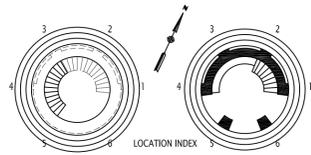
POSITION 1.5



POSITION 6.5



POSITION 6



POSITION 5.5



POSITION 6

POSITION 4.5



POSITION 5

POSITION 3.5



POSITION 4

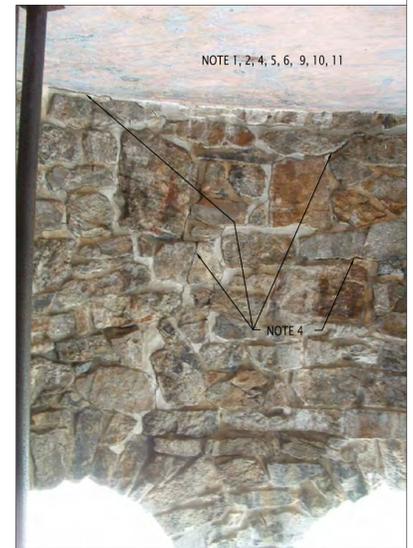
POSITION 3.5



POSITION 3



POSITION 4.5



POSITION 6

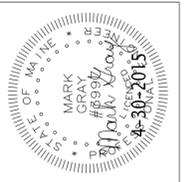
- REPAIR LEGEND
1. REMOVE EFFLORESCENCE
 2. REMOVE DAMAGED CONCRETE AND REPAIR
 3. GRIND SLAB AND REPAIR WITH REPAIR MORTAR.
 4. EPOXY INJECT CRACK
 5. REMOVE MORTAR IN ALL JOINTS AS DESCRIBED ON SHEET J-002 AND REPLACE WITH NEW POINTING MORTAR.
 6. REMOVE STEEL STAIR NOSINGS AND RAILING AND REPLACE WITH NEW GALVANIZED GUARDRAIL AND HANDRAIL.
 7. NOT USED.
 8. NOT USED.
 9. NOT USED.
 10. APPLY CEMENTITIOUS COATING OVER ALL CONCRETE SURFACES.
 11. APPLY SEALER TO ALL REPAIRED JOINTS AND REPOINTED JOINTS (STONES MAY BE OMITTED).

POSITION 2.5

POSITION 1

POSITION 6.5

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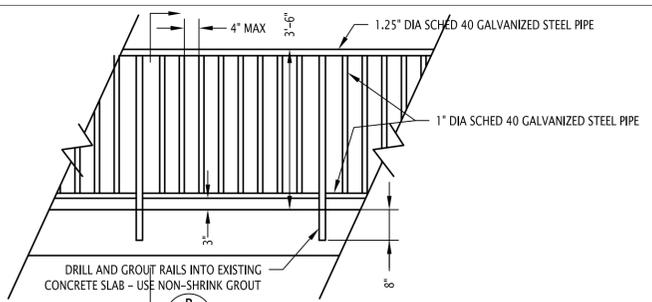
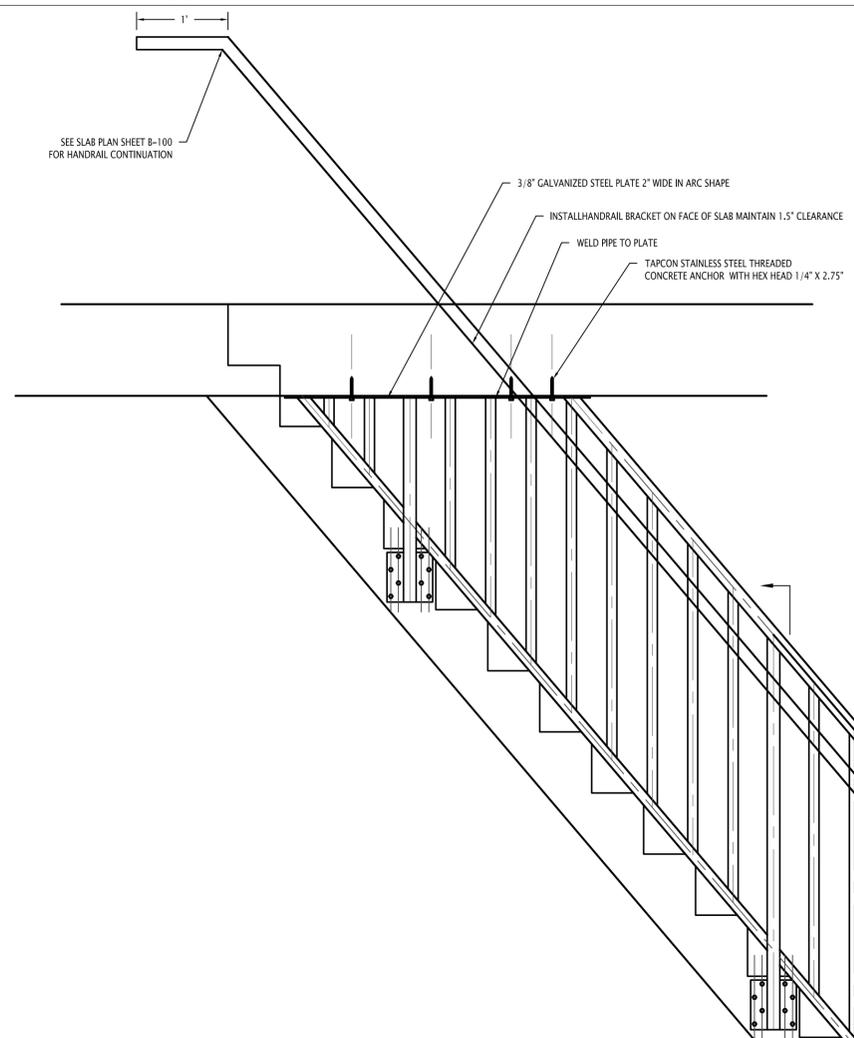
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ELEVATIONS 5

DESIGNED M. GRAY	DATE 2-20-2015
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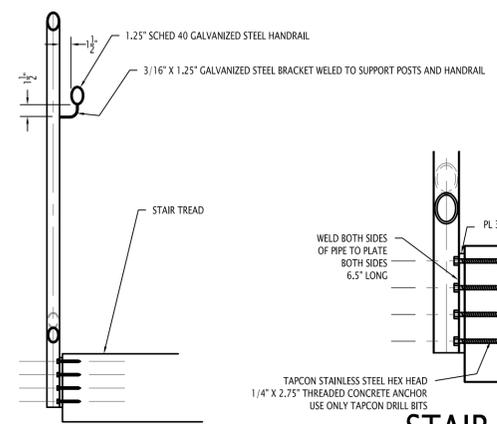
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PLATFORM GUARD RAIL

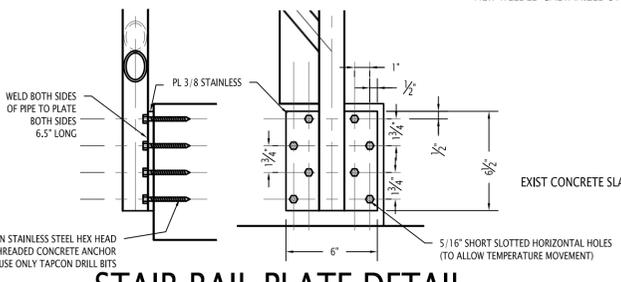
ALTERNATES #2 AND #5



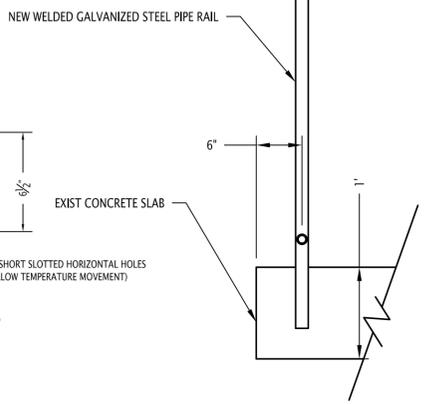
SECTION A

B-500

ALTERNATES #2 AND #5



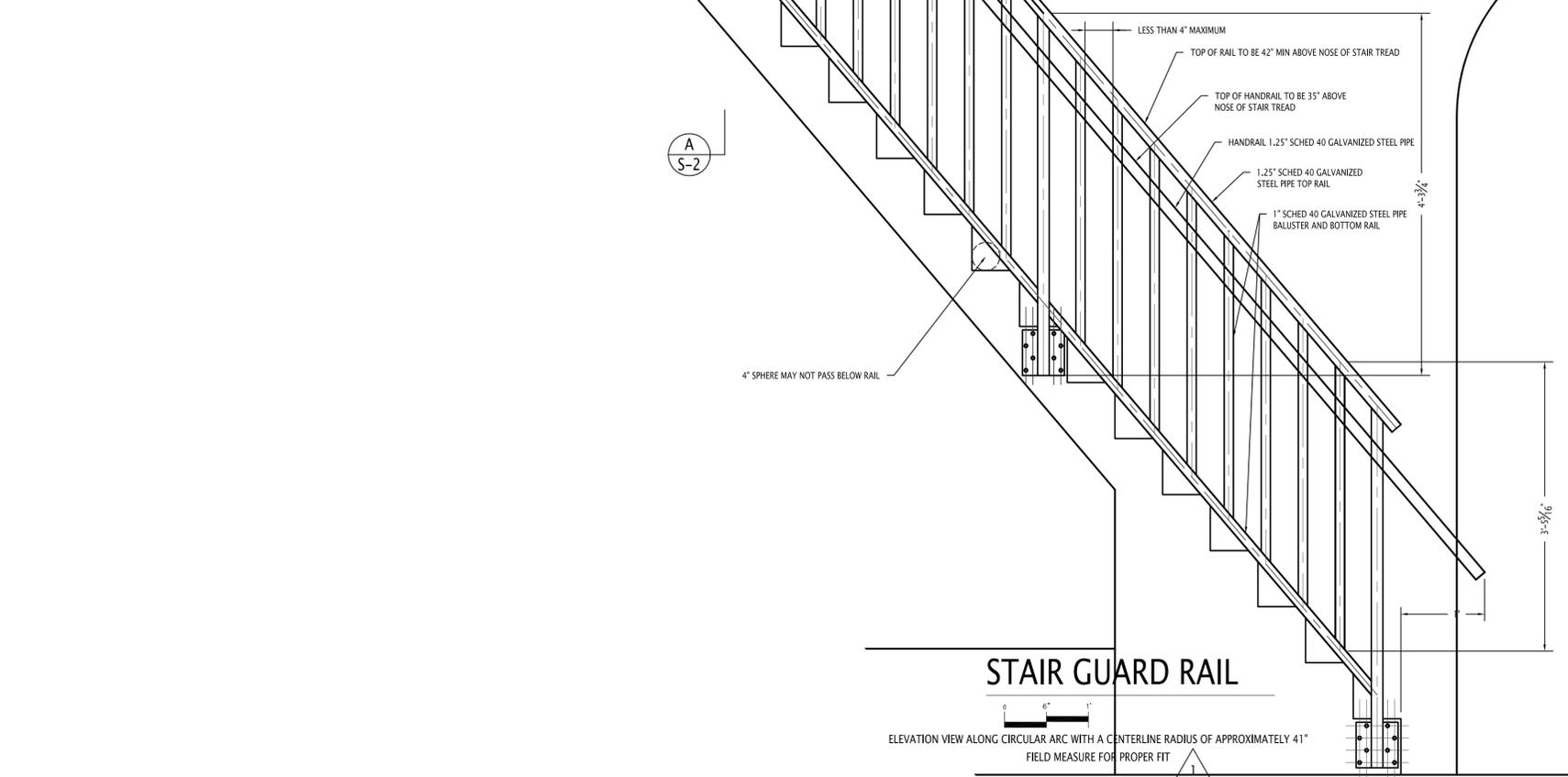
STAIR RAIL PLATE DETAIL



SECTION B

B-500

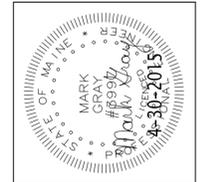
ALTERNATES #2 AND #5



STAIR GUARD RAIL

ELEVATION VIEW ALONG CIRCULAR ARC WITH A CENTERLINE RADIUS OF APPROXIMATELY 41" FIELD MEASURE FOR PROPER FIT

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DETAILS

DESIGNED M. GRAY	DATE 2-20-2015
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