

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DIVISION OF PARKS AND RECREATION
PLANNING AND DEVELOPMENT
172 Pembroke Road, Concord, NH 03301
Tel. (603) 271-2606 Fax (603) 271-2629

Project No. CAP 1403

SPECIFICATIONS

Concrete Repairs
Sherman Adams Building
On the summit of Mt. Washington
Mt. Washington State Park
Sargent's Purchase, New Hampshire
Rebid
April 25, 2016

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STATE OF NEW HAMPSHIRE
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DIVISION OF PARKS AND RECREATION
172 Pembroke Road, Concord, New Hampshire 03301
TEL. 603-271-3556, FAX 603-271-2629

NOTICE TO BIDDERS

Project: No. **CAP 1403 Concrete Repairs to the Sherman Adams Building - Rebid**
On the summit of Mt. Washington
Mt. Washington State Park, Sargent's Purchase, NH

Sealed bid proposals for the above project will be accepted until 2:00pm, prevailing time, on **May 17, 2016**. Bids should be deposited in the bid box located at the reception desk of the Department of Resources and Economic Development (DRED) offices at 172 Pembroke Road in Concord, NH. Bid documents will be available to interested contractors at the Planning and Development Section of DRED on April 25, 2016. They may also be viewed at the following locations:

1. Construction Summary of New Hampshire, Inc. 734 Chestnut Street, Manchester, NH 03104.
Tel: (603) 627 8856. www.constructionsummary.com
2. Infinite Imaging, 933 Islington Street, Portsmouth, NH 03801.
Tel: 1 800 581 2712 or 603 436 3030 planroom.infiniteimaging.com
3. McGraw-Hill Construction www.construction.com
4. Signature Digital Imaging, 45 Londonderry Turnpike, Hooksett, NH 03106. Tel. (603) 624 4025. signaturenh.com
5. Works in Progress, 20 Farrell Street, Suite 103, South Burlington, VT 05403.
Tel. 1-800-286 3633 or 802 658 3797
6. New Hampshire Department of Administrative Services Bureau of Purchase and Property
Website <http://admin.state.nh.us/purchasing/vendorresources.asp>
7. New Hampshire State Parks Website <http://www.nhstateparks.org> under the News & Events tab improvement projects sub tab.

All companies, corporations, and trade names bidding must be registered and have a certificate of existence from the New Hampshire Secretary of State's Office, Corporate Division (telephone 603-271-3244) in order to do business with the State of New Hampshire.

All bidders will be required to attend the pre-bid conference at the summit of Mt. Washington on Tuesday, May 10 or if there is inclement weather on Thursday, May 12. Meet in the parking lot of the Mt. Washington Auto Road base lodge on Route 16 at 10:00 am.

BIDDERS MUST ATTEND THE PRE-BID CONFERENCE AS A QUALIFICATION TO BID THIS PROJECT

To confirm that weather conditions will allow the meeting to occur as scheduled call Scott Coruth, Dept. Architect, at 603 271 2606 between 8:00 am and Noon on Monday, May 9.

A bid bond accompanying the bid proposal will be required in the amount of 5% of the total amount of the lump sum bid price. Bid proposals should be made out only on the form included in the specifications package and submitted in a sealed envelope marked: Bid Proposal for Concrete Repairs, Mt. Washington State Park.

For further information contact Scott Coruth, Department Architect, telephone: 603 271 2606.

STATE OF NEW HAMPSHIRE
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PLANNING AND DEVELOPMENT

PROPOSAL

Proposal of...

(name)

(address)

To furnish and deliver all materials except as noted and to perform all work in accordance with the Contract of the State of New Hampshire, Department of Resources and Economic Development for the construction of...

Project: **CAP 1403 Concrete Repairs to the Sherman Adams Building - Rebid
Mt. Washington State Park, Sargent's Purchase, NH**

Commissioner
Department of Resources and Economic Development
172 Pembroke Road
Concord, N.H. 03301

Commissioner:

In accordance with the advertisement of the Department of Resources and Economic Development inviting proposals for the project herein before named and in conformity with the Plans and Specifications on file in the office of the Department of Resources and Economic Development, _____(firm name) hereby certifies that _____ is/are the only person, or persons, interested in this proposal as principals; that this proposal is made without collusion with any person, firm, or corporation; that an examination has been made of the Plans, of the Standard Specifications, and Special Attentions, Supplemental Specifications, and Special Provisions, all of which are attached hereto, and also of the site of the work; and I, or we, propose to furnish all necessary machinery, equipment, tools, labor, and other means of construction, and to furnish all materials specified in the manner and at the time prescribed; and understand that the quantities of work as shown herein are approximate only and are subject to increase or decrease, and further understand that all quantities of work are to be performed at the quoted prices.

To execute the form of contract and begin work within 15 (fifteen) days after the notice to proceed has been received or otherwise delivered to the contractor and to prosecute said work until its completion.

It is further proposed:

To furnish a contract bond in the amount of one hundred percent (100%) of the contract award, if the contract award is thirty-five thousand dollars (\$35,000) or more, as security for the completion of the contract in accordance with the plans and specifications and contract documents. The form of bond shall be that provided for by the Department, and the surety shall be acceptable to the Commissioner. No contract bond shall be required on contract awards of less than thirty-five thousand dollars (\$35,000).

To guarantee all of the work performed under this contract to be done in accordance with the plans and specifications and contract documents.

Enclosed, herewith, find certified check or bid bond in the amount of 5% of the total amount of the Lump Sum Price made payable to the "Treasurer, State of New Hampshire" as a proposal guarantee which is understood, will be forfeited in the event the form of contract is not executed, if awarded to the undersigned. Note: Personal checks will not be accepted as a proposal guarantee.

The undersigned acknowledges receipt of the following addenda, issued during the bidding time, and states that these have been incorporated in the proposal:

Addendum #1 dated _____
Addendum #2 dated _____
Addendum #3 dated _____

Dated _____

ALLOWANCE #1: Unanticipated Modification and/or Additions to Contract Items:

Include in the Contract, a stipulated sum/price of \$15,000 for use upon the Project Managers instruction. This Allowance will make money available for modifications and/or additions to contract items due to owner-initiated changes, or for unknown, latent or differing existing conditions, or for the removal of hazardous materials that are encountered by construction.

- a. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Allowance. The cost of the bond for the amount of Allowance shall be included as part of the lump sum base bid.
- b. Funds will be drawn from an Allowance only by Change Order. Contractor can proceed with Change Order Work against Allowance with direction from the Project Manager. The Contractor shall not proceed with any work that will exceed the amount of Allowance remaining.
- c. Credits can only be added to an Allowance by Alteration Order. The Contractor may not use a credit until an Alteration Order is fully executed.
- d. Notwithstanding the Contractors objection, the Project Manager may at any time reduce the funds remaining in the Allowance by Alteration Order.
- e. At Final Payment of the Contract, funds remaining in the Allowance will be credited to the State.

**SCHEDULE OF VALUES: Concrete Repairs to the
Sherman Adams Building - Rebid**
On the summit of Mt. Washington
Mt. Washington State Park

INDICATE DOLLAR AMOUNT OF CONTRACT SUM ALLOCATED TO EACH CATEGORY OF WORK AS DESIGNATED BELOW:

General Conditions.....
 Bond Cost.....
 Mobilization to the summit of Mt. Washington.....
 Concrete Rehabilitation.....
 Concrete Unit Masonry repairs.....
 Cementitious Waterproofing.....
 Joint Sealers.....
 Elastomeric Coating.....
Sub Total.....

(A)

Allowance # 1

.....\$15,000

Total: lump sum base bid (including Allowance No. 1).....

Delete Alternative No.1: Elastomeric coating.....

Delete Alternative No.2: Entrance canopy concrete repairs.....

Delete Alternative No. 3 Observatory tower concrete repairs.....

Delete Alternative No. 4 Chimney repairs.....

NOTE: The Schedule of values must be completely filled out in order for bid proposal to be considered responsive.

SIGNATURE PAGE

Company Name _____

Address _____

Phone _____

E-mail Address _____

Signature of Authorized Bidder:

Print _____

Title _____

Address of Bidder _____
(if different than company)

Names and Addresses of Members of the Firm/Corporation

Name _____ address _____

Name _____ address _____

Name _____ address _____

GENERAL CONDITIONS

GENERAL

This contract is to be governed by all the applicable provisions of these specifications.

This project consists of repairing the indicated areas of exterior concrete surfaces on the Sherman Adams Building at the summit of Mt. Washington. The scope of work includes concrete patching, repair of two concrete masonry unit chimneys, replacing joint sealers, application of cementitious coating and elastomeric coating systems.

BIDDING REQUIREMENTS

Bids shall only be accepted on the official Bid Proposal Forms, attached to these specifications. **Any bids submitted that are not on the official bid proposal forms will not be accepted.**

CONDITIONS AT SITE OR BUILDING

Bidders shall visit the site at the summit of Mt. Washington and be responsible for having ascertained pertinent local conditions such as: restrictions on use of the Mt. Washington Auto Road, accessibility to the exterior of the building, general character of the site, and the extent and nature of other work scheduled for the same construction time period at the summit.

Bidders are advised that the Sherman Adams Building, because of its location on the summit of Mt. Washington, is subject to some of the most extreme weather conditions in the United States. The average wind speed in July and August last year was 30 mph. This coupled with other unfavorable work conditions will make this a challenging and time consuming project. Included in this package for your use is the weather data for the summit from 2012 and 2015. (See the climatological data appendix)

Contractors must make their own arrangements for use of the privately owned Mt. Washington Auto Road for mobilization at the summit. The Auto Road will charge fees for the use of the road and will limit the hours during which construction vehicles can be on the road. Arrangements can be made by contacting Mr. Howie Wemyss at Tel: 603 466 3988.

PERFORMANCE AND PAYMENT BOND

In the event the bid is \$35,000 or more, the contractor shall furnish security by bond or otherwise in an amount equal to 100% of the contract guaranteeing performance and payment. The payment security shall meet the requirements of New Hampshire RSA 447:16.

The performance and payment bond must be returned with the signed contract within 15 days after the contract has been mailed or otherwise delivered to the bidder.

PROPOSAL GUARANTEE

The Contractor shall furnish a certified check or bid bond in the amount of 5% of the total amount of the Lump Sum Price made payable to the "Treasurer, State of New Hampshire" as a proposal guarantee. This proposal guarantee will be forfeited in the event that the contract is not executed. Personal checks will not be accepted.

DETERMINATION OF RIGHT TO DO BUSINESS WITH STATE OF N.H.

All bidders must be registered and have a certificate of existence from the Secretary of State, Corporate Division (telephone 603-271-3244) in order to do business with the State of New Hampshire.

PROPOSAL SELECTION

In most cases the proposal submitted by the qualified bidder with the lowest base bid price shall be selected. However, the Department of Resources and Economic Development (DRED) reserves the right to reject any or all proposals, or advertise for new proposals as it judges to be in the best interest of the state.

CONTRACTORS QUALIFICATIONS

The successful bidder shall provide evidence upon request that they have been successfully performing this type, scale, and quality of work for a minimum of five years. Upon request, a comprehensive list of all similar projects worked on in the past two years by the general contractor shall be submitted along with contact information for 3 references from owner's representatives involved with three different projects completed by the contractor.

EXECUTION OF CONTRACT

The Contractor's attention is called to the following:

EXECUTION AND APPROVAL OF CONTRACT. The contract shall be signed by the successful Bidder and returned, together with the contract bond, if applicable, within 15 days after the contract has been mailed or otherwise delivered to the Bidder. No contract shall be considered as in effect until it has been fully executed by all the parties thereto and, when the contract amount is more than \$25,000, the award has been concurred in by the Governor and Council.

FAILURE TO EXECUTE CONTRACT. Failure to execute the contract within 15 days after the contract has been mailed or otherwise delivered to the successful Bidder shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the Department, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest Bidder, or the work may be re-advertised as the Commissioner of DRED may decide.

STARTING DATE

The Contractor shall start work after the Notice to Proceed is received. The Notice to Proceed shall be issued immediately upon contract approval by the Governor and Council, and shall establish the actual construction start date. Failure to start work within 15 calendar days after the start date shall be considered a default of the contract. If the actual start date is later than the advertised start date, the completion date shall be extended by an equivalent number of working days.

WORKERS COMPENSATION INSURANCE

Workers compensation insurance is required for all workers on the job site of this project. Per RSA 21-I:81-b At the onset of work on any NH state construction project, the general contractor or designated project construction manager, if any, shall provide to the Department Project Manager a current list of all subcontractors and independent contractors that the general contractor has agreed to use on the job site, with a record of the entity to whom that subcontractor is insured for workers compensation purposes. This list shall be posted on the jobsite and updated as needed to reflect any new subcontractors or independent contractors.

If it is determined that a subcontractor or independent contractor is present on a state construction site without the contractor's name and direct contracting relationship being posted in a visible location at the worksite, the general contractor or designated project manager shall require the subcontractor or independent contractor to provide the information within 36 hours and to post the information in a visible location at the worksite. If the information is not provided within 36 hours of its request, the general contractor shall suspend the contractor until the information is provided and posted.

PROTECTION OF EXISTING PROPERTY

It shall be the responsibility of the contractor to protect existing property from damage. Any damage caused by the contractor in the performance of the work shall be repaired or replaced at his expense to the satisfaction of the designated DRED Project Manager.

CODES

All work performed shall meet the provisions, if applicable, of the 2009 IBC, the 2010 ADA standards for Accessible Design, and the 2009 NFPA 101 Life Safety Code.

WORKMANSHIP

All work shall be performed in a neat workmanlike manner by skilled workmen who have been actively engaged in performing the type of work specified under this contract for the last two years.

CLEAN-UP

The site for this project is in a highly visible NH State Park and will be open to the public throughout the construction period. It is important to the Division of Parks and Recreation that the site be maintained in a clean and presentable condition for the public. Therefore, all debris from the project shall be cleaned up daily, stored in closed, wind-proof containers and removed from the site at least on a weekly basis. At the conclusion of the project, all scaffolding, barricades, equipment and debris shall be promptly removed from the site.

DEFAULT AND TERMINATION OF CONTRACT

If the Contractor...

- (a) Fails to begin the work under the contract within the time specified in the contract, or
- (b) Fails to perform the work with sufficient workmen and equipment or with sufficient materials to assure the prompt completion of said work, or
- (c) Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- (d) Discontinues the prosecution of work, or
- (e) Fails to resume work which has been discontinued, within reasonable time after notice to do so, or
- (f) Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- (g) Makes an assignment for the benefit of creditors, or
- (h) For any other cause whatsoever, fails to carry on the work in an acceptable manner...

The Commissioner of DRED will give notice in writing to the Contractor of such delay, neglect, or default.

If the Contractor or Surety does not proceed in accordance with the Notice, then the Commissioner will, upon written notification from the Project Manager of the fact of such delay, neglect or default, and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Commissioner may enter into an agreement for the completion of said contract according to the terms and conditions thereof, or use such other methods as in his opinion will be required for the completion of said contract in an acceptable manner.

All extra costs and charges incurred by the Department as a result of such delay, neglect or default, together with the cost of completion of the work under the contract will be deducted from any monies due or which may become due said Contractor. If such expenses exceed the sum which would have been payable under the contract, then the Contractor and the Surety shall be liable and shall pay to the Department, the amount of such excess.

FAILURE TO COMPLETE THE WORK ON TIME

If the Contractor fails to complete all of the work or sections of the Project, within the time specified in the Contract, the sum given in the schedule that follows will be deducted from any money due the Contractor. This deduction will be made, not as a penalty, but as fixed, agreed liquidation damages for inconvenience to the State and for reimbursing the Department the cost of the Administration of the Contract, including engineering and inspection. Should the amount of money otherwise due the Contractor be less than the amount of such liquidated damages, the Contractor and his Surety shall be liable to the State for such deficiency.

Permitting the Contractor to continue and finish the work after the time fixed for its completion, shall in no way obligate the State to waive any of its rights under the Contract.

When the final acceptance has been duly made by the Project Manager, any liquidated damage charges shall end.

The fixed, agreed, liquidated damages shall be assessed in accordance with the following schedule.

<u>ORIGINAL CONTRACT AMOUNT</u>	<u>AMOUNT OF LIQUIDATED DAMAGES</u>	<u>PER WORKING DAY</u>
From more than:	to and including:	
0.	25,000.	\$ 300.00
25,000.	50,000.	\$ 400.00
50,000.	100,000.	\$ 500.00
100,000.	500,000.	\$ 600.00

SUBSTANTIAL COMPLETION & FINAL INSPECTION

When the work is substantially complete, the Contractor shall submit to the Project Manager, a list of items of work to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents. On the basis of an inspection by the Project Manager which determines that the work is substantially complete, a Certificate of Substantial Completion shall establish the date of substantial completion and state the responsibilities for any damage to the work and insurance, and fix the time limit within which the Contractor shall complete the items listed herein. Warranties required by the Contract documents shall commence on the date of Substantial Completion unless otherwise provided in the Certificate of Substantial Completion.

If the Contractor fails to proceed to complete the items on the "punch list", then in addition to the corrective measures listed in the Certificate of Substantial Completion, the Commissioner may use the monies still due the Contractor to have such items completed and the Contractor shall lose any claim to the monies used.

Upon written notice that the Work is ready for final inspection and acceptance, the Project manager shall promptly make such inspection, and when he finds the Work acceptable under the Contract documents and the Contract fully performed, a Certificate of Final Payment will be issued.

Final inspection will be made by the Project Manager. Incomplete items necessary to complete the project shall be done prior to final payment. **The completion date for this project is September 9, 2016**

GUARANTEE OF WORK

- a) Except as otherwise specified, all work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment or workmanship for **one year** from the date of substantial completion of the work.
- b) If, within any guarantee period, repairs or changes are required in connection with guaranteed work, which in the opinion of the Project Manager, is rendered necessary as a result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall, promptly upon receipt of notice from the Commissioner, and at his own expense:
 - 1) Place in satisfactory condition in every particular, all of such guaranteed work; correct all defects therein, and...
 - 2) Make good all damage to the building or site, or equipment or contents thereof, which in the opinion of the Project Manager, is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, and...
 - 3) Make good any work or material, or the equipment and contents of said building or site disturbed in fulfilling any such guarantee.
- c) In any case, wherein fulfilling the requirements of the Contract or of any guarantee, embraced in or required thereby, the Contractor disturbs any work guaranteed under another contract, he shall restore such disturbed work to a condition satisfactory to the Project Manager and guarantee such restored work to the same extent as it was guaranteed under such other contracts.
- d) If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the Commissioner may have the defects corrected and the Contractor and his Surety shall be liable for all expense incurred.
- e) All special guarantees applicable to definite parts of the work that may be stipulated in the specifications or other papers forming a part of the Contract shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

PROSECUTION OF WORK

Upon starting the work within the 15 days set forth by this contract, the Contractor shall prosecute the work a minimum of 8 hours daily per working day until completion, excluding breakdowns or inclement weather. If the Contractor finds it impossible to start the work as stated above, he may make a written request to the Project Manager for an extension of time. Any such request shall be made prior to expiration of the allowable 15 days, and shall contain reasons which the Contractor believes will justify the granting of his request. In his request, the Contractor shall submit his proposed starting date.

CHANGES IN THE WORK

The Project Manager may at any time, by a written order, and without notice to the Sureties, make changes in the Drawings and Specifications and completion date of this contract and within the general scope thereof.

In making any change, the additional cost or credit for the change shall be determined as follows:

- The order shall stipulate the mutually agreed upon lump sum price which shall be added to or deducted from the contract price. The contractor shall furnish an itemized breakdown of the prices used in computing the value of any change that might be ordered.
- If the price change is an addition to the contract price and the work is performed by the general contractor and not a subcontractor, it shall include the contractor's indirect costs as follows: Workmen's Compensation and Employee Liability, Unemployment and Social Security Taxes.
- In addition to the above indirect costs, the general contractor shall be allowed a markup not to exceed ten percent (10%). Said ten percent (10%) shall be all inclusive for overhead, supervision, and profit. In addition to this, an allowance shall be made for performance and payment bond additional premiums.
- If the price change is an addition to the contract price and involves the work of the general contractor and subcontractor, the general contractor would be allowed ten percent (10%) on that part of the work performed by him and five percent (5%) on that part of the work performed by the subcontractor. The same percentages shall apply to subcontractors.
- On any change which involves a net credit to the Owner, no allowance for overhead and profit shall be figured.

INSURANCE REQUIREMENTS

No operations under this contract shall commence unless and until certification of insurance attesting to the below listed requirements have been filed with the Commissioner, approved by the Attorney General, and the Contract approved by the Governor and Council and a Notice to Proceed is issued.

Insurance requirements by paragraphs 1-4 below shall be the responsibility of the Prime Contractor. The Prime Contractor, at his discretion, may make similar requests of any subcontractor.

Following is the summary of minimum insurance requirements:

1. Workmen's Compensation Insurance (In accordance with RSA 281-A.)
 - a. Employers' Liability
 - 1.) \$100,000 each accident
 - 2.) \$500,000 Disease-policy limit
 - 3.) \$100,000 Disease-each employee

2. Commercial General Liability Insurance: Occurrence Form Policy: Include full Contractual Liability (see Indemnification Clause 9)., Explosion, Collapse, and Underground coverage's:
 - a. Limits of Liability:
 - 1.) \$1,000,000 Each Occurrence Bodily injury & Property Damage.
 - 2.) \$2,000,000 General Aggregate-Include per Project Aggregate Endorsement.
 - 3.) \$2,000,000 Products/Completed Operations Aggregate.
 - 4.) State shall be named as an additional named insured.

3. If blasting and/or demolition is required by the Contract, the Contractor or subcontractor shall obtain the respective coverage for those activities, and shall furnish to the Commissioner a certificate of Insurance evidencing the required coverage's prior to commencement of any operations involving blasting and/or demolition.

4. Owner's Protective Liability coverage for the benefit of the State of New Hampshire Department of Resources and Economic Development.
 - a. Limits of Liability:
 - 1.) \$2,000,000 Each Occurrence
 - 2.) \$3,000,000 Aggregate

5. Commercial Automobile Liability covering all motor vehicles including owned, hired, borrowed, and non-owned vehicles.
 - a. Limits of Liability:
 - 1.) \$1,000,000 Combined Single Limit for Bodily injury & Property Damage

6. Commercial Umbrella Liability
 - a. Limits of Liability:
 - 1.) \$1,000,000 Each Occurrence
 - 2.) \$1,000,000 Aggregate

7. Builder's Risk Insurance (Fire and Extended Coverage):

The Contractor shall insure the work included in the Contract, including extras and change orders, on an "All Risk" basis, on a one hundred percent (100%) completed value basis of the Contract, as modified. Builder's Risk coverage shall include materials located at the Contractor's premises, on-site, in-transit, and at any temporary site. The policy by its own terms or by endorsement shall specifically permit partial or beneficiary occupancy prior to completion or acceptance of the entire work. The policies shall be in the names of the State of New Hampshire Department of Resources and Economic Development and the Contractor. The policies shall provide for the inclusion of the names of all other Contractors, Subcontractors, and others employed on the premises as insureds. The policies shall stipulate that the insurance companies shall have no right of subrogation against any Contractors, Subcontractors or other parties employed on the premises.

8. General Insurance Conditions

a. Each policy shall contain a clause prohibiting cancellation or modifications of the policy earlier than thirty (30) days or ten (10) in cases of non-payment of premium after written notice thereof has been received by the State.

9. Indemnification:

a. The Contractor shall indemnify, defend, and hold harmless the State of New Hampshire, its Agencies, and its agents and employees from and against any and all claims, liabilities, suits or penalties arising out of (or which may be claimed to arise out of) acts of omissions of the Contractor or subcontractors in the performance of work covered by the Contract. This covenant shall survive the termination of the Contract. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the State, which immunity is hereby reserved by the State.

NOTE:

In articles 1 - 14 of the General Conditions, references to "the Architect" shall be understood to mean the Department Project Manager designated by the Planning and Development Office of the New Hampshire Department of Resources and Economic Development.

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SECTION 01 00 00 - GENERAL REQUIREMENTS

PART 1 GENERAL

- 1.1 **RELATED DOCUMENTS:** The general provisions of the contract, including General and Supplementary Conditions, and all Division 1 sections of the specifications apply to the work specified in all sections of the Construction Specifications. The drawings and the specifications together comprise the construction documents. Any note in one shall apply to the other. The contractor shall report any discrepancies between the drawings and specifications to the Project Manager for resolution before proceeding with the work involved.
- 1.2 **SUMMARY OF THE WORK:** The intent of the contract is to provide the State with repairs to the deteriorating concrete structure and surface finishes on the Mt. Washington Sherman Adams Building. The following items give a general summary of the extent of work but are not intended to be a complete itemization of the work:
- a) Repair spalled areas, cracks, deteriorated areas around construction joints, holes, chips and delaminations on the exterior of the Sherman Adams Building
 - b) Repair two reinforced concrete block chimneys above the roof deck of the Sherman Adams Building removing existing steel plate baffles and vent covers to facilitate the work and re-installing them after masonry work is complete.
 - c) Apply cementitious waterproofing to the designated areas of the exterior of the Sherman Adams Building
 - d) Seal joints and cracks in the designated work areas on the exterior of the Sherman Adams Building with joint sealer. Replace existing joint sealer with new material.
 - e) Apply elastomeric coating to all exterior areas of the Sherman Adams Building which have cementitious coating.
- 1.3 **PUBLIC ACCESS AND PROTECTION:** The summit of Mt. Washington, the Sherman Adams Building, and the grounds around the site will be open to the public during the time the work is in progress. The contractor shall be responsible for roping off or barricading sufficient area around the work site to keep park visitors and parks dept. personnel from being exposed to construction hazards.
- 1.4 **COORDINATION WITH THE AREA MANAGER:** The contractor shall coordinate in advance with the Parks Department Area Manager (Michael Pelchat, Tel: 603 466 3347) to arrange mutually acceptable times for closing off areas normally accessible to the public and to insure that suitable alternate access is made available.

END OF SECTION 01 00 00

SECTION 01 50 00 - TEMPORARY UTILITIES & JOB CONDITIONS

PART 1 GENERAL

- 1.1 **TEMPORARY FACILITIES AND SERVICES:** The Contractor shall be responsible for arranging and providing temporary facilities necessary to facilitate the work. The location of same shall be coordinated with and approved by the Project Manager and the Parks Department Area Manager.

All such services and facilities shall comply with applicable Federal and State regulations.

- 1.2 **TEMPORARY WATER:** Temporary water will be available from the existing water service in the Sherman Adams Building. The Contractor shall provide all labor and materials necessary to provide water for construction purposes. The Contractor will be held responsible for any damage to existing systems as a result of this usage.

- 1.3 **TEMPORARY ELECTRICITY:** Temporary electrical service shall be available from the existing service to the Sherman Adams Building. The Contractor shall provide all labor and materials necessary to provide electrical power and lighting for construction purposes.

1.4 **FIRE PROTECTION:**

- a) The Contractor shall provide and maintain adequate fire protection in the form of barrels of water with buckets, fire bucket tanks, fire extinguishers, or other effective means of extinguishing fire, ready for instant use, distributed around the project and in and about temporary inflammable structures during construction of work.
- b) Gasoline and other flammable liquids shall be stored in and dispensed from UL listed safety containers in conformance with National Board of Fire Underwriters' recommendations. Storage shall not be within building.
- c) Torch-cutting and welding operations performed by subcontractors shall have approval of the general contractor before such work is started, and a chemical extinguisher shall be available on location where such work is in progress.
- d) Do not light fires in or about premises.

- 1.5 **PROTECTION OF PROPERTY AND THE PUBLIC:** The Contractor shall construct all fences, barricades and protection facilities required for the protection of the public to the satisfaction of the Project Manager. Furnish and install all signs, lights, reflectors, and all such protection facilities as may be required by the Project Manager.

Keep all access roads and walks clear of debris, materials, and construction equipment. Repair drives, curbs, sidewalks, signs, fences, poles and the like where disturbed by construction to the satisfaction of the Project Manager.

- 1.6 **TEMPORARY STORAGE:** Delivery and storage locations shall be coordinated with and approved by the Parks Area Manager and the Project Manager.

The contractor shall provide at the site, where directed and maintain in good condition, suitable and substantial weather-tight storage as required for his materials that may be damaged by storage in the open.

- 1.7 **STAGING AND SCAFFOLDING:** Except as otherwise indicated, the Contractor shall furnish, erect and maintain all staging and scaffolding for their use during the construction on the building. Staging and scaffolding shall be of approved design, erected and removed by experienced stage builders and shall have all accident prevention devices required by state and local laws.

Above facilities shall be constructed and maintained in accordance with the applicable requirements of local and state authorities and of the Standard Safety Code for Building Construction published by ANSI, and be removed after they have served their purpose.

- 1.8 **CONTRACTORS AND SUBCONTRACTORS MEETINGS:** The Project Manager shall have the right to call together at reasonable times designated by him, representatives of the contractor and subcontractors who shall meet at the office of the contractor or at the job, to report as to the condition of the work under their charges, or on any other matters pertinent to the conduct of the work.

Such representatives shall be empowered to make at these meetings, definite decisions binding upon their respective employers, regarding all matters pertaining to the work under this contract.

The Contractor shall furnish the state park representatives and the Project Manager in writing, the names, addresses and telephone numbers of subcontractors' personnel to be contacted in the event of an out-of-hours emergency at the building site.

- 1.9 **MEASUREMENTS:** Before ordering any material or doing any work, the Contractor shall verify all measurements and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings; any difference which may be found shall be submitted to the Project Manager in writing for consideration before proceeding with the work.

Responsibility for work fabricated accurately to field measurements to properly fit the new or renovated construction shall be solely that of the contractor, who shall pay all costs involved in correcting any misfitting work as fabricated.

- 1.10 **CUTTING AND PATCHING:** The Contractor shall do all cutting, fitting and patching of his work that may be required to make its several parts come together properly. Expense caused by defective or ill-timed work shall be borne by the contractor. Where field cutting is authorized or directed, provide adequate reinforcement of the weakened area in such form as is approved by the Project Manager.

- 1.11 **OCCUPATIONAL HEALTH AND SAFETY:** These contract documents, and the construction hereby contemplated shall be governed at all times by applicable provisions of all federal laws, including but not limited to the following:
- a) Williams-Steiger occupational Safety and Health Act of 1970, Public Law 91-596
 - b) Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations
 - c) Part 1518 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations
- 1.12 **PARKING:** Limited space will be allocated in the existing parking lot or adjacent areas on the summit to accommodate a job trailer, deliveries and storage of materials and equipment. Some materials and equipment may have to be stored at the base of the mountain. Parking for worker's vehicles will be allocated at the summit parking lot or as designated by the Park Manager. Because parking at the summit is at a premium during the summer season, the park manager reserves the right to limit the number of workers' vehicles to one vehicle for every 4 workers.
- 1.13 **CLEANING:** As part of the State Park system, the grounds surrounding the project site may be open to the public during all or part of the course of the work. Consequently, the site must be kept clean, safe and presentable to the public. Construction debris shall be picked up at the end of each day's work, stored in closed wind proof containers and removed from the site on at least a weekly basis. At the conclusion of the project, all scaffolding, barricades, equipment, and debris shall be promptly removed from the site.

END OF SECTION 01 50 00

SECTION 01 77 00 - CONTRACT CLOSE OUT

PART 1 GENERAL

- 1.1 The project must be brought to substantial completion before the project completion date in order to avoid liability for liquidated damages.
 - a) Substantial completion is defined in the General Conditions of the Contract under article 9.8.1. Procedures for issuance of the Certificate of Substantial Completion are set out in article 9.8.
- 1.2 The Certificate of Substantial Completion shall set the date for the final completion of all punch list items. Normally this date shall be 14 days from the date of substantial completion but may be longer at the discretion of the Project Manager. Failure to finish the punch list by this date shall be grounds to commence the assessment of liquidated damages in accordance with the General Conditions under the section entitled "Failure to Complete the Work on Time."
- 1.3 **INSTRUCTION:** Instruct Park's Division Personnel in the proper maintenance of finishes, equipment, and similar items which were provided as part of the work.

END OF SECTION 01 77 00

SECTION 03 01 30 - CONCRETE REHABILITATION

PART 1 GENERAL

1.1 SUMMARY

- A. This specification describes the patching of exterior horizontal, vertical or overhead surfaces with a silica fume, polymer-modified, Portland cement mortar.
- B. The scope of work includes repairing spalled areas, cracks, deteriorated areas around construction joints, holes, chips and delamination's on the exterior of the Sherman Adams Building on the summit of Mount Washington.

1.2 QUALITY ASSURANCE

- A. Contractor shall be able to show a successful track record of at least 5 years' experience of performing concrete repairs on projects of a similar size, posing similar rehabilitation challenges.
- B. Abide by the manufacturer's restrictions on application due to weather conditions. Follow recommendations on MSD sheets for safe handling of materials. Observe safety requirements of State and local authorities having jurisdiction
- C. Create a field sample of concrete repair materials to be used on the project. On a designated area of the building, under the observation of the Project Manager, correctly install the repair materials in order to create a standard of quality for the rest of the work to be done on the project.

1.3 DELIVERY, STORAGE AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification and batch numbers intact and readable. Damaged materials must be removed from the site immediately.
- B. Store all materials off the ground and protect from moisture, direct sunlight, freezing or excessive heat until ready for use.
- C. Condition the repair materials as recommended by the manufacturer before mixing. Handle all products in accordance with manufacturer's printed instructions.

1.4 JOB CONDITIONS

- A. Environmental conditions: Do not apply materials if it is raining or snowing or if such conditions appear to be imminent. Do not apply materials at temperatures below 40 degrees F or above 86 degrees F. At the project site on the summit of Mt. Washington, temperatures during the construction season are often likely to go below 40 degrees F and weather conditions change rapidly. Be prepared to take appropriate measures for protection of newly installed work and to provide supplemental heating to insure proper curing conditions per manufacturer's recommendations if application during inclement weather occurs.

- B. If either the ambient or subsurface temperature is expected to fall between 35 degrees F and 40 degrees F during the curing and ultimate drying of the patching compound, then the cold weather precautions outlined in Item C, below, of this section of the specification shall be followed.
- C. Cold Weather Precautions:
 - a. Use of a Cold Weather Grade restoration latex, approved for such use by the manufacturer, shall be substituted for Standard Grade.
 - b. Curing times shall be extended to compensate for lower temperature cure.
 - c. Do not proceed if temperatures will drop below freezing before patching compound has reached final set. Any material disrupted by early freezing must be removed and replaced under appropriate controls or conditions.
 - d. If auxiliary heating will be used to protect freshly placed materials from freezing, equipment must not directly vent exhaust gases onto the repair materials or into repair enclosure air. This may cause carbonation and low strength. Use moderate temperatures and heated air or radiant heat.
- D. Protection: Take precautions to avoid damage to any surface near the work zone due to spills from mixing, handling and applying the specified materials. In particular, take measures to protect the natural rocks around the building from defacement and stains from cementitious materials. Use drop cloths under work areas whenever materials are being applied.

1.5 SUBMITTALS

- A. Submit manufacturer's product data sheets and material Safety Data Sheets (MSDS) for each repair material to be used. Provide either 2 paper copies of each document or send in electronic format by email.

1.6 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one year beginning with the date of substantial completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable products for this Section shall include:
 - 1. Edison Coatings, Inc. Custom SYSTEM 45
 - 2. BASF Sonocrete Masteremaco N 425 / Gel Patch
 - 3. Conproco Conpro Set
 - 4. Sika Mono Top 615
- B. Substitutions: The use of other products will be considered providing the contractor can demonstrate equivalent or better performance on all relevant tested criteria. The Project Architect shall be the sole and final decider of whether a proposed substitution is equivalent to the specified materials.

2.2 MATERIALS

- A. Repair mortar: Prepackaged, 2-component, reactive acrylic latex polymer modified blend of Portland cement, specially graded aggregates and admixtures, designed for low shrinkage, low stress cure, and compatibility with existing host concrete. Or, single component, silica fume, polymer modified, Portland cement mortar with specially graded aggregates, admixtures for plasticizing, water reducing for workability and monomers.
- B. The materials shall be non-combustible both before and after cure.
- C. The materials shall be supplied in a factory-proportioned unit.
- D. The repair mortar shall be place-able from 1/8" to 2" in depth per lift.

2.3 PERFORMANCE CRITERIA

- A. Typical properties of the mixed polymer modified Portland cement repair mortar:
 - 1. Working time: approximately 45 minutes.
 - 2. Finishing time: approximately 60 minutes.
 - 3. Color: concrete gray.
- B. Typical properties of the cured mixed polymer-modified Portland cement repair mortar:
 - 1. Compressive strength (ASTM C-109 Modified)
 - a. 1 day: 1500 psi, min.
 - b. 7 day: 3500 psi, min.
 - c. 28 day: 4300 psi, min.
 - 2. Flexural strength (ASTM C-293): 28 days: 1000 psi
 - 3. Splitting Tensile Strength (ASTM C-496): 28 days: 400 psi
 - 4. Bond Strength (ASTM C-882 Modified): 28 days: 1000 psi
 - 5. The silica fume, polymer-modified Portland cement mortar shall not produce a vapor barrier.
 - 6. Density (wet mix): 104 lbs./cu. Ft.
 - 7. Permeability (AASHTO T-277): 28 days: approximately 600 coulombs, or, 8 perms at 1/2" depth as measured by ASTM E-96
 - 8. Developed direct tensile adhesion with substrate: minimum 200 psi
 - 9. Flexural modulus: 1.1×10^6 psi

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Area to be repaired must be clean, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means. All removals to be performed in accordance with the International Concrete Repair Institute Guideline #03730.
- B. Prepare concrete substrate to fractured aggregate profile for proper adhesion. Area to be patched shall not be less than 1/8" in depth.
- C. If steel reinforcing is exposed, sandblast the steel to a white metal finish to remove all contaminants and rust. Prime with anti-corrosion coating acceptable to manufacturer of repair mortar.

- D. Saw-cut straight edges along the perimeter of the repair area to a minimum ¼” depth with a diamond blade set at 90 degrees. The reason for this is to avoid feather edges in the repair mortar application.
- E. If a repair area bridges an expansion joint or a control joint, maintain the integrity of the joint through the patched area.

3.2 MIXING

- A. Mix repair mortar materials in accordance with manufacturer’s instructions.
- B. Mix only the amount of material that can be placed within the limits of the material’s working time.

3.3 APPLICATION

- A. Apply repair mortar in careful conformance with manufacturer’s instructions
- B. Placement:
 - 1. Dampen surface with clean water to achieve “saturated surface-dry” (SSD) with no standing water.
 - 2. Apply small quantity of mixed repair mortar to SSD substrate. Thoroughly key in the mortar and work the material throughout the cavity to promote good bonding.
 - 3. Place repair mortar, keying it in and compacting it thoroughly to get a secure bond.
 - 4. Apply repair mortar in lifts of ¼” to 2” thick.
 - 5. Score the top surface of each lift to produce a rough surface to receive the next lift.
 - 6. Avoid feather-edging.
 - 7. Trowel repair mortar to match finish of surrounding material after the initial set.
- C. Curing: Follow ACI recommendations for curing Portland cement concrete. Moist cure with wet burlap and polyethylene, a fine mist of water or water based curing compound approved by the manufacturer of the repair mortar. Most curing shall start immediately after finishing and continue for 48 hours. Protect newly applied material from rain, sun and wind until compressive strength is 70% of the 28 day compressive strength. Protect from freezing with insulating covers and supplemental heat for a minimum of 24 hours after application.
- D. Cleaning:
 - 1. Clean tools and equipment with water immediately after use.
 - 2. Remove spills of material that has cured with mechanical means,
 - 3. Leave finished work and work area in a neat, clean condition without visible evidence of spill-overs onto adjacent areas. Remove left over materials from the job site.

End of Section 03 01 30

SECTION 04 22 00 – CONCRETE UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

- A. This specification section calls for the repair of the two reinforced concrete block chimneys that project approximately 9 feet above the roof deck of the Sherman Adams Building. The cementitious coating and cement board panels on the exterior of the chimneys show major cracking and some deterioration, but the condition of the CMU masonry substrate cannot be accurately determined until the deteriorated cementitious coating is removed. The following items are to be included in the base bid for this project under chimney repairs:
1. Remove and set aside for re-installation pre-cast concrete curbs at the base of the chimneys.
 2. Remove and set aside for re-installation the steel plate baffles and vent covers mounted on the exterior of the chimneys.
 3. Strip off cement board panels on the exterior of the chimneys
 4. Remove any cementitious coating which is cracked, loose, damaged or not fully adhered to the CMU substrate.
 5. Repair the concrete block masonry of the chimneys. Repairs are to include patching of spalled areas, filling voids in the cells with grout, crack repair, and repointing mortar joints as necessary.
 6. Prepare the chimney faces to receive a new cementitious coating to be included in the work of Section 07 16 00 and the new elastomeric coating to be included in the work of Section 09 96 53.
 7. Re-secure or replace the counter flashing at the base of the chimney as necessary.
 8. After application of the new cementitious coating and the new elastomeric coating, re-install the steel plate baffles and vent covers. Re-secure or replace the anchoring angles as necessary.
 9. Re-secure the vent pipes and other piping on the exterior of the chimneys. Re-secure or replace the pipe hanger clamps as necessary.
 10. Reset the pre-cast concrete curb around the chimney base.

1.2 DESCRIPTION OF THE WORK

- A. Types of masonry work involved include reinforced concrete unit masonry. The work of this project is repair of existing masonry in two existing chimneys.

1.3 RELATED WORK

- A. Install work furnished under other sections which must be built into the unit masonry work including:
1. Galvanized steel baffles and vent covers
 2. Anchorage devices
 3. Flashings

1.4 **QUALITY ASSURANCE**

- A. Single source responsibility for mortar materials: Obtain mortar ingredients of uniform quality including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.

1.5 **REFERENCED STANDARDS**

- A. Comply with the current applicable provisions of all codes, standards and specifications referenced in the section, except as modified by the requirements of these Contract Documents including but not limited to the following:
 - ACI531 Building Code Requirements for Masonry Structures
 - ACI5318R Commentary on Building Code Requirements for Masonry Structures
 - ACI1530.1 Specification for Masonry Construction
 - ASTM C-90 Load Bearing Masonry Units
 - ASTM C-129 Non-load Bearing Masonry Units

1.6 **DELIVERY, STORAGE AND HANDLING**

- A. Deliver masonry material to project in undamaged condition. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.
- B. Limit moisture absorption of concrete masonry units during delivery and until time of installation.
- C. Store cementitious materials off the ground, under cover and in a dry location.
- D. Store and protect aggregates where grading and other required characteristics can be maintained.
- E. Store and protect masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.7 **PROJECT CONDITIONS**

- A. Protection of work: During erection, cover top of walls with waterproof sheeting at the end of each day's work. Cover partially completed structures when work is not in progress.
- B. Staining: Prevent ground, mortar or soil from staining the face of masonry to be left exposed or painted. Remove grout or mortar in contact with such masonry immediately.
- C. Protect sills, ledges and projections from droppings of mortar.
- D. Cold weather protection: Do not lay masonry units that are wet or frozen. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch. Remove masonry damaged by freezing conditions.
- E. Protect completed masonry and masonry not being worked on in the following manner: (Temperature ranges indicated apply to mean daily air temperature except for grouted masonry; if for grouted masonry temperature ranges apply to anticipated minimum night temperatures.)
 - 1. 40 degrees F to 32 degrees F: Protect masonry from rain or snow for at least 24 hours by covering with weather-resistant membrane.
 - 2. 32 degrees F to 25 degrees F: Completely cover masonry with weather-resistant membrane for at least 24 hours.

3. 25 degrees F to 20 degrees F: Completely cover masonry with weather-resistant insulating blankets or similar protection for at least 24 hours: 48 hours for grouted masonry.
4. 20 degrees F and below: Except as otherwise indicated, maintain masonry temperature above 32 degrees F for 24 hours using enclosures and supplementary heat, electric heating blankets, infrared lamps or other methods proven to be satisfactory. For grouted masonry maintain heated enclosure to 40 degrees for 48 hours.

PART 2 PRODUCTS

2.1 MORTAR AND GROUT MATERIALS

- A. Portland cement: ASTM C-150, Type I, except use Type III for construction below 40 degrees F. Provide natural color or white cement as required to match existing mortar color.
- B. Hydrated lime: ASTM C-207, Type S
- C. Aggregate for mortar: ASTM C-144, except for joints less than ¼ inch, use aggregate graded with 100% passing the No. 16 sieve.
- D. White aggregates: Natural white sand or ground white stone.
- E. Aggregate for grout: ASTM C-404.
- F. Water: Clean and potable.
- G. Accelerators: Subject to compliance with requirements, non-chloride admixtures may be used in cold weather construction.
- H. Integral water repellent admixture: Rheopel Admix by BASF.

2.2 MORTAR AND GROUT MIXES

- A. General: Use only the specified additives to mortar and grout mixes. Do not use calcium chloride in mortar or grout.
- B. Mixing: Combine and thoroughly mix cementitious materials, water, aggregates and admixtures. Comply with applicable ASTM standards and material manufacturer's recommendations for mixing time and water content. Measure and batch materials by volume so that required proportions can be accurately controlled and maintained.
- C. Mortar for unit masonry: Comply with ASTM C-270, Proportion Specifications, Cement-Lime Mortar, for types of mortar required, unless otherwise indicated. Use Type N mortar for interior non-load bearing walls with air content of 8-14% (max.).
- D. Limit cementitious materials in mortar to Portland cement-lime.
- E. Grout for unit masonry: Comply with ASTM C-476. Use grout consistency which at time of placement will completely fill all spaces intended to receive grout.
 1. Mix: Portland cement, sand, gravel, and water proportioned as required to provide a 28 day minimum compressive strength of 3000 psi.
 2. Use for reinforced masonry lintels or bond beams, reinforced masonry piers and wherever grouting full is indicated or specified.

2.3 JOINT REINFORCEMENT, TIES AND ANCHORS

- A. Materials: Comply with requirements indicated below for basic materials, as well as requirements for each form of joint reinforcement, tie and anchor for size and other characteristics.

- B. Hot-dip galvanized steel wire: ASTM A-82 for uncoated wire and with ASTM A-153, Class B-2 (1.5 oz. per sq. ft. of wire surface) for zinc coating applied after pre-fabrication into units.
- C. Joint reinforcement: Welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10'-0", with prefabricated corner and tee units.
 - 1. Width: approximately 2" less than nominal width of walls and partitions, to provide mortar coverage of not less than 5/8" on joint faces exposed to exterior and 1/2" elsewhere.
 - 2. Wire size for side rods: 9 gauge.
 - 3. Wire size for cross rods: 9 gauge.
 - 4. Wire size for two-part reinforcing: 3/16" diameter in exterior walls.
 - 5. Configuration:
 - a. Single-wythe masonry: Truss design with continuous diagonal cross rods spaced not more than 16" O.C.
 - b. Multi-wythe masonry: For cavity or composite masonry walls, provide adjustable wall tie pintel section fitting into eye section of rectangular box-type cross ties spaced not more than 16" O.C. Truss type units with side rods space for embedment within each face shell of back-up wythe and ties extended to within 1" of exterior face of facing wythe.
- D. Anchor bolts: Provide steel bolts with hex nuts and flat washers complying with ASTM A-307, Grade A, hot-dip galvanized to comply with ASTM C-153, Class C, in sizes and configuration indicated.
- E. Pencil rods at construction joints: Dowels dipped in tar for half of their length.
- F. Reinforcing bars: Deformed steel, ASTM A-615, Grade 60 for bars No. 3 – No. 18.
- G. Available manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to the following:
 - 1. AA Wire Products Co.
 - 2. Dur-O-Wal, Inc.

2.4 MISCELLANEOUS MASONRY ACCESSORIES

- A. Non-metallic expansion joint strips: Pre-molded, flexible cellular neoprene rubber filler strips complying with ASTM D-1056, Grade RE41E1, capable of compression up to 35%, of a width and thickness indicated on the drawings.
- B. Weep holes: Provide plastic tubing: medium density polyethylene, size; 1/4" x 4".

PART 3 EXECUTION

3.1 PREPARATION

- A. Establish lines, levels, and coursing. Protect lines from disturbance.
- B. Surface preparation: Prior to placing concrete masonry, remove laitance, loose aggregate or other material that would prevent mortar from bonding to the foundation.

3.2 COURSING

- A. Placement: Place concrete masonry unit to lines and levels to match existing courses.
- B. Uniformity: Maintain masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.
- C. Bond patterns: Place concrete masonry in half running bond unless otherwise noted.

3.3 PLACING AND BONDING

- A. Bed and head joints:
 - 1. Joint thickness: Construct 3/8" bed and head joints. Construct bed joint at starting course on foundation not less than 1/4 inch and not more than 3/4 inch deep.
 - 2. Fill holes not specified in exposed and below grade masonry with mortar.
 - 3. Tool head and bed joints concave unless below grade or above ceiling height and to be concealed. Use tool with large enough radius that joint is not raked free of mortar.
 - 4. Remove masonry protrusions extending 1/2" or more into cells and cavities to be grouted.
- B. Unit Placement
 - 1. Concrete masonry units: Lay units with bed and head joints filled from the faces of the units to a distance not less than the thickness of the face shell.
 - a. Webs are fully mortared in all courses of piers, columns, pilasters, starting courses on footings or foundations, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout.
 - b. Spread out full mortar bed including areas under cells for starting course on footings where cells are not to be grouted.
 - c. Vertical cells to be grouted shall be aligned and provide unobstructed openings for grout in accordance with drawings.
 - 2. Keep cavity airspace and weep holes clean of mortar, clean out promptly if mortar falls into cavity airspace or plugs weep holes.
 - 3. In progress cleaning: Remove excess mortar. Dry brush exposed masonry prior to the end of each work day. Protect wall from mud splatter and mortar droppings. Place concrete masonry units such that mortar does not run down the face of the wall or smear the masonry face.
 - 4. Adjustments: Do not tap concrete masonry unit after the mortar has taken an initial set. Instead, remove the unit and mortar and replace using fresh mortar.
 - 5. After joints are tooled, cut off mortar tailings with a trowel and dry brush excess mortar burrs and dust from the face of the masonry.
 - 6. Fully bond external and internal corners and properly anchor intersecting walls.

3.4 CUTTING AND FITTING

- A. Coordination: Cut and fit for bearing plates, chases, pipes and conduits, sleeves and grounds. Coordinate with other sections of the work to provide correct size and shape.
- B. Notification: Prior to cutting and fitting any area not indicated or where appearance or strength of masonry work may be impaired, obtain approval from the Architect.
- C. Cutting Method: Perform job site cutting with proper tools to provide straight, un-chipped edges and take care to prevent raking masonry unit corner or edges.

3.5 REINFORCEMENT AND ANCHORAGES

- A. Do not place dissimilar metals in contact with each other.
- B. Details of reinforcement:
 - 1. Completely embed reinforcement in grout.
 - 2. Maintain clear distance between reinforcing bars and any face of masonry units or formed surfaces: not less than ¼" for fine grout; not less than ½" for coarse grout.
 - 3. Splice only where indicated on Drawings, unless otherwise specified.
 - 4. Do not bend reinforcing bars after embedded in grout.
 - 5. Place vertical reinforcing bars supported and secured against displacement by means of bar positioners.
 - 6. Support bars other than vertical bars and tie to prevent displacement.
- C. Joint Reinforcement
 - 1. Install joint reinforcement at 16' O.C. vertically.
 - 2. Place joint reinforcement continuous in the first two bed joints below the top of the masonry wall.
 - 3. Place joint reinforcement so that longitudinal wires are embedded in the mortar with a minimum coverage of ½" when not exposed to the weather and 5/8" when exposed to weather or below grade.
 - 4. Lap joint reinforcement ends a minimum of 6".
 - 5. Do not extend joint reinforcement through control joints.
- D. Wall ties:
 - 1. Embed ends of wall ties in mortar joints at least ½" into outer face shell of hollow masonry construction.
 - 2. Install adjustable wall ties spaced to provide one tie for 1.77 sf of wall area. Do not exceed a spacing of 16" O.C. horizontally or vertically.
 - 3. Install wire ties perpendicular to a vertical line on the face of the wythe from which they protrude.
 - 4. Install additional unit ties around all openings larger than 16" in either dimension. Space ties around the opening at a maximum of 3 feet on center and place ties within 12" of the opening.

3.6 BUILT-IN AND EMBEDDED ITEMS AND ACCESSORIES

- A. As work progresses build in items to be embedded including metal doorframes, fabricated metal frames, window frames, anchor bolts, diaphragm anchors, and embedded plates.
- B. Chases: Construct chases as masonry units are laid.
- C. Pipes and conduits: When required, place pipes and conduits passing horizontally through masonry beams and walls in steel sleeves or cored holes. Place horizontal pipes and conduits in the plane of the wall or parallel to the plane of the masonry wall.
- D. Accessories: Install and secure connectors, flashing, weep holes, nailing blocks, reglets and other accessories. Install reglets level and parallel to building lines. In the cases of reglets for roof flashing, set reglets to coordinate with sloped roof surface.
- E. Organic materials: Do not build in wood or other organic materials which may be subject to deterioration.

3.7 **GROUT PLACEMENT**

- A. Placement: Place grout within 1 ½ hours of introducing the mixing water and prior to the initial set of the grout. Prevent grout from flowing onto or otherwise staining faces of CMU intended to be exposed.
- B. Grout lift height: Place grout in lifts not to exceed five feet.
- C. Consolidation: Consolidate grout at time of placement. Consolidate grout pours 12" or less in height by mechanical vibration or puddling. For grout pours exceeding 12" in height, consolidate by mechanical vibration and reconsolidate by mechanical vibration after initial water loss and settlement has occurred.

3.8 **LINTELS**

- A. Steel lintels: Secure or reinstall loose steel lintels as necessary.
- B. Concrete masonry lintels: Install reinforced unit masonry lintels over openings where steel lintels are not scheduled.
 - 1. Construct lintels using grout fill and reinforcing.
 - 2. Maintain minimum 8 inch bearing on each side of opening unless otherwise noted on the drawings.
 - 3. Use reinforcing bars in one-piece lengths only.
 - 4. Place and consolidate grout without disturbing reinforcing.
 - 5. Allow lintels to reach strength before removing temporary supports.

3.9 **CLEANING**

- A. In-progress cleaning: Clean unit masonry as the work progresses by dry brushing to remove mortar fins and smears before tooling joints.

3.10 **PROTECTIONS**

- A. External Corners: Maintain protective boards at exposed external corners that may be damaged by adjacent construction activities or other passing traffic.
- B. Base of walls: Protect the base of the walls from rain splash and mortar droppings.

END OF SECTION 04 22 00

SECTION 07 16 00 – CEMENTITIOUS WATERPROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. This specification describes the application of cementitious waterproofing to the exterior of the Sherman Adams Building. The scope of work shall be the re-coating of all surfaces originally coated with cementitious waterproofing plus any concrete or unit masonry surfaces which have been added since the building was constructed. The coating shall go on vertical surfaces, horizontal surfaces that take no traffic, and overhead surfaces such as soffits, cantilevers and beam ends.

1.2 SYSTEM DESCRIPTION

- A. The cementitious waterproofing shall be a polymer modified Portland cement based coating for concrete and masonry that resists both positive and negative hydrostatic pressure.

1.3 SUBMITTALS: Manufacturer's technical bulletins, product data sheets and MSDS sheets.

1.4 QUALITY ASSURANCE

- A. Manufacturer shall have a minimum of 10 years' experience manufacturing the type of product specified.
- B. Application contractor shall be able to demonstrate a track record of at least 5 years of successfully applying the specified product on projects of a similar type and size.
- C. Field sample: Install cementitious waterproofing on 100 sf of an area pre-selected by the project manager to serve as a field sample and standard of quality to be matched throughout the rest of the installation. The manufacturer's representative and the project architect shall approve the field sample before any further installation proceeds. Do not alter or remove the field sample until the cementitious waterproofing portion of the work is complete and approved by the project manager.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall contact manufacturer to determine lead time requirements for the specified materials. Material orders shall be scheduled to avoid causing delay of construction.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Transport and store materials in unopened containers. Store in clean, dry conditions protected from rain, dew and other sources of moisture.
- D. Do not stack bays more than 2 pallets high
- E. Do not allow the Acryl 60 (or equivalent mixing liquid) to freeze.

1.6 **JOB SITE CONDITIONS**

- A. Do not apply in rain or when rain is expected within 24 hours.
- B. Do not apply at temperatures below 40 degrees F or when temperatures are expected to fall below 40 degrees F within 24 hours.
- C. Store materials at temperatures between 50 degrees and 70 degrees F prior to use.
- D. Protection: Take measures to prevent splatters or spills of the materials on to adjacent surfaces. In particular, protect the natural rocks around the building with drop cloths or other spill guards.

PART 2 PRODUCTS

2.1 **MANUFACTURERS**

- A. Acceptable manufacturers for this section shall include:
 - BASF
 - Edison Coatings, Inc.
 - W.R. Meadows, Inc.
 - Sika Corp.
 - Euclid Chemical Co.
 - Fox Industries (Simpson Strong-Tie)
 - Miracote (Crossfield Products Corp)
- B. Substitutions: The standard of quality for this project shall be BASF **Thoroseal**. The use of other products will be considered providing the contractor can demonstrate equivalent or better performance on all relevant testing criteria. The project architect shall be the sole and final arbiter of whether a proposed substitution is equivalent to the specified material.

2.2 **MATERIALS**

- A. Cementitious Coating: Polymer modified cementitious coating designed for use on concrete, mortar and masonry substrates consisting of cements, finely graded aggregates and additives. The product shall be suitable for exterior use above and below grade and designed to protect concrete surfaces from the consequences of exposure to water and chlorine intrusion, freeze thaw damage, and carbonation. It shall be approved for use on vertical, overhead and non-traffic horizontal surfaces. It shall fill, seal, waterproof and protect a variety of substrates including cast-in-place concrete, pre-cast concrete, brick, and concrete masonry units.
- B. Mixing solution: Manufacturer's modified polymer solution to be diluted with water to the proper proportions and used to wet the cement powder and make the cementitious coating.
- C. Mix materials in strict accordance with manufacturer's instructions. Allow the coating to "rest" the recommended time before application to the building surfaces.
- D. Color: White

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Complete patching of spalls, holes and cracks before installation. Allow time for patching materials to cure in accordance with manufacturer's instructions.
- B. Insure that substrate is sound, and free of dust, dirt, laitance, paints oils, grease, curing compounds and other contaminants.
- C. Relieve hydrostatic pressure in concrete block with weep holes.
- D. Roughen or brush blast extremely smooth surfaces to insure good mechanical adhesion.

3.2. APPLICATION

- A. Apply coating with manufacturer recommended brush or by textured spray equipment.
- B. Completely dampen substrate with clean water before starting application. Do not saturate substrate but keep the substrate cool and damp throughout the application process.
- C. Work the first coat thoroughly into the substrate to completely fill and cover voids, holes and non-moving cracks. If the first coat is spray applied, brush it into the substrate after spraying.
- D. Allow first coat to cure for the manufacturer's recommended time before applying second coat.
- E. Comply with manufacturer's recommendations for thickness of coatings and weight of material to be applied per square yard.

3.3 CLEANING

- A. Clean waterproofing material from tools and equipment promptly after use with water. Remove cured materials mechanically.
- B. Clean up and properly dispose of debris on the project site related to the application.
- C. Remove temporary coverings and protection from adjacent work areas.
- D. Protect finished system from damage which might result from other construction at the site.

END OF SECTION 07 16 00

SECTION 07 92 00 – JOINT SEALERS

PART 1 GENERAL

1.1 SUMMARY

- A. This specification describes the sealing of joints and cracks with a multiple component, non-sag, elastomeric, polyurethane sealant.

1.2 QUALITY ASSURANCE

- A. Installer qualifications: Installation contractor shall be qualified in the field of concrete repair and protection with a successful track record of at least 5 years performing similar types and scale of concrete repairs. Installation personnel shall have received product training by a manufacturer's representative.
- B. Install materials in accordance with all safety precautions required by the manufacturer. Install materials only under acceptable weather conditions as specified by the manufacturer.
- C. Consult Material Safety Data Sheets for joint sealing materials and observe all recommended material handling recommendations.

1.3 SUBMITTALS

- A. Product data: Submit manufacturer's technical bulletins and MSDS on each product used in joint sealing.
- B. Submit laboratory tests or data validating product compliance with the specified performance criteria.

1.4 DELIVERY, STORAGE AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification and batch numbers. Damaged materials must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the products to 60 to 70 degrees F prior to use as per manufacturer's recommendations.

1.5 JOB SITE CONDITIONS

- A. Do not apply materials if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature is 40 degrees F and rising.
- B. Verify that substrates are clean, dry, and frost free.
- C. Use appropriate measures for protection and supplemental heating to ensure proper curing conditions per manufacturer's recommendations if application is disrupted by inclement weather.

1.6 WARRANTY

- A. Provide manufacturer's 5 year standard material warranty.
- B. Warranty shall include coverage for replacement of sealant materials which fail to achieve a water tight seal, exhibit loss of adhesion or cohesion, or do not cure provided sealant has been installed per the manufacturer's recommendations.

PART 2 PRODUCTS

- A. Acceptable products:
 - 1. Sonolastic NP 2 as manufactured by BASF Building Systems, Shakopee, MN www.BASFbuildingsystems.com.
 - 2. Sikaflex – 2cNS as manufactured by Sika Corporation, Marion OH.
- B. Standard of design for this project is Sonolastic NP2. Other manufacturers submitted for consideration shall match or exceed this specified performance criteria. The Architect shall be the sole judge of acceptability of proposed substitutions.
- C. MATERIALS:
 - 1. Description: Multi-component, highly flexible, high performing, non-priming, polyurethane sealant, ASTM C 920 type M, Grade NS, class 25, Use NT, T, M, A, G, and O. Canadian specifications: CAN/GSB -19.24-M90, Classification MCG-2-40-A-N, No. 81029, UL classified for fire resistance.
 - 2. Color: to be selected by the Architect from manufacturer's full color range.
 - 3. Performance criteria:
 - a) Initial cure (tack-free time) 6 to 10 hours.
 - b) Consistency: non-sag.
 - c) Tensile properties (ASTM D-2240) at 14 days:
 - o Tensile strength at break: minimum 120 psi.
 - o Tensile elongation min. 500%.
 - o Modulus of elasticity: 100% elongation, 70 psi min.
 - d) Shore A hardness (ASTM D-2240) at 14 days Non-sag: 25 + or – 5.
 - e) Tear Strength (ASTM D-624) at 14 days, Non-sag: 45 lbs./in.
 - f) Adhesion in peel (TT-S-00227E, ASTM C-794) at 21 days, concrete: 25 lbs. min, 0% adhesion loss.
 - g) Service range: -40 to 170 degrees F.
 - h) Sealant shall conform to Federal Specification TT-00227E, Type I and II, Class A.
 - i) The sealant shall conform to ASTM C-920, type M, NS, Class 25.
 - j) The sealant shall be capable of \pm 50% of the average joint width when tested in accordance to the durability bond test of Federal Specification TT-S-00227E and ASTM C-719.
 - k) The sealant shall be non-staining.
 - l) Final cure: 3 days to 1 week.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect areas involved in the scope of work to establish extent of the work, access requirements for reaching work areas, and the need for protection of both the surrounding construction and the natural rock surfaces around the Sherman Adams Building.
- B. Examine joints for defects that would adversely affect the quality of installation.
- C. Provide additional joint and crack preparation, beyond that outlined in these specifications, as required by the sealant manufacturer and the Architect's recommendations based on mock-ups and field adhesion tests.

3.2 PREPARATION OF SURFACES

- A. Remove loose materials and foreign matter that impair adhesion of joint sealant.
- B. Clean joints as required to expose sound surfaces free of contamination and laitance.
- C. Ensure the surfaces are structurally sound, dry, clean, free of dirt, moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofing, curing and parting compounds, membrane materials, and other foreign matter.
- D. Concrete, Stone, and Other Masonry:
 - 1. Clean by grinding, sandblasting, or wire brushing to expose sound surfaces free of contamination and laitance.
- E. Wood:
 - 1. Clean new and weathered wood. Scrape away loose paint to bare wood. If coating cannot be removed, test coatings to verify adhesion of sealant or determine appropriate primer.
- F. Metal:
 - 1. Remove scale, rust, and coatings from metal to expose bright white surface. Remove protective coatings as well as chemical residue or film.
 - 2. Aluminum frames: Remove clear lacquer before application of joint sealants. If coatings cannot be removed, test coatings to verify adhesion of sealant or determine an appropriate primer.
 - 3. Prime the following surfaces with primer recommended by joint sealant manufacturer:
 - a) Copper
 - b) Stainless steel
 - c) Galvanized steel
 - d) Fluorocarbon (Kynar) coatings.
 - 4. Remove other protective coatings or finishes that could interfere with adhesion.

3.3 PRIMING

- A. Where circumstances or substrates require primer, comply with the following requirements:
1. Apply primer full strength with brush or clean, lint-free cloth. Apply primer in a light, uniform coating. Porous surfaces require more primer than non-porous but do not over apply. Do not lap primer onto the exposed face of the substrate.
 2. Allow the primer to dry before applying joint sealants. Depending on temperature and humidity, the primer will be tack-free in 15 to 120 minutes.
 3. Apply primer and sealant on the same day.

3.4 MIXING

- A. Mix sealant and color pack per manufacturer's printed instructions.

3.5 INSTALLATION

- A. Back-up material:
1. Install appropriate size backer rod, larger than joint where necessary per manufacturer's recommendations, and in a manner to provide concave sealant profile.
 2. Where joint depth does not permit installation of backer rod, install adhesive-backed polyethylene bond-breaker tape along entire back of joint to prevent 3 sided adhesion of joint sealant.
- B. Sealant:
1. Verify that temperature and moisture conditions are within manufacturer's acceptable limits.
 2. Using fresh sealant and equipment that is in proper working order, completely fill joint with sealant, filling from bottom up to avoid entrapping air.
 3. Using a clean, dry tool with rounded edges and of the appropriate width for each joint, tool freshly installed sealant to provide the preferred concave profile, to ensure contact between sealant and substrate, and to provide a neat appearance. Where the surface aggregate does not permit proper tooling, install sealant and the backer rod so that the face of the joint is recessed behind the exposed aggregate and the sealant is bonded to firm, even surfaces.
 4. Use the dry tooling method. Do not use tooling agents such as soapy water or solvents that have not been approved by the sealant manufacturer.
- C. Cracks:
1. Non-sag sealant: For the best performance, sealant should be gunned into the crack to a minimum of 1/4" in depth. Place the nozzle of the gun, either hand, air or electric powered, into the bottom of the crack and fill the entire crack. Keep the tip of the nozzle in the sealant; continue with a steady flow of sealant preceding the nozzle to avoid air entrapment. Avoid overlapping the sealant to eliminate the entrapment of air. Tool as required to properly fill the crack.
 2. Abide by all the limitations and cautions for the polyurethane sealant as stated in the manufacturer's printed literature.

3.6 **CURING TIME**

- A. Curing of joint sealants varies with temperature and humidity. The following times assume 75 degrees F, 50 % relative humidity, and joints 1.2 inch wide by 1.4inch deep:
 - 1. Skins: Overnight or within 24 hours.
 - 2. Functional: Within 3 days
 - 3. Full cure: Approximately 1 week.

3.7 **INSPECTION**

- A. During execution of the Work, inspect the Work to assure compliance with manufacturer's guidelines, these specifications (when they exceed manufacturer's guidelines), and good construction practices.
 - 1. Refer to the latest revision of ASTM C1521 for test methods and frequency.
 - 2. Allow inspections of the Work and assist in testing requested by manufacturer's representative and the Architect.

- B. Non-compliant work: If inspections reveal non-compliant work or work that was not installed per the Specifications, and/or manufacturer requirements, remove adjacent work until a location is reached where the installation was performed properly. Assist in spot-checking the remainder of the work.

3.8 **CLEANING**

- A. Remove uncured sealant and joint filler with xylene, toluene, MEK, or other sealant manufacturer approved cleaning agent.

- B. Remove cured sealant by cutting with a sharp edged tool.

- C. Remove thin films by abrading.

- D. Remove debris related to application of sealants from the project site per applicable regulations for hazardous waste disposal.

3.9 **PROTECTION**

- A. Protect the Work from contaminating substances and damage resulting from other construction operations or other causes so that sealed joints and cracks are without deterioration or damage at time of project completion.

END OF SECTION 07 92 00

SECTION 09 96 53 – ELASTOMERIC COATINGS

PART 1 GENERAL

1.1 SUMMARY

- A. This specification describes the application of elastomeric coating to the exterior surfaces of the Sherman Adams Building which have been previously finished with cementitious coating. The elastomeric coating is intended to prevent water infiltration, mitigate carbonation of the underlying concrete and bridge minor cracking in the cementitious coating. The elastomeric coating shall be a high-build, water based, 100% acrylic, waterproof coating.
- B. Scope of Work: Apply elastomeric coating to all exterior areas of the Sherman Adams Building which have cementitious coating, including vertical wall surfaces, horizontal surfaces that take no traffic, overhead surfaces such as soffits, parapets, cantilevers and beam ends.

1.2 QUALITY ASSURANCE

- A. Applicator qualifications: The applicator company shall be qualified in the field of concrete repair and protection and shall be able to demonstrate a successful track record of 5 years or more applying the specified product on projects of a similar size and scope.
- B. Field Sample: The architect will designate an area of the building for a field sample, minimum size of 4' x 4' in which the specified material will be applied in full compliance with the manufacturer's instructions. The field sample will be inspected and approved by the manufacturer's representative and will serve as the standard for judging workmanship on the remainder of the project and the standard for acceptable color, texture, and appearance of the finish. Perform an adhesion test on the field sample in accordance with ASTM D3359, Method A. Minimum adhesion rating shall be 4A on a 0 to 5 scale.

1.3 SUBMITTALS

- A. Manufacturer's current technical data sheets and Material Safety Data Sheets.
- B. Manufacturer's color samples from the full range of manufacturer's standard colors.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Any damaged materials must be removed from the site immediately.
- C. Store materials in tightly sealed containers, off the ground and away from moisture, direct sunlight, extreme heat and freezing temperatures.

1.5 **JOB SITE CONDITIONS**

- A. Elastomeric coating shall be applied at substrate and ambient temperatures of 40 degrees Fahrenheit or above. A minimum temperature of 40 degrees shall be maintained for 24 hours after completion of the work. The project site at the summit of Mt. Washington is a location where temperatures often dip below 40 degrees even in the summer months and there are often high wind speeds. Be prepared to take measures to protect products from weather conditions for a period of 24 hours after installation. Do not apply products to frozen surfaces.
- B. If ambient or substrate temperatures are below 50 degrees F, follow the cold weather precautions as outlined in Item C, below
- C. Cold Weather Precautions
 - a. Store all materials in heated area or vehicle at 65 degrees F min. until just prior to use
 - b. Do not proceed with application if temperature is below 40 degrees F or if ice or frost are evident on the substrate
- D. Precautions should be taken to avoid damage or spills to any surface near the work zone due to mixing and handling of the coating materials. Particular care should be taken to avoid spills on the natural rocks around the base of the building. Use drop cloths under work areas whenever the material is being applied.

1.6 **WARRANTY**

- A. Provide a written warranty from the manufacturer against defects in materials for a period of one year from the date of substantial completion.

PART 2 PRODUCTS

2.1 **ACCEPTABLE MANUFACTURERS AND PRODUCTS**

- A. Acceptable manufacturers and products for elastomeric coatings shall include:
 - Edison Coatings, Inc.: Elastowall 351
 - BASF Construction Chemicals: MasterProtect EL750 (formerly Thorolastic)
 - Conproco Corporation: Conpro Lastic
 - Sika Concrete Restoration Systems: Sikagard 550 W Elastocolor
- B. Substitutions: The standard of quality for this project shall be Edison Coatings Inc. Elastowall 351. The use of products other than those listed above will be considered providing the contractor can demonstrate equivalent or better performance on all relevant testing criteria. The project architect shall be the sole and final arbiter of whether a proposed substitution is equivalent to the specified material.

2.2 **MATERIALS:** High-build, water based, elastomeric, 100% acrylic, waterproof coating

- A. Elastomeric coating performance criteria:
 - 1. % Elongation, 70 degrees F: 300 percent
 - 2. % Elongation, 32 degrees F: 145%
 - 3. % Elongation, after 3500 Hrs. Weatherometer: 125%
 - 4. Tensile Strength, 70 degrees F: >200 psi

5. Tensile Strength, 32 degrees F: 335 psi
6. Crack bridging: up to 50 mils
7. Elongation: 100% elongation at 0 degrees F, 300% at 75 degrees F
8. Adhesion, dry concrete: 9.0 PLI
9. Adhesion, wet concrete: 2.2 PLI
10. Water-vapor permeance: 30-41 perms
11. Accelerated weathering; 1,000 hours ASTM G-53: No yellowing, fading, swelling, blistering, chalking or cracking

B. Sand based surface texture: on a scale of smooth, fine and coarse: fine

C. Wet film thickness: 15 to 18 mils/coat

D. Dry film thickness: 8 to 10 mils/coat

E. Color: White or off white to be selected by the DRED project manager from manufacturer's full range of standard colors.

F. Solids content:

- a) By weight: 69 %

PART 3 EXECUTION

3.1 Installation shall be performed strictly in accordance with manufacturer's current product data bulletin.

3.2 Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

3.3 Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling and application of materials.

3.4 SURFACE PREPARATION

A. Insure that the substrate is sound, clean, dry and free of dust, dirt, oils, grease, laitance, efflorescence, mildew, fungus, biological residues and other contaminants that could prevent proper adhesion.

B. Clean surface to achieve texture similar to medium grit sandpaper. Remove de-bonded or de-laminated cementitious coating.

C. Repair holes and spalled and damaged concrete with repair materials approved by coating manufacturer.

D. Remove protruding concrete accessories and smooth out irregularities.

- E. When chemical cleaners are used, neutralize compounds and fully rinse surface with clean water. Allow surface to dry before proceeding.
- F. Remove blisters or delaminated areas and sand edges to smooth rough access and provide transition between surface levels.
- G. Allow new cementitious coating to cure 14 days or until pH level has reached 10.
- H. Prime chalky surfaces with primer approved by coating manufacturer. After cleaning and profiling, allow primer to dry.

3.5 **MIXING**

- A. Mix coating in accordance with manufacturer's instructions to insure uniform color and aggregate disbursement and to minimize air entrapment.
- B. In multi-pail applications, mix contents of each new pail into partially used pail to insure color consistency and smooth transition from pail to pail.

3.6 **APPLICATION**

- A. If primer has been selected for use, apply primer to clean, dry or damp surfaces using airless spray. The primer acts as a sealer and surface chalk consolidant for porous surfaces, and should be applied in such a manner as to saturate the surface, but to avoid excessive rundown. Apply primer from the bottom up, avoiding heavy runs. Allow primer to dry tack-free prior to top coating.
- B. Apply coating as a two coat system.
- C. Apply by brush, roller, or spray over entire area moving in one direction. When applying the coating, never stop the application until the entire surface has been coated. Always stop the application at an edge, corner or joint. Never let a previously coated film dry; always coat into a wet film. Always apply the coating at a 45 degree angle to an edge, corner or joint.
- D. Maintain proper uniform wet thickness during application to assure that performance characteristics will be attained.
- E. Apply coating to achieve pinhole-free, consistent film build-up on coated surfaces.
- F. Protect until fully cured from airborne contamination (dirt, dust, soot, etc.), weather and other damage.

3.7 **JOB SITE CLEAN-UP**

- A. The uncured elastomeric acrylic coating can be easily cleaned from tools and surfaces with water. Once cured, the elastomeric acrylic coating can only be removed mechanically which is more difficult so prompt cleanup of spills and splatters should be planned for.
- B. Leave the finished work and surrounding area in a neat, clean condition without evidence of spillovers or laps onto adjacent areas.
- C. Material left over at the job site shall be removed by the application contractor.

END OF SECTION 09 96 53

DELETE ALTERNATIVES

All work described in the previous specifications is to be included in the base bid for this project. Provide separate pricing for removing each of the following 4 delete alternatives from the project if so requested by the Division of Parks. Indicate the pricing for the delete alternatives on the lines indicated on the bid form.

1. Delete Alternative No. 1: Application of the elastomeric coating. In this alternative, the cementitious coating would be the final finish.

2. Delete Alternative No. 2: Concrete repair work on the entrance canopy from column line M to the south end of the canopy.

3. Delete Alternative No. 3: Concrete repair work on the observatory tower.

4. Delete Alternative No. 4: Repairs of Chimneys No 1. and No. 2.