

**Harper's Ferry
National Historical Park**
Lower Town

1443RP305900902
Repair to Buildings
HAFE DS68

PROJECT SPECIFICATIONS



NATIONAL PARK SERVICE
DENVER SERVICE CENTER

1443RP305900902
NATIONAL PARK SERVICE
DENVER SERVICE CENTER
1443RP305900902

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

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NOT USED

SECTION 01010

SUMMARY OF WORK

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this contract consists of the following improvements to Buildings 1A, 1B, 1C and 1D in Harpers Ferry, WV: removal of existing cement shingle roofing; selective demolition of roof snow boards, masonry chimneys, and stucco; repairs to brick chimneys, brick walls, stucco, wood siding and trim, wood dormers, windows, doors, gutters and downspouts; lead-based paint removal; painting; installation of new snow boards, stucco, brick chimneys and slate shingle roofing, related brackets, flashing, and underlayments; and scaffolding and staging.
- B. The work of Bid Additive 1 and 2 consists of paint removal on exterior doors and windows, door and window frames, rehabilitation to same, replacement of window sash and repainting as indicated on Sheet A1.1.
- C. All work will be performed under a single contract.

1.2 LOCATION

- A. Building 1A- Harper House, 1B- Wager House and 1C and 1D- Tenant houses on Public Way, Lower Town, Harpers Ferry, West Virginia - Harpers Ferry National Historical Park, (HAFE), National Park Service (NPS).

1.3 CONTRACTOR'S USE OF PREMISES See Site Plan for directions and contract work limits.

- A. Construction Camp: Establishment of a camp within the park will not be permitted.
- B. The buildings, along with Building 3, will be open to the public during construction. Maintain protected access throughout the construction phase.
- C. Contractor shall at all times conduct his operations to ensure the least inconvenience to the public.
- D. Building 1A's window and door improvements shall be performed to the greatest extent possible from the building's exterior side. Museum exhibit areas and contents in this building shall be protected from damage and dust due to the activities of the contractor.
- E. Confine storage of materials to areas designated by the Contracting Officer.
- F. Contractor Parking: As shown on Sheet G1.
- G. Contract Staging: As shown on Sheet G1.

- H. Preservation of Natural Features: Confine all operations to work limits of the project. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees, lawns, landscape features and plants at no additional expense to the Government.
1. Provide temporary barriers to protect existing trees, plants and root zones, landscape features, and building features.
 2. Do not remove, injure, or destroy trees or other plants without prior approval.
 3. Carefully supervise construction operations near trees to prevent damage.
 4. Do not remove, injure or destroy trees or other plants.
- I. Preservation of Historic Fabric and Features: The contractor shall recognize that all project work will be conducted in accordance with Section 106 compliance approval granted by the West Virginia SHPO and the Advisory Council on Historic Preservation. Any questions about the Section 106 process and how it relates to this project should be directed to the Chief of Interpretation & Cultural Resources Management in Harpers Ferry NHP.
- J. Hauling Restrictions: Comply with all legal load restrictions in the hauling of materials. Load restrictions on park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Park Superintendent. Information regarding rules and regulations for vehicular traffic on city roads may be obtained from the City of Harpers Ferry, WV. A special permit will not relieve Contractor of liability for damage that may result from moving of equipment.

1.4 FIELD VERIFICATION

- A. Field verify all new and existing dimensions affecting the work of this contract before ordering products.

1.5 SEQUENCE OF WORK:

- A. Portions of work on or over the roof shall be performed in a sequential manner, completed, inspected and approved prior to proceeding with the slate roofing. These work items include the following:
1. Chimney masonry work.
 2. Dormer repair.
 3. Stucco work.
 4. Paint removal, siding and trim repair, and repainting.
- B. All work requiring access to interior spaces in Building 1A shall be completed by May 26, 2000. After this date, the museum interiors of Building 1A shall be off limits to the

Contractor.

- C. All work requiring access into the interior spaces of Building 1B shall be completed between June 5, 2000 and August 18, 2000.
- D. Dormitory buildings (1C and 1D) will be occupied between June 5, 2000 and August 18, 2000. Contractor access to interior spaces within these buildings between these dates will not be permitted. Contractor shall schedule all work requiring access to the interior spaces of Buildings 1C and 1D to occur before June 5, 2000 and after August 18, 2000.

1.6 HAZARDOUS MATERIALS (HAZMAT) SAMPLING REPORTS

- A. Hazmat sampling reports entitled "Report of Asbestos-Containing Materials and Lead-Based Paint Sampling Survey, Marmion Row Buildings", June 25, 1996, and "Report on Environmental Sampling", October 7, 1997, have been prepared by Law Engineering and Environmental Services, Inc..
- B. These reports are attached to the end of this section.

END OF SECTION

**LAW**

ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

June 25, 1996

Mr. Peter Dessauer
National Park Service
Harpers Ferry National Historic Park
P.O. Box 65
Harpers Ferry, West Virginia 25425

Subject: **Report of Asbestos-Containing Material and
Lead-Based Paint Sampling Survey
Marmion Row Buildings
Harpers Ferry National Historic Park
LAW Project 20340-6-1111**

Dear Mr. Dessauer:

Law Engineering and Environmental Services, Inc. (LAW) has completed the survey for asbestos-containing materials and lead-based paint at the referenced site. Our survey included: visual observation, material sampling, and laboratory analysis of exterior building materials suspected of containing asbestos and lead-based paint. These services were authorized by the National Park Service acceptance of LAW's proposal PW5-12248, dated December 15, 1995, and authorized by you on February 5, 1996. Due to the recent flood damage at the park, you requested that we delay our survey until notified by your office to proceed. On May 22, 1996, your contacted our office and asked that we proceed with the survey. The survey was performed on June 7, 1996, by Mr. Irvin Bridgewater of LAW's Chantilly, Virginia office.

This report summarizes the findings of our survey and includes project information, survey procedures, and results. We have attached Appendices A, B, and C, identifying materials analyzed for asbestos (Appendix A), materials analyzed for lead (Appendix B), and providing an annotated drawing identifying locations where samples were taken (Appendix C).

Survey Results and Recommendations

The following information presents the results of our survey, analytical results, and sample locations.

Asbestos-Containing Materials

Thirteen samples of suspect materials were collected and delivered to the laboratory for analysis. The samples were analyzed using Polarized Light Microscopy (PLM) coupled with Dispersion Staining as outlined in the Environmental Protection Agency's (EPA) "Method for the Determination of Asbestos in Bulk Building Materials" (EPA-600/R-93/116, July 1993). The EPA defines asbestos-containing material as material that contains at least one percent asbestos by weight.

Materials sampled included roofing felts, roofing mastic, cement shingles, and chimney stucco and mortar. Of the materials sampled, only the roofing mastic was identified as containing asbestos.

If this roofing mastic will not be disturbed in your renovations, no action is needed. However, if you anticipate that the roofing mastic will be disturbed, it must be removed according to EPA, OSHA, and all other applicable guidelines by a licensed asbestos contractor.

A complete list describing materials sampled, with their corresponding locations and results of laboratory analysis, is presented in Appendix A. Sample locations are delineated on the drawing in Appendix C.

Lead-Based Paint

Fourteen paint samples were collected and delivered to the laboratory for analysis. The samples were analyzed using modified EPA Method 846-3050 with subsequent analysis by Flame Atomic Absorption Spectroscopy (FLAA) or Inductively Coupled Plasma (ICP).

Suspect paint samples were collected from gables, fascia boards, dormers, windows, door casings and gutters. The Lead Based Paint Poisoning Prevention Act (LBPPPA) defines lead-based paint as paint containing greater than or equal to 0.5 percent lead by weight. Of the fourteen samples collected, ten samples collected from the fascias, door casings, dormers, windows, and gutters were identified as containing lead-based paint.

Any renovations that will disturb lead-based paint must be conducted in accordance with EPA, OSHA, and local regulations by an experienced and licensed lead abatement contractor.

A complete list describing paints sampled, their corresponding locations, and results of laboratory analysis is presented in Appendix B. Sample locations are delineated on the drawing in Appendix C.

Note of Interest:

During our survey, it was observed that the nail heads at the apron course of shingles in front of the dormer window sills were missing. The nail shanks were still present but evidenced corrosion. It was visually estimated that virtually all of these nail heads are no longer in place.

Summary

LAW has endeavored to observe the existing conditions at the site using generally accepted procedures. Our findings are based upon our observations at the facility and analysis of the samples collected at the time of this survey. Additional asbestos-containing materials and lead-based paints may exist in other portions of the facility, due to their inaccessibility or due to an undetected change in a material. We performed no demolition to gain access to suspect material. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

We appreciate the opportunity to serve as your consultant on this project. If you have any questions concerning this report, please do not hesitate to contact us.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Irvin L. Bridgewater by *DE*
Irvin L. Bridgewater, III with permission
Project Manager

William Kilpatrick by *alm*
William Kilpatrick, Ph.D., P.E. with permission
Principal

Appendices: Appendix A - Asbestos Bulk Sample Analysis
Appendix B - Lead-Based Paint Sample Analysis
Appendix C - Annotated Drawing Showing Sample Locations

ILB/WK:ilb/alm

APPENDIX A

ASBESTOS BULK SAMPLE ANALYSIS

**TABLE 1
ASBESTOS BULK SAMPLE ANALYSIS
FOR
MARMION ROW BUILDINGS**

LAW PROJECT NUMBER: 20340-6-1111

FIELD SAMPLE NUMBER	LAB SAMPLE NUMBER	SAMPLE TYPE/COLOR	LOCATION	RESULTS OF PLM ANALYSIS
MRA - 01	WA 26573	ROOF FELT	HARPER HOUSE BY SOUTH GABLE	NONE DETECTED
MRA - 02	WA 26574	CEMENT SHINGLE	HARPER HOUSE BY SOUTH GABLE	NONE DETECTED
MRA - 03	WA 26575	CHIMNEY STUCCO	HARPER HOUSE W CHIMNEY	NONE DETECTED
MRA - 04*	WA 26576	NAIL HOLE MASTIC	HARPER HOUSE W DORMER	20% CHRYSOTILE
MRA - 05	WA 26577	LOOSE MORTAR SAMPLE	HARPER HOUSE W SIDE	NONE DETECTED
MRA - 06	WA 26578	ROOF FELT	WAGER HOUSE W SIDE	NONE DETECTED
MRA - 07	WA 26579	CEMENT SHINGLE	WAGER HOUSE W SIDE	NONE DETECTED
MRA - 08*	WA 26580	ROOF MASTIC	WAGER HOUSE W SIDE	10% CHRYSOTILE
MRA - 09	WA 26581	CEMENT SHINGLE	TENANT HOUSE 1C W DORMER	NONE DETECTED
MRA - 10*	WA 26582	ROOF MASTIC	TENANT HOUSE 1C W SIDE	20% CHRYSOTILE
MRA - 11*	WA 26583	ROOF FELT AND MASTIC	TENANT HOUSE 1C W SIDE	NONE DETECTED IN FELT, 15% CHRYSOTILE IN MASTIC
MRA - 12	WA 26584	ROOF SHINGLE	TENANT HOUSE 1D W SIDE	NONE DETECTED
MRA - 13*	WA 26585	ROOF MASTIC	TENANT HOUSE 1D W SIDE	10% CHRYSOTILE
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* Materials containing asbestiform minerals -- The percent of various material components was estimated visually by the microscopist during the analysis. Polarized Light Microscopy (PLM) coupled with dispersion staining was the method of identification used.

Floor tile and other resinously bound materials, when analyzed by the EPA method, may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. When a definitive result is required, LAW recommends utilizing alternative methods of identification, including Transmission Electron Microscopy.

The results of these analyses should not be used as a scope of work for abatement without consulting LAW.

These results may be subject to Quality Control (QC) analysis. Should the QC result in a change to these results, a separate report will be issued reflecting the change.

VA. LAB LICENSE #: 3333000010 NVLAP #: 101847

APPENDIX B

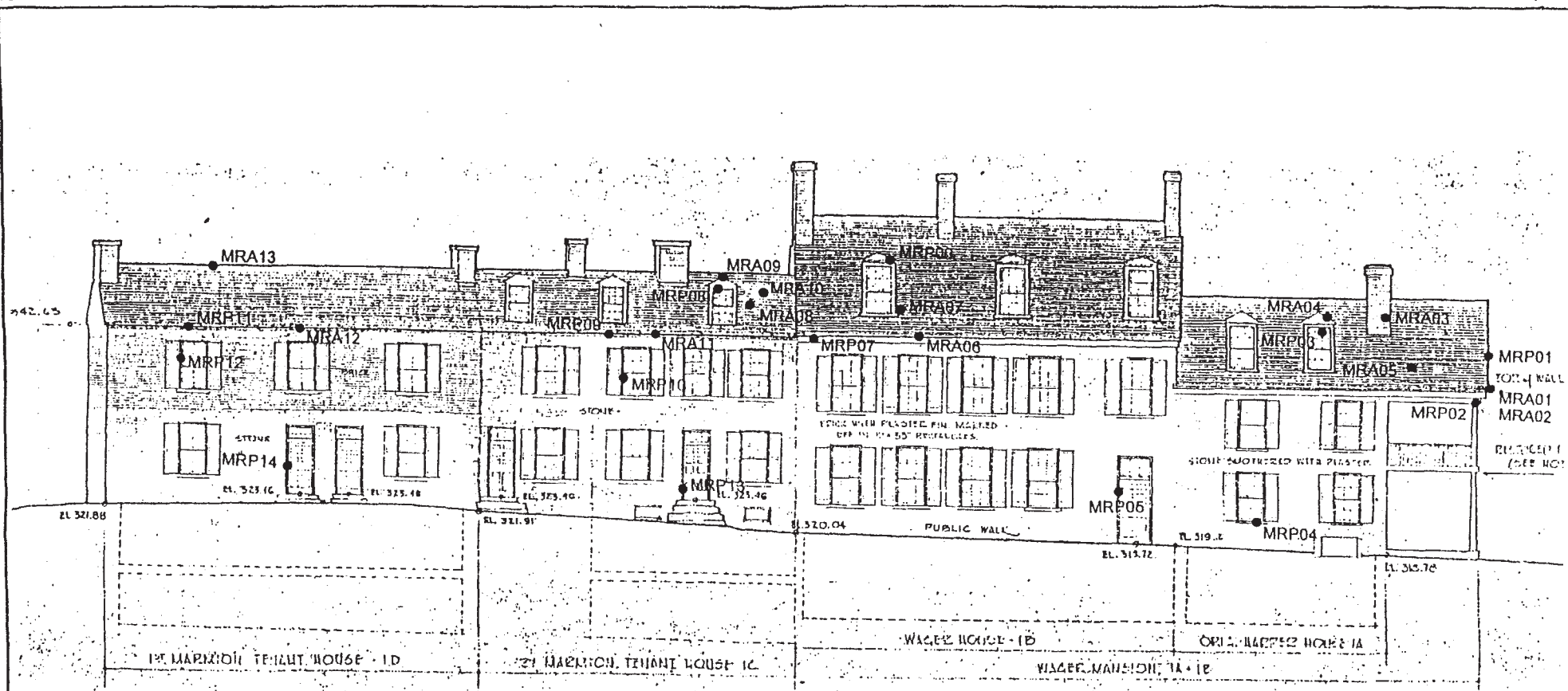
LEAD-BASED PAINT SAMPLE ANALYSIS

Lead-Based Paint Sample Analysis

Sample Number	Sampled Surface	Sample Location	Results of Analysis Weight %
MRP-01	Paint, Light Green	Harper House, South Gable	0.186
MRP-02	Paint, Light Green	Harper House, South Facia	0.611
MRP-03	Paint, Light Green	Harper House, West Dormer	0.464
MRP-04	Paint, Light Green	Harper House, West Window	0.238
MRP-05	Paint, Light Green	Wager House, West Door Casing	0.677
MRP-06	Paint, Light Green	Wager House, West Dormer	0.289
MRP-07	Paint, Light Green	Wager House, West Facia	0.870
MRP-08	Paint, Light Green	Tenant House 1C, West Dormer	0.704
MRP-09	Paint, Black	Tenant House 1C, West Gutter	9.07
MRP-10	Paint, Light Green	Tenant House 1C, West Window	1.26
MRP-11	Paint, Black	Tenant House 1D, West Gutter	7.96
MRP-12	Paint, Light Green	Tenant 1D, West Window	0.664
MRP-13	Paint, Ligh Green	Tenant House 1C, West Door Casing	1.21
MRP-14	Paint, Light Green	Tenant House 1D, West Door Casing	1.12

APPENDIX C

ANNOTATED DRAWINGS SHOWING SAMPLE LOCATIONS



WEST ELEVATION

LEGEND

- SAMPLE LOCATION
- MRP MARMION ROW PAINT SAMPLE
- MRA MARMION ROW ASBESTOS SAMPLE

NOTE: DRAWING NOT TO SCALE

MARMION ROW BUILDING
HARPERS FERRY
NATIONAL HISTORIC PARK
HARPERS FERRY, WV



LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

NOTE:
ALONG "PUBLIC WAY" STREET
LOWER TOWN HAF/NPS.

ASBESTOS AND LEAD-BASED
PAINT SAMPLE LOCATION

PROJECT NO.
20340-6-1111

FIGURE 1



LAW

ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

October 7, 1997

Mr. Peter Dessauer, Architect
Harper's Ferry National Historic Park
P.O. Box 65
Harper's Ferry, West Virginia 25425

Subject: **Report on Environmental Sampling
Harper's Ferry National Historic Park
Harper's Ferry, West Virginia
Marmion Row
Buildings 1A, 1B, 1C, and 1D
LAW Project 20340-7-1814**

Dear Mr. Dessauer:

Law Engineering and Environmental Services, Inc. (LAW) is pleased to present this report of our Asbestos-Containing Materials (ACM) and Lead Based Paint (LBP) sampling at the subject site. Our services were performed in accordance with the scope of services described in our proposal PW7-13878, dated September 16, 1997, and sampling changes requested in the field by Mr. Peter Dessauer. This report includes sections describing the following: project information, scope of services and credits, analytical results along with references to the method of analysis, recommendations, and qualifications. Drawings indicating sampling locations are attached in Appendix 1.

Project Information

The 'Marmion Row' Buildings (1A, 1B, 1C, & 1D) are named after the Marmion Family which owned the four buildings in Lower Town (Harpers Ferry) about 1924. Building 1A was constructed in 1780, Building 1B was constructed in 1830-1831, and Buildings 1C and 1D were constructed around the mid 1850s. The existing roofs of the buildings were installed between 1958-1962, are in poor condition and scheduled to be replaced or repaired.

Building 1A now serves as a Park furnished museum. Building 1B houses the Park Archeology Offices and Laboratories. Buildings 1C and 1D are used as dormitories.

In LAW's report of June 25, 1996, we identified roof mastic as containing asbestos. Work performed for the NPS this summer on the roof of Building 45 uncovered a roofing felt which was subsequently identified as containing asbestos. As a result of this discovery, the NPS wished to conduct additional testing on the roofs of the four buildings which comprise Marmion Row in an attempt to ascertain if asbestos is present in any layer of roofing felts associated with these four roofs.

Scope of Services and Credits

On Monday, September 22, 1997, LAW representative Mr. Irvin Bridgewater arrived on-site to perform the above-mentioned sampling. Accompanied by National Park Service Architects, Mr. Peter Dessauer, and Mr. Robert Simmonds, LAW collected five lead-based paint bulk material samples and seven bulk asbestos samples.

The five bulk paint samples were collected from two windows and one door. The samples were analyzed by an Environmental Lead Laboratory Accreditation Program (ELLAP) certified laboratory in general accordance with modified EPA Method 846-3050 with subsequent analysis by Flame Atomic Absorption Spectroscopy (FLAA) or Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES).

LAW collected seven roofing felt material samples for analysis of asbestos content. Bulk samples were analyzed at LAW's National Voluntary Laboratory Accreditation Program (NVLAP) accredited asbestos laboratory in Chantilly, Virginia using Polarized Light Microscopy (PLM) with dispersion staining, following the Environmental Protection Agency's (EPA's) "*Method for the Determination of Asbestos in Bulk Building Materials, EPA-600/R-93/116, July 1993*".

Results

The following sections present the results of LAW's on-site LBP and ACM sampling.

Lead Based Paint (LBP) Sampling

The analytical results of the LBP sampling are presented in the following table. The sample locations are presented on the drawings in Appendix 1, and the laboratory analytical results are presented in Appendix 2.

Table 1 - Lead Based Paint Analytical Results

Sample ID	Location	Concentration (% by weight)
MR-1P	Bldg. 1A, Window Jam, Attic E. Side, Gray	0.0609
MR-2P	Bldg. 1A, Window Sill, Attic E. Side, Gray	0.0877
MR-3P	Bldg. 1A, Window Sash, Attic E. Side, White	0.030
MR-4P	Bldg. 1C, Window Jam, Attic E. Side, Gray	0.029
MR-5P	Bldg. 1D, Ext. Cellar Door, E. Side, Gray	0.775*

* - lead-based paint

Paint is considered lead based, as defined in the Lead-Based Paint Poisoning Prevention Act (LBPPPA), if the lead concentration in the paint is equal to or greater than 0.5 percent by weight. The paint sample collected from Building 1D showed levels of lead above this threshold level. Painted surfaces on these buildings with similar color should be considered as containing lead-based paint. It should be noted that although paint may contain lead concentrations of less than 0.5 percent by weight, a health hazard may still exist depending on the condition of the paint and the method of removal used during renovation activities.

Asbestos Sampling

The analytical results are presented in the following table. The sampling locations are indicated on the drawing in Appendix 1, and the laboratory analytical results are presented in Appendix 3.

Table 2 - Asbestos-Containing Material Analytical Results

Sample ID	Location	ACM? Y/N
MR-1A	Bldg. 1A, West Side, Attic, Roof Felt	N
MR-2A	Bldg. 1A, East Side, Attic, Roof Felt	N
MR-3A	Bldg. 1A, East Side, Attic, Roof Felt	N
MR-4A	Bldg. 1B, West Side, Attic, Roof Felt	N
MR-5A	Bldg. 1C, Center of Attic, Insulation	N
MR-6A	Bldg. 1C, East Side Doormer, Roof Felt	N
MR-7A	Bldg. 1D, South Side, East Slope, Roof Felt	N

A material is considered asbestos-containing if it contains within its binding matrix greater than 1.0 percent asbestos as determined through visual estimation. None of the seven roof felt samples taken from the buildings were identified as containing asbestos.

Recommendations

Paint sampling performed by LAW indicated the presence of lead-based paint in only one of the five samples collected and analyzed. For renovation plans, the NPS should also refer to LAW's report of June 25, 1996 for the identification of additional surfaces which were determined to contain lead-based paint.

Any renovations that will disturb lead-based paint must be conducting in accordance with EPA, OSHA, and local regulations by a licensed and qualified lead abatement contractor. Protection of lead abatement workers during this type of work requires compliance with OSHA regulations as found in the Code of Federal Regulations, 29 CFR 1910.1025 and 29 CFR 1926.62. Disposal of

construction waste should be performed in strict accordance with the EPA mandates as found in Title IV of the Toxic Substances Control Act (TSCA), section 402(a) (1).

When considering abatement of LBP, the least expensive and easiest method would be replacement of roof components painted with LBP. Components identified as having LBP which are in good condition should be considered for abatement. While the paint does not present an immediate health hazard, it is likely that weathering due to environmental stresses common to the region would adversely affect the condition of painted surfaces. Renovation activities involving sanding, cutting, grinding, or abrading of the components identified as having LBP should be avoided.

No asbestos-containing materials were identified in the sampling. The NPS should refer to LAW's report dated June 25, 1996 for the identification of materials which were identified as containing asbestos. The materials previously identified were non-friable mastics and are considered by OSHA to be "incidental building materials". Removal of these materials should be performed by appropriately trained personnel and in accordance with the Code of Federal Regulations, 29 CFR 1926.1101. Renovation activities that may pulverize these mastics should be avoided, such as sanding, cutting, grinding, or abrading. Any mastic encountered during renovation activities should be presumed to be asbestos-containing.

Qualifications

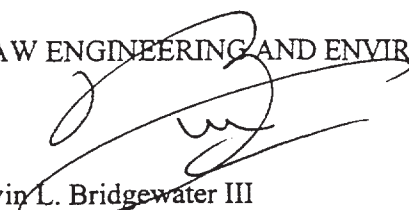
LAW has endeavored to observe the existing conditions at Marmion Row using generally accepted procedures. Our findings are based upon our observations at the site and analysis of the samples collected at the time of this survey. Additional asbestos-containing materials and lead-based paints may exist in other portions of the site. We performed no demolition to gain access to suspect material. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

Closing

LAW appreciates the opportunity to continue to provide consulting services to the National Park Service on this important project. If you have any questions following your review of this report, please do not hesitate to contact us at (703) 968-4700.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.


Irvin L. Bridgewater III
Project Coordinator


Joseph P. Klein III, P.E.
Assistant Vice President
Chief Engineer

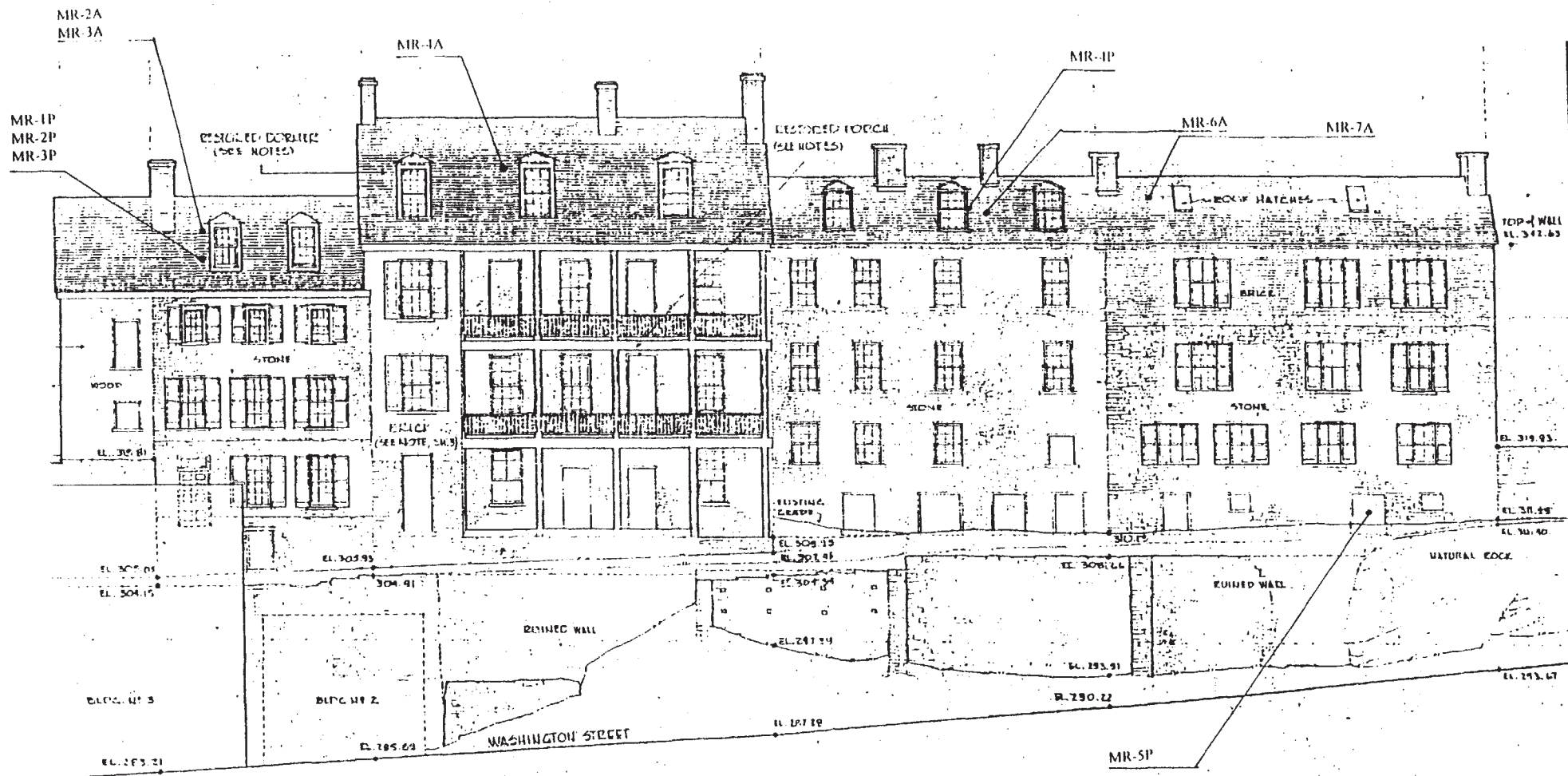
ILB/JPK:ilb/ech

BY 
WITH PERMISSION

Appendices: Appendix 1 - Drawing of LBP and ACM Sampling Locations
Appendix 2 - LBP Laboratory Analytical Results
Appendix 3 - ACM Laboratory Analytical Results

Attachments: Copy of report text on 3½ inch diskette.

**APPENDIX 1
LBP AND ACM SAMPLING LOCATIONS
MARMION ROW
BUILDINGS 1A, 1B, 1C, AND 1D**

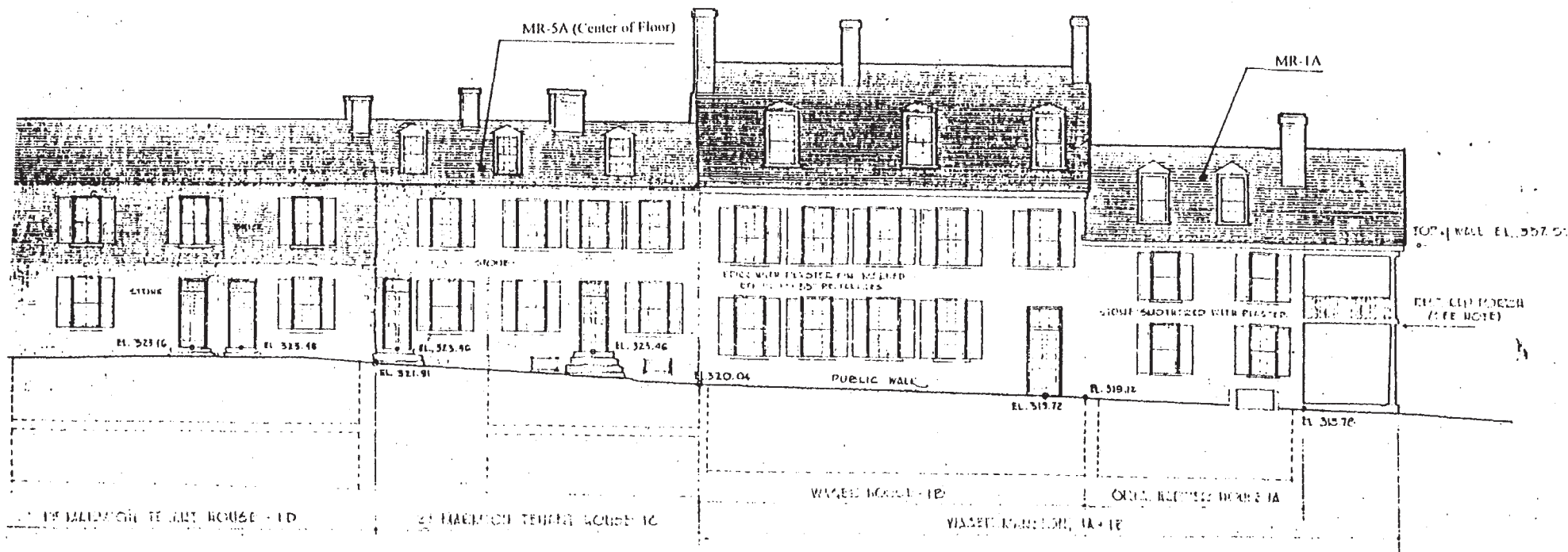


EAST ELEVATION

SCALE: 3/32"=1'-0"

FOR LARGE SCALE DRAWINGS OF THESE
INDIVIDUAL BUILDINGS SEE THE FOLLOWING:
BARBED HOUSE, UNIT 3001
WALLED HOUSE, UNIT 3002

SCALE:



• WEST ELEVATION •

SCALE: 1/8" = 1'-0"
 FOR LARGE SCALE DRAWINGS OF THESE INDIVIDUAL BUILDINGS SEE THE FOLLOWING:
 WASHER HOUSE, MARK 3051
 WASHER HOUSE, MARK 3052
 21 MADISON TENANT HOUSE, MARK 3053
 17 MADISON TENANT HOUSE, MARK 3054

**APPENDIX 2
LEAD BASED PAINT
LABORATORY ANALYTICAL RESULTS
MARMION ROW
BUILDINGS 1A, 1B, 1C, AND 1D**

AMERICAN MEDICAL LABORATORIES, INC.

P.O. Box 10841 • 14225 Newbrook Drive, Chantilly, Virginia 20153-0841

Telephone: (703) 802-6900

Age and sex dependent reference ranges are printed when available
if age and sex are designated. Otherwise, adult values are given.

INDUSTRIAL HYGIENE DEPARTMENT

PAGE 1

D

RECEIVED : 09/23/97 17227 LAW ENGINEERING
RELEASED : 09/23/97 ATTN: DENNIS ETEL
REPORTED : 09/23/97 4465 BROOKFIELD CORPORATE DR.
WORK ORDER: 140942 CHANTILLY, VA
201511652

PROJECT NAME/JOB ID: 20340-7-1814

AML NUMBER-----VALUE-----UNITS-----

8622019 MR-1P Bulk
3330 LEAD IN PAINT
Site/Location: GRAY, WINDOW JAM, BLDG. 61A 1A
Concentration: 0.0609 % Lead
Analyst: Luis Rossi

8622020 MR-2P Bulk
3330 LEAD IN PAINT
Site/Location: GRAY, WINDOW SILL, BLDG. 61A 1A
Concentration: 0.0877 % Lead
Analyst: Luis Rossi

8622021 MR-3P Bulk
3330 LEAD IN PAINT
Site/Location: WHITE, WINDOW SASH, BLDG. 61A 1A
Concentration: 0.030 % Lead
Analyst: Luis Rossi

8622022 MR-4P Bulk
3330 LEAD IN PAINT
Site/Location: GRAY, WINDOW JAM, BLDG. 61C 1C
Concentration: 0.029 % Lead
Analyst: Luis Rossi

8622023 MR-5P Bulk
3330 LEAD IN PAINT
Site/Location: GRAY, DOOR, BLDG. 61D 1D
Concentration: 0.775 % Lead
Analyst: Luis Rossi

REPORT CONTINUED ON NEXT PAGE...

AMERICAN MEDICAL LABORATORIES, INC.

P.O. Box 10841 • 14225 Newbrook Drive, Chantilly, Virginia 20153-0841

Telephone: (703) 802-6900

Age and sex dependent reference ranges are printed when available
if age and sex are designated. Otherwise, adult values are given.

INDUSTRIAL HYGIENE DEPARTMENT

PAGE 2

RECEIVED : 09/23/97 RECEIVED : 09/23/97 RELEASED : 09/23/97

AML NUMBER-----VALUE-----UNITS-----

NOTATIONS

Analysis for lead in paint is performed via modified
EPA 846-3050 with subsequent analysis by flame atomic
absorption spectroscopy (FLAA) or Inductively Coupled
Plasma (ICP).

As per "Lead-Based Paint; Interim Guidelines for Hazard
Identification and Abatement in Public and Indian
Housing; September, 1990, regulatory guidelines
are 0.5% lead by weight or 1 mg/cm² lead content by
area.

Excess backing material such as wallboard or wood
submitted as sample may cause a result to appear
lower than is actually correct for results reported in
weight percent.

*** FINAL REPORT ***

BRYAN MASON

DIRECTOR, IND. HYGIENE

FOR INDUSTRIAL HYGIENE RELATED QUESTIONS,
INCLUDING REQUESTS FOR SUPPLIES, CALL
1-800-348-1590

[P 61901]-[S 598]

Ira D. Godwin, M.D.
Director of Laboratories

**APPENDIX 3
ASBESTOS-CONTAINING MATERIAL
LABORATORY ANALYTICAL RESULTS
MARMION ROW
BUILDINGS 1A, 1B, 1C AND 1D**

TABLE 1
ASBESTOS BULK SAMPLE ANALYSIS
FOR

HARPER'S FERRY, MARMION ROW, ACM SURVEY

LAW PROJECT: 20340-7-1814

CLIENT: NATIONAL PARK SERVICE

PHASE: -----

DATE SAMPLED: 9/22/97

TASK: -----

INSPECTOR: I. BRIDGEWATER

FIELD SAMPLE NUMBER	LAB SAMPLE NUMBER	SAMPLE TYPE/COLOR	LOCATION	RESULTS OF PLM ANALYSIS
MR - 01A	WA 30433	ROOF FELT	ATTIC BLDG. 1A, WEST SIDE	NONE DETECTED
MR - 02A	WA 30434	WALL PLASTER, WHITE COAT	ATTIC BLDG. 1A, EAST SIDE	NONE DETECTED
MR - 03A	WA 30435	WALL PLASTER, BROWN COAT	ATTIC BLDG. 1A, EAST SIDE	NONE DETECTED
MR - 04A	WA 30436	ROOF FELT	ATTIC BLDG. 1B, EAST SIDE	NONE DETECTED
MR - 05A	WA 30437	INSULATION	ATTIC BLDG. 1C, CENTER	NONE DETECTED
MR - 06A	WA 30438	ROOF FELT	ATTIC BLDG. 1C, DOORMER, EAST SIDE	NONE DETECTED
MR - 07A	WA 30439	ROOF FELT	ATTIC BLDG. 1D, SOUTH SIDE EAST SLOPE	NONE DETECTED
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* Materials containing asbestiform minerals: The percent of various material components was estimated visually by the microscopist during the analysis. Polarized Light Microscopy (PLM) coupled with dispersion staining was the method of identification used.

Floor tile and other resinously bound materials, when analyzed by the EPA method, may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. When a definitive result is required, LAW recommends utilizing alternative methods of identification, including Transmission Electron Microscopy.

The results of these analyses should not be used as a scope of work for abatement without consulting LAW.

The results may be subject to Quality Control (QC) analysis. Should the QC result in a change to these results, a separate report will be issued reflecting the changes.

VA. LAB LICENSE #: 3333000010 NVLAP #: 101847

SECTION 01025

DEFINITION OF BID ITEMS

PART 1: GENERAL

1.1 DESCRIPTION

- A. The intent of this section is to explain, in general, what is and what is not included in a bid item, and the limits or cut-off points where one bid item ends and another begins.
 - B. If no bid item exists for a portion of the work, include the costs in a related bid item.
- 1.2 BID ITEM NO. 1 - BASE BID: The work of this bid item consists of all work shown in the contract documents with the exception of the work described in bid item number 2, BID ADDITIVE NO. 1 and Bid Item Number 3, BID ADDITIVE NO. 2. Payment will be made at the contract lump sum price.
- 1.3 BID ITEM NO. 2 - BID ADDITIVE NO. 1- PAINT REMOVAL AND REPAINTING OF WINDOWS AND DOORS AND RELATED REPAIRS as identified on Sheet A1.1:
Payment will be made at the contract lump sum price.
- 1.4 BID ITEM NO. 3 - BID ADDITIVE NO. 2 - PAINT REMOVAL AND REPAINTING OF WINDOWS AND DOORS AND RELATED REPAIRS as identified on Sheet A1.1:
Payment will be made at the contract lump sum price.

PART 2: PRODUCTS

Not used.

PART 3: EXECUTION

Not used.

END

SECTION 01040

PROJECT COORDINATION

PART 1 - GENERAL

1.1 DESCRIPTION: The work of this section consists of administrative and supervisory requirements necessary for project coordination as follows:

- A. Coordination.
- B. Administrative and supervisory personnel.
- C. General installation provisions.
- D. Cleaning and protection.

1.2 RELATED WORK:

- A. Progress meetings, coordination meetings and pre-installation conferences are included in Section 01200.
- B. Requirements for the Contractor's Construction Schedule are included in Section 01300.

1.3 SUBMITTALS:

- A. As specified in Section 01300.
- B. Coordination Drawings: Prepare and submit coordination drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
 - 1. Show the interrelationship of components shown on separate shop drawings.
 - 2. Indicate required installation sequences.

1.4 QUALITY CONTROL: Due to the sensitive nature of this Project in an historic town of national prominence, which will involve so many trades, historic preservation crafts and the highest quality standards, the Contractor shall anticipate frequent inspections of the work by the Contracting Officer and other Government representatives during the entire construction period. The Contractor shall employ field superintendents who understand the trades associated with restoration and rehabilitation of historic buildings and who will enforce the quality standards required by the Contract Documents.

1.5 COORDINATION:

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to ensure efficient and orderly installation of each part of the

work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings. Prepare similar memoranda for the Government and separate contractors where coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work. Such administrative activities include, but are not limited to, the following:
1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

PART 2 – PRODUCTS – Not Used.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS:

- A. Inspection of Conditions: Require the installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

- D. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.
 - E. Visual Effects: Provide uniform joint widths in exposed work.
 - F. Recheck measurements and dimensions before starting each installation.
 - G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
 - H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- 3.2 CLEANING AND PROTECTION:
- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
 - B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period.
 - C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION

SECTION 01170

ACCIDENT PREVENTION

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of establishing an effective accident prevention program and providing a safe environment for all personnel and visitors.

1.2 SUBMITTALS

- A. Accident Prevention Program: Before on-site work begins, submit for approval an accident prevention program. The Contracting Officer will review the proposed program for compliance with OSHA and project requirements. If the program requires any revisions or corrections, the Contractor shall resubmit the program within 10 days. No progress payments will be made until the program is approved. The program shall include:
 - 1. Name of responsible supervisor to carry out the program.
 - 2. Weekly and monthly safety meetings.
 - 3. First aid procedures.
 - 4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to ensure property protection and safety of the public, National Park Service personnel, and Contractor's employees. Identify the work included under each phase by reference to specification section or division numbers.
 - 5. Training, both initial and continuing.
 - 6. Planning for possible emergency situations, such as floods, fires, cave-ins, slides, explosions, power outages, and wind storms. Such planning shall take into consideration the nature of construction, site conditions, and degree of exposure of persons and property.
 - 7. Housekeeping: Section 01560.
 - 8. Fire Protection: Section 01510.
- B. Certificates: Provide certificates from a mechanic that all mechanical equipment has been inspected and meets OSHA requirements.
- C. Submit a copy of test reports, as required by OSHA, for personnel working with hazardous materials.
- D. Submit a report of safety meetings and of inspections.
- E. Upon request, submit proof of employees' qualifications to perform assigned duties in a safe manner.

1.3 QUALITY ASSURANCE

- A. Clauses entitled "Accident Prevention" and "Permits and Responsibilities" of the

General Provisions. In case of conflicts between Federal, state and local safety and health requirements, the most stringent shall apply. Equipment or tools not meeting OSHA requirements will not be allowed on the project sites. Failure to comply with the requirements of this section and related sections may result in suspension of work.

B. Qualifications of Employees:

1. Ensure that employees are physically qualified to perform their assigned duties in a safe manner.
2. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.
3. Operators of vehicles, mobile equipment, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, and operating instructions, and be capable of operating such equipment. Provide operating instructions for all equipment. Newly hired operators shall be individually tested by an experienced operator or supervisor to determine if they are capable of safely operating equipment.

1.4 ACCIDENT REPORTING

- A. Reportable Accidents: A reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, property damage by accident in excess of \$100, and fires. Notify Contracting Officer immediately in the event of a reportable accident. Within 7 days of a reportable accident, fill out and forward to the Contracting Officer a DI-134 form, which may be obtained from Contracting Officer.
- B. All Other Accidents: The Contractor shall report all other accidents to the Contracting Officer as soon as possible and assist the Contracting Officer and other officials as required in the investigation of the accident.

PART 2: PRODUCTS

2.1 FIRST AID FACILITIES

- A. Provide adequate facilities for the number of employees and the type of construction at the site.

2.2 PERSONNEL PROTECTIVE EQUIPMENT

- A. Meet requirements of NIOSH and MSHA.

PART 3: EXECUTION

3.1 EMERGENCY INSTRUCTIONS

- A. Post telephone numbers and reporting instructions for ambulance, physician,

hospital, fire department, and police in conspicuous locations at the work site.

3.2 EGRESS

- A. Provide and maintain adequate egress at all times in accordance with the Life Safety Code (NFPA 101-94). No corridor, aisle, stairway, door, or exit shall be obstructed or used in a manner that interferes with egress.

3.3 PROTECTIVE EQUIPMENT

- A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before issuing them to another individual.
- B. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.

3.4 SAFETY MEETINGS

- A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings shall be conducted by a foreman and attended by all construction personnel at the worksite.
- B. Conduct monthly safety meetings for all levels of supervision. Notify the Contracting Officer of meeting dates and times. These meetings shall be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe construction activities, and for updating the accident prevention program. The Contracting Officer will attend the meeting and enter the results of the meetings into the daily log.

3.5 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

- A. A hard hat area will be designated by the Contracting Officer. The hard hat area shall be posted by the Contractor in a manner satisfactory to the Contracting Officer.
- B. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary protective equipment at all times. As a minimum, provide six hard hats for use by visitors. Change liners before reissuing hats.

3.6 TRAINING

- A. First Aid: Provide adequate training to ensure prompt and efficient first aid.
- B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1: GENERAL

- 1.1 PRECONSTRUCTION CONFERENCE: Before start of construction, Contracting Officer will arrange an on-site meeting with Contractor. The meeting agenda will include the following as a minimum:

- Correspondence procedures
- Designation of responsible personnel
- Labor standards provisions
- Payroll reports
- Changes
- Payments to Contractor
- Subcontractors
- National Park Service regulations
- Accident prevention program (including name of responsible supervisor)
- Accident reporting
- Documents required under the contract
- Park rules and regulations
- Recycling Program
- Saturday, Sunday, holiday and night work
- Safety program (compliance with the "Accident Prevention" clause of the General Provisions)
- Tentative construction schedule
- Submittal of shop drawings, project data, and samples
- Relationship of Division 1 to other divisions

- 1.2 PROGRESS MEETINGS: The Contracting Officer will schedule weekly meetings with the Contractor and subcontractors. Subcontractors will not be allowed to work until they have attended a meeting. Additional meetings will be held as needed or for new subcontractors. The meeting agenda will include the following as a minimum:

- Approval of minutes of previous meetings
- Review of work progress
- Field observations, problems, and decisions
- Identification of problems that impede planned progress
- Review of submittals schedule and status of submittals
- Review of off-site fabrication and delivery schedules
- Maintenance of progress schedule
- Corrective measures to regain projected schedules
- Planned progress during succeeding work period
- Coordination of projected progress
- Maintenance of quality and work standards
- Effect of proposed changes on progress schedule and coordination
- Other business relating to work

PART 2: PRODUCTS – Not Used.

PART 3: EXECUTION – Not Used.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of submittal requirements before and during construction.

1.2 RELATED REQUIREMENTS

- A. Closeout submittals - Section 01700.

1.3 SUBMITTAL AND APPROVAL PROCEDURES

- A. All submittals shall be transmitted using National Park Service form DSC-1(CS), dated 11/95. (A copy of the form is included at the end of this section.) No action will be taken on a submittal item unless accompanied by the transmittal form.
- B. As specified in the individual sections, forward submittals to Contracting Officer at least 30 days before need for approval. Unless a different number is specified, submit one reproducible original and two copies of each shop drawing, three copies of manufacturer's catalog sheets (cut sheets), three specimens of each sample, and three copies of all other submittals requested.

1. Shop Drawings: Include the following information with each copy of shop drawings:
 - a. Date.
 - b. Date of revisions (when applicable).
 - c. Contractor's certification that shop drawing has been checked for compliance with contract documents.
 - d. Details of fabrication, assembly and erection including connections and engagement to contiguous work.
 - e. Materials used.
 - f. All required dimensions.
 - g. The term "by others" shall not be used. All work to be performed by others shall be identified by Contractor or subcontractor name, discipline, or trade.
2. Samples: Samples shall be large enough to illustrate clearly the functional characteristics and full range of color, texture, or pattern.
3. Manufacturers' Catalog Sheets: Submit only pertinent pages; mark each copy of standard printed data to identify specific products proposed for use.
4. Manufacturer's Installation Instructions: When contract documents require compliance with manufacturer's printed instructions, provide one complete set of instructions for Contracting Officer and keep another complete set of

instructions at the project site until substantial completion.

C. Contracting Officer reserves the right to require submittals in addition to those called for in individual sections.

D. Approved Equals:

1. For each item proposed as an "approved equal," submit supporting data, including:
 - a. Drawings and samples as appropriate.
 - b. Comparison of the characteristics of the proposed item with that specified.
 - c. Changes required in other elements of the work because of the substitution.
 - d. Name, address, and telephone number of vendor.
 - e. Manufacturer's literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts lists. Describe availability of maintenance service, and state source of replacement materials.
2. A request for approval constitutes a representation that Contractor:
 - a. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
 - b. Will provide the same warranties for the proposed item as for the item specified.
 - c. Has determined that the proposed item is compatible with interfacing items.
 - d. Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.
 - e. Waives all claims for additional expenses that may be incurred as a result of the substitution.
3. Construction Materials: The Contractor is encouraged to submit for approval products made out of recycled or environmentally responsible material. Every effort will be made by the National Park Service to approve these materials.

E. Coordinate all submittals and review them for legibility, accuracy, completeness, and compliance with contract requirements. Forward submittals that are related to or affect one another as a package to facilitate coordinated review. Each transmittal shall contain only data specific to that individual submittal.

F. Submittal Identification:

1. Contracting Officer will provide a project identification stamp that shall be applied by the Contractor. Identification shall include the park name-package number, project title, contract number, and transmittal number.
2. All sets of shop drawings; manufacturer's catalog sheets, samples, and other

documents submitted to the Contracting Officer must have the identification information stamped on the submittal.

3. Identification information shall be applied to the bottom right margin on each page. Identification information on samples shall be applied to the most readily visible area on the sample or on tags attached to sample.

G. Submittal Numbering:

1. Number each submittal consecutively.
2. For re-submittals use the original submittal number, plus a letter suffix beginning with A.
3. Additional re-submittals of the same item shall contain the original number with the next consecutive letter.

H. Contracting Officer's Review:

1. Submittals will be returned disapproved without technical review if identification information is missing, not filled in, or if placed on the back of the submittal; an incorrect number or format of submittals is provided; the transmittal form is incorrectly filled out; submittals are not coordinated; or submittals do not show evidence of Contractor's approval.
2. Any work done or orders for materials or services placed before approval shall be at the Contractor's own risk.
3. After reviewing submittals, the Contracting Officer will return one copy of form DSC-1(CS) and one copy of applicable (marked up) submittal sheets to the Contractor. Shop drawing review notations will be returned on the reproducible original shop drawing. All other submitted items will be retained. The Contractor is responsible for producing additional copies for his/her own use.
4. The returned submittal will be marked in one of three ways as defined below:
 - a. APPROVED: Acceptable with no corrections.
 - b. APPROVED WITH NOTATIONS: Minor corrections or clarifications required. All comments are clear and no further review is required. The Contractor shall address all review comments when proceeding with the work.
 - c. DISAPPROVED - RESUBMIT: Rejected as not in accordance with the contract or as requiring major corrections or clarifications. The Contracting Officer will identify the reasons for disapproval. The Contractor shall revise and resubmit.

PART 2: PRODUCTS - Not Used.

PART 3 : EXECUTION - Not Used.

END OF SECTION

SECTION 01320

SCHEDULES AND MONTHLY INSPECTIONS

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of schedule requirements before and during construction.

1.2 SCHEDULES

- A. As specified in Section 01300.
- B. As soon as possible after Notice of Award and before beginning any work, submit Progress Schedule and Schedule of Values as a package. Contracting Officer will review the Progress Schedule and the Schedule of Values for format and content.
 - 1. Progress Schedule: Submit four copies of the Progress Schedule in either Gantt or Pert format. The schedule shall be prepared using Time Line, Primavera, Microsoft Projects, or Sure Trak computer software, or approved equal. Show each bid item and area of work and break down work into the smallest element. The schedule shall correspond to each specification section and shall identify the critical path of the project. No progress payments will be made until acceptable progress schedule is provided.
 - 2. Schedule of Values:
 - a. Submit a schedule of dollar values based on the Contract Bid Schedule. Include mobilization, general condition costs, overhead, and profit in the total dollar value of unit price items and in the component parts of work for each lump-sum item, as described below. Do not include mobilization, general condition costs, overhead, or profit as separate items. Bond premiums may be shown as a separate item.
 - b. Break down each lump sum bid item into component parts of work for which progress payments may be requested. The total costs for the component parts of work shall equal the bid amount for that lump-sum item. The Contracting Officer may request data to verify accuracy of dollar values.
 - c. Do not break down unit price bid items. Use only the bid amount for unit price items.
 - d. The total cost of all items shall equal the contract sum. The Schedule of Values will form the basis for progress payments as provided for in the General Provisions.

1.3 MONTHLY INSPECTIONS

- A. Project record drawings as specified in Section 01700.

PART 2: PRODUCTS - Not Used.

PART 3: EXECUTION - Not Used.

END OF SECTION

SECTION 01430

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of preparing and executing a quality control program.

1.2 SUBMITTALS

- A. As specified in section 01300.
- B. No payment estimate will be processed until the entire Contractor Quality Control (CQC) plan has been approved, and all overdue Daily Quality Control Reports have been properly completed and furnished.
- C. Quality Control Plan:
 - 1. At the time of the preconstruction conference, submit for approval a written Contractor Quality Control (CQC) plan.
 - 2. No on-site work will be permitted until the CQC plan is approved.
 - 3. If the plan requires any revisions or corrections, the Contractor shall resubmit the plan within 10 days.
 - 4. The Government reserves the right to require changes in the plan during the contract period as necessary to obtain the quality specified.
 - 5. No change in the approved plan may be made without written concurrence by the Contracting Officer.
 - 6. The plan shall include:
 - a. A list of personnel responsible for quality control and assigned duties. Include each person's qualifications.
 - b. A copy of a letter of direction to the Contractor's Quality Control Supervisor outlining assigned duties.
 - c. Names, qualifications, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms.
 - d. Methods of performing, documenting, and enforcing quality control of all work.
 - e. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.

- D. Contractor's Quality Control Daily Reports: Submit showing all inspections and tests on the first workday following the date covered by the report.
- E. Off-Site Inspection Reports: Submit prior to shipment.
- F. If the CQC plan and Quality Control Daily Reports are not submitted as specified, the Contracting Officer may retain all payments until such time a plan is approved and implemented.

1.3 QUALITY ASSURANCE

- A. General: The quality of all work shall be the responsibility of the Contractor. Inspect and test all work often enough to ensure that the quality of materials, workmanship, construction, finish, and functional performance is in compliance with applicable specifications and drawings.
- B. Quality Control Staff: The Contractor's job supervisory staff may be used for quality control, supplemented as necessary by additional technicians. The Contractor's designated Quality Control Supervisor shall be employed full time at the project site whenever contract work is in progress.

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

3.1 OFF-SITE CONTROL

- A. Items that are fabricated or assembled off-site shall be inspected for quality control at the place of fabrication.

3.2 ON-SITE CONTROL

- A. Notify the Contracting Officer at least 24 hours in advance of the initial and follow-up phases.
- B. Preparatory: Perform before beginning each feature of work.
 - 1. Review control submittal requirements with personnel directly responsible for the quality control work.
 - 2. Ensure that provisions have been made for field control testing.
 - 3. Examine the work area to ensure that all preliminary work has been completed.
 - 4. Verify all field dimensions and advise the Contracting Officer of discrepancies.
 - 5. Ensure that necessary equipment and materials are at the project site and that they comply with approved shop drawings and submittals.
- C. Initial:
 - 1. As soon as work begins, inspect and test a representative portion of a particular feature of work for quality of workmanship.

2. Review control-testing procedures to ensure compliance with contract requirements.

D. Follow-Up: Inspect and test as work progresses to ensure compliance with contract requirements until completion of work.

3.3 DOCUMENTATION

A. Maintain Quality Control Daily Reports and Daily Test Report Information Sheets (samples attached) of quality control activities and tests.

B. Quality Control Daily Reports may not be substituted for other written reports required under clauses of the contract, such as Disputes, Differing Site Conditions, or Changes.

3.4 ENFORCEMENT

A. The Contractor shall stop work on any item or feature pending satisfactory correction of any deficiency noted by the quality control staff or the Contracting Officer. Construction shall not proceed on any feature of work containing uncorrected work.

END OF SECTION

CONTRACTOR'S QUALITY CONTROL DAILY REPORT

REPORT NO. _____ SHT 1 OF _____

PROJECT			CONTRACT NO.		DATE	
PARK			CONTRACTOR'S REPRESENTATIVE ON THE JOB			
WEATHER (Rain, Snow, Cloudy, Windy, etc.)	RAINFALL Inches	TEMPERATUR E MAX. MIN.	GROUND CONDITIONS (Dry, Damp, Wet, Frozen, etc.)			

1. PRIME CONTRACTOR

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY PRIME CONTRACTOR:

MATERIALS DELIVERED	OFFICIAL VISITORS TO SITE

2A. SUBCONTRACTOR, _____: (If more than one subcontractor use copies of following page.)

NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING		
				YES	NO	Comments

WORK PERFORMED BY SUBCONTRACTOR:

3. SPECIFIC INSPECTIONS: (Inspections performed, results, and corrective actions)
4. TESTING: ☐ 1 Check if any testing was performed today. (Complete and attach Test Report Information Sheets.)

Type and Location of Testing: _____

5. VERBAL INSTRUCTION RECEIVED FROM GOVERNMENT ON CONSTRUCTION DEFICIENCIES OR RE-TESTING REQUIRED:

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6. REMARKS:

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7. CERTIFICATION:

I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the prime contractor and each subcontractor and determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications except as may be noted above.

_____ Contractor's Quality Control Representative

SUBCONTRACTOR WORK CONTINUED:			CONTRACT NO.		REPORT NO. _____ SHEET ____ OF ____		
2 SUBCONTRACTOR,							
NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING			
				YES	NO	Comments	
WORK PERFORMED BY SUBCONTRACTOR:							
2 SUBCONTRACTOR,							
NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING			
				YES	NO	Comments	
WORK PERFORMED BY SUBCONTRACTOR:							
2 SUBCONTRACTOR,							
NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING			
				YES	NO	Comments	
WORK PERFORMED BY SUBCONTRACTOR:							
2 SUBCONTRACTOR,							
NO. EMPLOYEES BY JOB CATEGORIES	Hours	HEAVY EQUIPMENT ON JOB	NO. UNITS	HRS. WORKING			
				YES	NO	COMMENT S	
WORK PERFORMED BY SUBCONTRACTOR:							

DAILY TEST REPORT INFORMATION SHEET

CONTRACT NO. _____ REPORT NO. _____ SHEET _____ OF _____

1. Individual Making Inspection or Test: _____	
2. Testing Laboratory; Name: _____	Phone #: _____
Address: _____	

3. Description of Work and Test Method: _____	

4. Location of Samples and Tests or Inspections: _____	

5. Specification Section: _____	
6. Inspection or Test Data: _____	

7. Test Results and Interpretations of Test Results: _____	

8. Comments or Professional Opinion About Compliance of Inspected Work or Tested Work with contract Document Requirements: _____	

9. Recommendations: _____	

10. Corrective Actions Taken: _____	

CERTIFICATION: I certify that the above testing report is complete and correct and that all testing performed this day for this contract is in strict compliance with the plans and specifications except as noted above.	
_____ Signature of Inspector	

SECTION 01500

TEMPORARY FACILITIES

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of providing, installing, maintaining and removing temporary construction support services and facilities such as:

- A. Scaffolding.
- B. Construction aids and miscellaneous services and facilities.

1.2 RELATED WORK

- A. Section 01510 - For temporary utilities required.
- B. Section 01560 - For temporary controls.
- C. Section 01520 - For field offices and sheds.
- D. Section 06100 - For Rough Carpentry

1.3 SUBMITTALS: As specified in Section 01300.

- A. Shop Drawings: Submit plans for the design of the scaffolding, including arrangement of platforms, bracing, anchoring, and all support. The design and layout work shall be performed by or under the direction of a Professional Engineer. The Professional Engineer shall stamp the plans for this work.

1.4 QUALITY ASSURANCE

- A. Comply with NFPA Code 241-1989, "Building Construction and Demolition Operations," and ANSI-A10.6-83 Series standards for "Safety Requirements for Construction and Demolition."
- B. Comply with OSHA/Code of Federal Regulations, 1926.451, for Scaffolding.

1.5 PROJECT CONDITIONS: Keep temporary facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2: PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. If acceptable to the Contracting Officer, previously used undamaged materials in serviceable condition may be used. Provide materials suitable for the use intended.

- B. Lumber and Plywood: Comply with requirements in Section 06100.
- C. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Contracting Officer, previously used undamaged equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Scaffolding: Provide scaffolding surrounding the project buildings that meets or exceeds the following requirements:
 - 1. The design engineer for the scaffolding is required to design, field inspect and certify the scaffolding installation.
 - 2. The scaffolding may not penetrate the buildings or be attached into the existing building materials. The design of the scaffolding system must be self-supporting. Anchoring points at the ground must not penetrate or damage existing plantings or pavements.
 - 3. Scaffolding must include the following safety features in order to protect the public and the quality of the environment throughout the project areas.
 - a. Tarpaulin covers on all facades of the scaffolding to contain dust, debris, and demolition materials.
 - b. Catch basins: Under building eaves, soffits, or cornices provide planking to catch falling objects from the roof work. Protect the building, the public, and the workmen below.
 - c. Guardrails: In addition to metal cross bars and metal rails, additional 2-inch by 4-inch wood lumber rails at 42 inches high and at 21 inches high shall be provided.
 - d. Toeboards: 2-inch by 6-inch wood lumber toeboards installed on all open sides and ends at all levels.
 - e. Wire mesh screens: Attach to all guardrails to prevent material falling from scaffolding.
 - f. Nylon mesh shields: At top guardrails at roof levels, provide 2 foot high shield to prevent roof and chimney material from sliding off.
 - g. Base protection: Provide plywood and timber shims at base anchoring

locations in order to protect existing landscaping and paving materials.

- h. Building entrance protection: Provide eight covered entrances to buildings to protect pedestrians entering and exiting the building. Locations are indicated on the drawings.
- i. Scaffolding stairways: Provide two stairways as shown on the drawings. Provide access from the stair to each of the working platforms.
- j. Surround the Public Way perimeter of scaffolding with a 6-foot Chainlink barrier fence for public safety.

PART 3: EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 SCAFFOLDING: Provide scaffolding access to all vertical exterior surfaces of all buildings. Scaffolding should be set to permit all vertical surfaces to be observed and reached by hand. Where the work requires temporary removal of the scaffolding, the scaffolding shall be restored immediately.

3.3 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Unless the Contracting Officer requests that it be maintained longer, remove each temporary facility when the need has ended. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of the Contractor.
- D. FIREPLACE OPENING DUST CLOSURES: Provide dust proof covers over fireplace openings to contain dust and debris during construction. Remove at the completion of the work and remove accumulated debris and thoroughly vacuum to remove all dust.

END OF SECTION

SECTION 01510

TEMPORARY SERVICES

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of providing temporary services required for Contractor's performance of the work of this contract.

1.2 RELATED REQUIREMENTS

- A. Section 01560 - Temporary Controls.
- B. Section 01520 - Field Offices and Sheds.

PART 2 PRODUCTS

2.1 GENERAL

- A. Temporary materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 SANITARY FACILITIES

- A. Sufficiently lighted and ventilated toilet facilities in weatherproof, sightproof, sturdy enclosures with privacy locks.
- B. Provide separate facilities for men and women.

2.3 FIRE PROTECTION EQUIPMENT

- A. Extinguisher shall have a minimum UL rating of 2-A:10-B:C.

PART 3 EXECUTION

3.1 ELECTRICITY AND LIGHTING

- A. Provide connections to existing facilities, sized to provide service required. The Government will pay the costs of power used.
- B. Temporary Electrical: Temporary electrical work shall meet requirements of NFPA 70-1996 (NEC) Article 305.
- C. When temporary connections are removed, restore existing utility services to their original condition.

3.2 TELEPHONE

- A. No telephone service is available on site for Contractor's use. Make arrangements with telephone company and pay all costs. See Section 01520 for telephone for Contracting Officer's use.

3.3 WATER

- A. Make connections to existing facilities for potable water. Government will pay costs for water used.
- B. Furnish cool, potable water for construction personnel in locations convenient to work stations.

3.4 SANITARY FACILITIES

- A. Place in approved locations secluded from public observation and convenient to work stations. Relocate as work progress requires.
- B. Maintain and clean toilet facilities at least weekly.
- C. Completely remove sanitary facilities on completion of work.

3.5 FIRE PREVENTION AND PROTECTION

- A. Responsible person: A capable and qualified person shall be placed in charge of fire protection. The responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
- B. Hazard Control: Take all necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in historic buildings. Provide adequate ventilation during use of volatile or noxious substances.
- C. Spark Arresters:
 - 1. Written determinations of periods and areas of potential fire hazard will be issued by Contracting Officer.
 - 2. Equip all gasoline or diesel powered equipment used during periods of potential fire hazards with spark arresters approved by the U. S. Forest Service.
- D. Smoking: Smoking within buildings, on the roofs, in the attics or temporary storage sheds is prohibited. Designate specific smoking areas for each building. Provide acceptable receptacles, maintaining the area in a clean state. Remove daily and/or at the close of work each day all refuse.
- E. Welding: Cutting by torch or welding will not be permitted.

3.6 PROTECTION EQUIPMENT REQUIRED

A. Buildings:

1. Furnish a minimum of four extinguishers, for each building.
2. Locate extinguishers as directed by the Contracting Officer.

B. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.

END OF SECTION

SECTION 01520

FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.1 DESCRIPTION

- A. The requirements of this section consist of furnishing, locating, and removing temporary structures, equipment, and furnishings.

1.2 RELATED REQUIREMENTS

- A. Temporary services - Section 01510.

PART 2 PRODUCTS

2.1 CONTRACTOR'S FIELD OFFICE

- A. Contractor may provide an office for his own use. The office shall be located within building 1D as noted on Sheets G-1 and A1.

2.2 STORAGE SHEDS

- A. Temporary weathertight sheds or other covered facilities for storage of materials subject to weather damage. Number and size of structures shall be subject to Contracting Officer's approval.

PART 3 EXECUTION

3.1 STORAGE SHEDS

- A. Locate where directed by Contracting Officer, a minimum of 50 feet from permanent structures.

3.3 REMOVAL

- A. Remove structures, equipment, and furnishings, and terminate services after punch list is 100 percent completed or when directed by Contracting Officer.

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of providing temporary controls.

PART 2: PRODUCTS - Not Used.

PART 3: EXECUTION

3.1 HOUSEKEEPING:

- A. Keep project neat, orderly, and in a safe condition at all times.
- B. Provide enough containers for collecting construction debris and construction materials to be recycled.
- C. Provide individually marked containers for recycling personal items, such as aluminum cans, newspapers, glass, plastic, corrugated cardboard. These items may be recycled by the Contractor.
- D. Wet down dry materials and rubbish to prevent blowing dust.
- E. Keep volatile wastes in covered containers.

3.2 DISPOSAL:

- A. Unless otherwise specified, all removed material becomes the property of the Contractor and shall be disposed of outside the park.
- B. Immediately remove hazardous rubbish from project site. Place other construction debris in refuse containers at least daily. Dispose of refuse at least weekly, in a legal manner, at public or private dumping areas outside the park. Do not burn or bury refuse inside the park.

3.3 AIR AND WATER POLLUTION CONTROL:

- A. Take all necessary reasonable measures to reduce air and water pollution by any material or equipment used during construction.
- B. Do not dispose of volatile wastes or oils in storm or sanitary drains.
- C. Do not allow waste materials to be washed into streams or bodies of water.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1: GENERAL

- 1.1 DESCRIPTION: The work of this section consists of the general procedures for handling, storing, and protecting material and equipment.
- 1.2 TRANSPORTATION AND HANDLING: Arrange deliveries of materials in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible. Contractor is encouraged to obtain materials in biodegradable or recyclable/ reusable packaging that uses the minimum amount of packaging possible.
- 1.3 STORAGE AND PROTECTION: Store materials in accordance with manufacturer's instructions, with seals and labels accessible for inspection.
 - A. Interior Storage: Interior storage is not available on-site. The Contractor shall provide its own interior storage and shall maintain temperature and humidity within the ranges required by manufacturer's instructions.
 - B. Exterior Storage:
 1. Store products subject to damage by the elements in weathertight enclosures.
 2. Store fabricated products above the ground, on blocking or skids; prevent soiling or staining. Cover products subject to damage or deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
 3. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
 - C. Protection After Installation: Provide adequate coverings as necessary to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction. Remove when no longer needed.

PART 2: PRODUCTS - Not Used.

PART 3: EXECUTION - Not Used.

END OF SECTION

SECTION 01700

PROJECT CLOSEOUT

PART 1 GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of final cleanup, closeout submittals, and final inspection procedures.

PART 2 PRODUCTS

2.1 CLEANING MATERIALS

- A. As recommended by the manufacturer of surface to be cleaned.

PART 3 EXECUTION

3.1 CLEANING

- A. Before scheduling the final inspection, remove all tools, equipment, surplus materials, and rubbish. Restore or refinish surfaces that are damaged due to work of this contract to original condition. Remove grease, dirt, stains, foreign materials, and labels from finished surfaces. Thoroughly clean building interiors where construction activity occurred and the contractor's office. Pick up all construction debris from the site. At time of final inspection, project shall be thoroughly clean and ready for use.

3.2 PROJECT RECORD DRAWINGS

- A. Maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings. Clearly mark changes, deletions, and additions using National Park Service drafting standards to show actual construction conditions. Show additions in red, deletions in green, and special instructions in blue.
- B. Keep record drawings current. Make record drawings available to the Contracting Officer for inspection at the time of monthly progress payment requests. If project record drawings are not current, the Contracting Officer may retain an appropriate amount of the progress payment.
- C. On completion of the total project, submit complete record drawings. Include all shop drawings, sketches, and additional drawings that are to be included in the final set, with clear instructions showing the location of these drawings.

3.3 CLOSEOUT SUBMITTALS

- A. Submit before final inspection request.
 - 1. Project Record Drawings: As specified above.

2. Guarantees and Bonds: As specified in individual sections.
3. Spare Parts and Materials: As specified in individual sections.

3.4 SUBSTANTIAL COMPLETION AND FINAL INSPECTION

- A. Submit written certification that project, or designated portion of project, is substantially complete, and request in writing a final inspection. Contracting Officer will make an inspection within 10 days of receipt of request.
 1. When work is determined to be substantially complete, Contracting Officer will prepare a list of deficiencies to be corrected before final acceptance and issue a Letter of Substantial Completion.
 2. If work is not determined to be substantially complete, Contracting Officer will notify Contractor in writing. After completing work, Contractor shall resubmit certification and request a new final inspection.

3.5 ACCEPTANCE OF THE WORK

- A. After all deficiencies have been corrected, a Letter of Acceptance will be issued.

END OF SECTION

SECTION 04525

BRICK MASONRY RESTORATION

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of the following:

- A. Clean all exposed brick masonry surfaces as indicated - Brick Cleaning.
- B. Dismantle and rebuild brick chimneys - Brick Reconstruction.
- C. Restore or repair missing or damaged brick masonry - Brick Masonry Repairs (Minor Restorations).
- D. Repoint mortar joints in brick masonry - Brick Repointing.
- E. Chimney repair shall include work from the top down to the roof substrate.
- F. Stitching existing masonry.

1.2 DEFINITIONS

- A. Brick Masonry Repairs: Replace existing individual face or backing brick masonry units that are missing, damaged, cracked, spalled, decomposed or broken with new masonry materials that match the original existing masonry to preserve the original historic fabric as much as possible yet render the completed work to be functional and finished in appearance.
- B. Repointing: The process of raking out (removing) mortar and replacing it with new mortar.
- C. Pointing: The process of placing new mortar in existing joint spaces, which have previously been raked out. This term does not include the raking out process.
- D. Tuckpointing: The process of touching up existing mortar joints by filling in recesses with new mortar, without first raking out the joints.

1.3 RELATED WORK

- A. Section 07600 - Metal flashing.

1.4 SUBMITTALS: As specified in Section 01300.

A. Samples:

- 1. Mortar materials: Samples of mortar ingredients to be provided as determined from testing of existing mortar together with made-up sample strips 6 inches long by 1/2 inch wide set in aluminum or plastic channels using mix determined

from tests.

2. Brick: Strap samples of not less than four bricks to match designated existing adjacent brick masonry evidencing full range and color.
- B. Shop Drawings: Provide record drawings and photos of chimneys prior to commencing work. Identify work to be performed.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Cleaning: Demonstrate the materials and methods to be used for cleaning each type of masonry surface and condition on surfaces designated by the COR.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Carefully pack, handle, and ship masonry units and accessories strapped together in suitable packs or pallets, or in heavy-duty cartons. Unload and handle to prevent chipping and breakage.
- B. Deliver other materials to project site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- C. Protect masonry restoration materials during storage and construction from rain, snow, and ground water, and from staining and mixing with soil and other materials.
- D. Protect grout, mortar, and other materials from deterioration by moisture and temperature. Store in a dry place or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing.
- E. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

1.7 PROJECT CONDITIONS

- A. Clean masonry surfaces only when air temperature is 40 degrees F (4 degrees C) and above and will remain so until masonry has dried out, but for not less than 7 days after completion of cleaning.
- B. Do not repoint mortar joints or repair masonry unless air temperature is between 40 degrees F (4 degrees C) and 80 degrees F (27 degrees C) and will remain so for at least 48 hours after completion of work.
- C. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Immediately remove grout and mortar in contact with exposed masonry and other surfaces.

1.8 COORDINATION

- A. Historic research will be performed by the Contracting Officer upon removal of all flashing to determine the historic location and final placement of new flashing.
- B. Chimney documentation for submittals, Paragraph 1.4 B shall be completed by the contractor and reviewed on-site with the COR.
- C. To avoid delaying completion of the work, order replacement materials at the earliest possible date.
- D. Perform masonry restoration work in the following sequence:
 - 1. Reconstruction and repair of existing masonry, including replacement of existing masonry with new masonry materials.
 - 2. Rake out existing mortar from joints indicated to be repointed.
 - 3. Repoint existing mortar joints of masonry indicated to be restored.
 - 4. Point existing mortar joints of masonry indicated to be restored.
 - 5. Brick masonry work to be completed prior to following stuccowork and adjacent slate roofing work.

1.9 CLOSEOUT SUBMITTALS: As specified in Section 01700.

- A. Deliver unused brick to the HFNHP\NPS maintenance yard and store as directed.

PART 2: PRODUCTS

2.1 MASONRY MATERIALS

- A. Face Brick: Provide face brick including units for corners, and other specially ground, cut, or sawed shapes where required to complete masonry restoration work.
 - 1. Provide units with color, surface texture, size and other physical properties to match existing brickwork and with physical properties not less than those determined from preconstruction testing of selected existing units.
 - 2. Custom manufactured brick masonry units shall be required to match existing brick
 - 3. Possible sources:
 - a. Cushwa Brick, Williamsport, MD
 - b. New London Brickworks, Goldhill, NC

c. Patrick Dixon Used Bricks, Mt. Airy, MD

2.2 MORTAR MATERIALS

- A. White Portland Cement: ASTM C150-85, Type I or Type II.
- B. Flamingo Cement: ASTM C 211-87, manufactured by United States Gypsum Company, Chicago, IL, or approved equal.
- C. Hydrated Lime: ASTM C 207-89, Type S.
- D. Aggregate for Mortar: Brown Bar Sand, ASTM C-144-87. Redland Genstar, Chaney Enterprises, Waldorf, MD, or approved equal.
- E. Water: Clean, free of oils, acids, alkalis, and organic matter.

2.3 CLEANING MATERIALS AND EQUIPMENT:

- A. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic matter.
- B. Warm Water: Water temperature between 140 to 180 degrees F (60 to 82 degrees C) at the machine.
- C. Brushes: Fiber bristle only.

2.4 MORTAR MIXES

A. Measurement and Mixing:

1. Measure cementitious and aggregate material in a dry condition by volume or equivalent weight. Do not measure by shovel. Use measuring instruments with marked gradations. Mix materials in a clean mechanical batch mixer.

2. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 1 to 2 hours. Add the remaining water in small portions until reaching mortar of the desired consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Do not use admixtures of any kind in mortar.

C. Mortar Proportions: Mix mortar materials in the following proportions:

1. Mortar for Brick: Determine final proportions of mortar materials from test samples of the specified mix.
2. Setting, pointing and repointing mortar mix: 1 part white Portland cement 1 part lime 1/4 part Flamingo cement 6 parts Brown Bar sand.

2.5 STITCHING STRAPS

- A. Stainless Steel straps 1/8 inch thick by 2-1/2 inches wide by field measure in length. Ends to be turned up and down 2 inches as detailed.

PART 3: EXECUTION

3.1 PREPARATION:

- A. General: Protect building surfaces against damage from exposure to cleaning products. Temporarily seal gaps between masonry and roof structure to prevent entrance of water and cleaning materials in the attic.
- B. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, building site, plants, and surrounding buildings from injury resulting from masonry restoration work.
 - 1. Prevent cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be injured by such contact.
 - 2. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 - 3. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Protect adjacent surfaces from contact with cleaners by covering them with polyethylene film and waterproof masking tape.

3.2 CLEANING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each section width and from one end to the other.
- B. Use only those cleaning methods approved.
- C. Perform cleaning indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
- D. Rinse off residue and soil by working upwards from bottom to top of each treated area at each stage or scaffold setting.
- E. Removing Plant Growth: Completely remove plant, and moss growth from masonry surfaces.

3.3 CLEANING BRICKWORK

- A. Cold Water Wash: Initially, clean brick masonry surfaces with low-pressure spray cold water application.
- B. Warm Water Wash: At locations not Sufficiently cleaned by the cold water wash, clean brick masonry surfaces with warm water applied by low-pressure spray.

3.4 BRICK REMOVAL FOR BRICK MASONRY REPAIRS

- A. Carefully remove with hand tools, at locations indicated, face bricks units that are damaged, Spalled, decomposing, or deteriorated. Cut out full units from joint to joint and in a manner to permit replacement with full-size units. Power tools will not be permitted.
- B. Support and protect masonry indicated to remain that Surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. Salvage: Whole and half undamaged bricks for reuse in rebuilt portions of the same type brick masonry.
- D. Remove mortar, loose particles and soil from salvaged brick with hand tools and by cleaning with brushes and water. Store brick for reuse.
- E. Clean remaining brick at edges of removal areas by removing mortar, dust, and loose debris in preparation for rebuilding.

3.5 BRICK MASONRY REPAIRS

- A. Install new or salvaged brick to replace removed brick. Fit replacement units into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
- B. Lay replacement brick with completely filled bed, head, and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet clay bricks that have ASTM C 67-89a initial rates of absorption (suction) of more than 30 grams per 30 square inches/per minute. Use wetting methods that ensure units are nearly saturated but surface dry when laid. Maintain joint width for replacement units to match existing units.
- C. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
- D. Point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and rake out mortar used for laying brick before mortar sets.
- E. Stitch brickwork where indicated on the drawings or determined during the field inspection, with the COR, after masonry cleaning.

3.6 REPOINTING MASONRY

A. Rake out joints as follows:

1. Rake out mortar from joints until sound mortar is reached but not less than 1 inch from the face of the brick. If joint width exceeds $\frac{3}{8}$ inch, increase minimum depth to be equal to $2\frac{1}{2}$ times the joint width.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace masonry units damaged while raking out mortar at no additional expense to the Government.
 - a. Cut out old mortar by hand with a chisel and mallet. Quality control program shall include provisions for supervising performance and preventing damage due to worker fatigue.
 - b. Do not use power-operated rotary handsaws and grinders.

B. Point joints as follows:

1. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time the rinsing application so that at the time of pointing excess water has evaporated or run off and joint surfaces are damp but free of standing water.
2. Apply the first layer of pointing mortar to areas where existing mortar was removed. Apply in layers not greater than $\frac{3}{8}$ inch until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.
3. After joints have been filled to a uniform depth, place remaining pointing mortar in three layers with each of first and second layers filling approximately two fifths of joint depth and third layer the remaining one fifth. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or to featheredge mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in a damp condition for not less than 72 hours.
6. Where repointing work precedes cleaning of existing masonry, allow mortar to harden not less than 30 days before beginning cleaning work.

3.7 CHIMNEY RECONSTRUCTION

A. Demolition of chimneys:

1. Carefully remove identified chimneys by hand. Salvage and clean all sound historic bricks for reconstruction of the chimney. Remove chimneys to the roof substrate or beyond to sound masonry.
2. Record with the COR the historic brick patterns and locations of flashing. Include documentation in the shop drawings.
3. Store brick in separately designated locations to maintain historic accuracy in the reconstruction.

B. Preparation:

1. Clean all brick of existing mortar.
2. Inspect cleaned brick for deterioration, breaks, and soundness. Discard unsuitable brick and replace with brick of matching historic characteristics.

C. Installation:

1. Inspect adjoining roof structure for soundness and correctness. Do not proceed until defects have been corrected.
2. Relay brick in the historic patterns determined by the historic recordings.
3. Lay brick in full bed, head and collar joints of mortar.
4. Wet bricks to ensure that units are nearly saturated but surface dry when laid.
5. Tool exposed mortar joints to match historic tooling. Rake back 1-inch, joints to receive flashing. Coordinate flashing position from historic recordings and the flashing contractor.

3.8 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon or bristle brushes and clean water, which is spray-applied at a low pressure.
- B. Use of metal scrapers or brushes is not permitted.
- C. Using acid or alkali cleaning agents is not permitted.

END OF SECTION

SECTION 06100

CARPENTRY

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of furnishing and installing rough and finish carpentry work.
- B. Work will consist of, but not limited to, the following:
 - 1. Replacement of siding clapboards and sheathing.
 - 2. Replacement of soffits, cornices, cornice returns, and rake boards.
 - 3. Replacement/repairs to windows and doors and window and doorframes and sills.
 - 4. Repairs to roof dormers.

1.2 RELATED WORK

- A. Section 08610 - Door and Window Rehabilitation.

1.3 QUALITY ASSURANCE: Identify lumber and plywood by official grade mark.

- A. Lumber: Grade stamp containing symbol of ALSC approved grading agency, rules under which graded, mill number or name, grade of lumber, species or species grouping, and condition of seasoning.
- B. Plywood: APA grade trademark, including type, grade, class, identification or span rating, and inspection and testing agency mark.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Store materials a minimum of 6 inches above ground in area protected from weather. Protect with waterproof covering allowing adequate air circulation. Do not store seasoned materials in wet or damp environments.

PART 2: PRODUCTS

2.1 LUMBER: PS-20-94

- A. Moisture Content: 19 percent maximum (dry) at time of manufacture for lumber 2 inches or less in thickness.
- B. Surfacing: 545, unless otherwise specified.

C. Dimensions: All dimensions are nominal unless noted.

D. Species:

1. Framing lumber: Southern Pine, No. 2 or better.
2. Finish and siding: Eastern White or Northern White Pine, C or Better, Cypress, Clear.

2.2 PLYWOOD: PS-1-96.

A. Temporary window and door covers: APA rated sheathing 40/20, exposure

1. Minimum panel thickness - 5/8".

B. Work Platforms: APA rated sheathing 40/20, exposure I. Minimum panel thickness - 3/4".

2.3 MISCELLANEOUS HARDWARE

A. Unless otherwise specified, use galvanized hardware for exterior use.

B. Provide nails, spikes, screws, bolts, nuts, washers, anchors, and similar items of proper size, and strength required to secure members rigidly in place. All hardware shall be hot dip galvanized.

PART 3: EXECUTION

3.1 CONDITION OF SURFACES

A. Verify that surfaces to receive carpentry materials are prepared to exact grade and dimensions.

3.2 GENERAL INSTALLATION

A. Install rough carpentry work in accordance with the BOCA National Building Code, 1993, unless otherwise shown or as specified.

B. Demolition: Obtain Contracting Officer's written approval of existing sheathing designated for removal prior to removal.

3.3 REPLACEMENT FRAMING AND SHEATHING: Should unsound or deteriorated roof framing or sheathing be found during the roof inspection, replace with equal material in size and strength.

3.4 SIDING, CORNICES, SOFFITS, RAKE BOARDS AND CORNICE RETURNS: Match existing in material, size and shape. Install with stainless steel finish nails.

3.5 DORMER SIDING AND TRIM: Match existing sizes, shape. Install in the historic manner of jointing. Install with stainless steel nails.

3.6 SNOWBOARDS: 5/4 x 6 inches, 545, Cypress stained. Refer to drawings and Section 07315 - Slate Shingles for installation.

END OF SECTION

SECTION 07315

SLATE SHINGLES

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of furnishing and installing standard, commercial grade slate of uniform sizes and thickness, and snowboards and snowboard brackets.

1.2 RELATED WORK

- A. Section 07600 - Flashing and sheet metal for metal flashing.

1.3 SUBMITTALS: As specified in Section 01300.

- A. Shop Drawings: Roof plan drawings and details of proposed slate installation and related work at the following locations: ridges, valleys, crickets, step flashing, counterflashing, aprons, eaves, roof penetrations, starter course, and other critical junctures of the work.
- B. Product Data: Submit manufacturer's detailed technical product data, installation instructions and recommendations, including necessary data to document that materials comply with requirements.
- C. Samples: Full-size units of slate shingles. Prepare samples from same material to be used for the work.
- D. Other Information:
 - 1. Methods of Protection: Establish a detailed plan for protecting working areas of the roof at times when the existing roofing is removed and before new slate roof is in place.
 - a. Include in plan a list of available protective materials to be used including tents, tarpaulins, plywood and battens.
 - b. Show how temporary roof protection will withstand high winds and wind driven rain.

1.4 QUALITY ASSURANCE

- A. Contractor Qualifications: Fabrication and installation shall be performed by firms experienced in slate roof construction.
- B. Installers Qualifications: Installer shall have successfully applied slate roofing on projects of comparable size, type, and complexity.
- C. Regulatory Requirements:

1. Standards: Comply with the following:

- a. "Architectural Sheet Metal Manual," Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), fourth edition, 1987.
- b. "Slate Roofs," National Slate Association, 1926 (reprinted 1978)

D. Job Mock-up:

1. Prior to installing slate shingles, erect a mockup pitched (to match actual) roof panel, with a 3/4-inch exterior grade plywood base. Workers who are scheduled to perform the actual shingling work shall shingle the constructed mock-up with the approved slate shingles. The mockup size shall be such that it demonstrates the following conditions. The mockup shall begin at an eave and rake to demonstrate the aesthetic effect. The top shall demonstrate the ridge condition, both faces. Construct an upper portion of a dormer roof intersection where it meets the main ridgeline to demonstrate the ridge interface and the valley flashing at a dormer on roof 1C. Simulate an actual worse case condition. Construct a lower portion of the dormer wall and sill to mock up the flashing and slate installation. Include underlayments and flashing in each condition that is shown. The mockup shall show the quality of materials and execution. Build mockup to comply with the following requirements, using materials indicated for final unit of Work.
 - a. Locate mock-up on site in location as directed by the Contracting Officer.
 - b. Notify Contracting Officer one week in advance of the dates and times when mock-up will be erected.
 - c. Demonstrate the proposed range of aesthetic effects, application of all materials/fasteners and workmanship.
 - d. Obtain Contracting Officer's acceptance of mock-up before start of final unit of work.
 - e. Retain and maintain mock-up during construction in undisturbed condition as a standard for judging completed unit of work.
 - 1) When directed, demolish and remove mock-up from project site.
2. Construction of mockup shall be performed as a part of the Quality Assurance requirement, Part I.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store slate in original bundles or containers. Store in secure dry spaces protected from the weather. Avoid contact with the ground or exposure to extreme temperatures.
- B. Deliver slate shingles to project site and store as close as possible to the point of

installation to minimize damage while handling.

- 1.6 PROJECT CONDITIONS: Only install roofing when the substrate is totally dry. Working over wet wood sheathing is prohibited. Discontinue operations if sheathing becomes wet. Wait until thoroughly dry before resuming work.

1.7 COORDINATION

- A. Substrate: Proceed with slate shingle roofing installation only after the substrate been inspected and approved for shingling by the Contracting Officer.
- B. Coordinate the work of all other trades related to the successful completion of the work of this section. Do not proceed with this work in areas that first require the work of other trades, until all such other work is complete.

1.8 CLOSEOUT SUBMITTALS: As specified in Section 01700.

- A. Extra Stock: Deliver extra materials to the Government. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents.
1. Slate Shingles: Furnish quantity of full-size units equal to 2 percent of each size of the amount installed for each size.
- B. Warranty: The Contractor shall warrant the installation of the slate roof and flashing to be watertight and free from leaks for a period of ten years from the date of Substantial Completion. Any defects shall be repaired during the warranty period at no additional expense to the Government.
1. Contractor shall furnish a written guarantee that the roofing materials used in the work are in strict accordance with the requirements of the Contract Documents and that any and all repairs due to defective materials or workmanship provided under this Contract shall be made without expense to the Government for a period of ten years.

PART 2: PRODUCTS

2.1 SHINGLES

- A. Slate Shingles: Bangor, Pennsylvania slate, Bangor gray, No. I, handsplit. Shingles shall be black, hard, dense, sound rock, machine-punched or drilled for two nails located for proper head lap. No broken or cracked slates, no broken exposed corners, and no broken corners on covered ends that could sacrifice nailing strength or the laying of a water-tight roof. No ribbons permitted in shingle, and curvature not to exceed 1/8-inch per 12 inches, lay with convex side up. No protuberances above split face of slate of more than 1/16-inch. Slate to be within 1/8-inch tolerance of given dimensions. No quartz veins or multiple thread lines permitted. No iron pyrite permitted in slate.
1. Classification: According to ASTM C406-89, Standard Specifications for Roofing

Slates, Grade S1: Expected service life over 50 years.

2. Thickness: 1/4-inch, Commercial Grade.
3. Sizes: 12 x 24 inches, 10 x 22 inches and 9 x 16 inches.
4. Texture: Standard.
5. Butt Shape: Standard square cut.
6. Weather Exposure Color Change: Unfading
7. Color: Bangor Gray
8. Exposure: Historic exposure varies on each roof surface. Field measurements shall be made after existing roofing has been removed to verify exact slate placement, pattern and exposure. Provide a layout plan to the Contracting Officer for approval.
9. Headlap: Headlap will vary, provide a minimum of 3".
10. Specialty sizes: Non-standard sizes in length, width and shape can be expected to conform to varying roof configurations.

2.2 FLASHING, SHEET METAL, AND ACCESSORIES

- A. Underlayment: EPDM, 0.045 inch thick sheet, 0.28 lb./sq.ft., in 10 foot wide by 50 foot long rolls.
- B. Mastic: Non-asbestos, fibrated, asphalt cement complying with ASTM D 4586-86, designed for trowel application. Silicone products cannot be substituted.
- C. Lead-Coated Copper Flashing: See Section 07600 for requirements for roof flashing and accessories.
- D. Underlayment Roofing Nails
- E. Slating Nails: 11-gauge, hard copper-wire slating nails with large head and long enough to penetrate either completely through or at least 3/4-inch into sheathing.
 1. Minimum nail length shall be two times the shingle thickness plus 1-inch.
- F. Solder: For use with lead coated copper, provide 60-40 tin/lead solder (ASTM B32-87), with rosin flux.
- G. Lead Wool and Wedges: ASTM B749-85, Type L51121, copper bearing sheet lead wedges, 1-inch long by 3/4-inch-wide taper to 1/4-inch-thick and shaved lead fiber wool.
- H. Lead oakum.

- I. Slip Sheet: Minimum 4 lb. rosin-sized building paper, FS UU-B-79A, Type I, Grade A, Style lb.
- 2.3 SHEET METAL FABRICATIONS: Comply with fabrication requirements set forth in Section 07600. Fabrications include crickets, step flashing, counterflashing, valley, ridge, eave and rake, gable end, and cornice end flashing.
- 2.4 SNOWBOARDS AND BRACKETS: As detailed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. It is the intent of the National Park Service to restore the slate roofing to its historical configuration and appearance. Therefore, an examination of the wood substrate will be performed to determine its adequacy to position the slate in historic configurations. Selected areas shall be exposed and temporarily recovered to verify final slate configuration, sizes, pattern, exposure and layout prior to the Contractor's final ordering. Provide the Contracting Officer a two-week lead-time of expected roofing removal to allow for historic research and recording of the substrate and flashing placements. After the substrate recording has been accomplished, the Contractor may proceed with the roof work.
- B. Examine substrate and conditions under which slate roof shingle work is to be performed; notify Contracting Officer in writing of unsatisfactory conditions. Do not proceed with slate shingle work until unsatisfactory conditions have been corrected.
 1. Roof Conditions: Inspect the conditions of each work area to determine that all nails, old flashing and damaged underlayment are properly removed. Inspect to determine that all debris from previous work has been cleaned from the roof sheathing. Ensure that all damaged sheathing has been adequately repaired or replaced. Verify that surfaces are clean and ready to receive new roofing material. Report unsatisfactory conditions to the Contracting Officer, indicating method to be used to remedy problems. As work progresses, verify that all underlayments, membranes and flashing are properly incorporated into the slating work.
 2. Verification: Before commencing work, verify shapes and dimensions of surfaces by field measuring.
 3. Slate: Inspect slates to be installed. All slates shall be hard, dense, sound rock, and machine punched for two nails each. No cracked slate shall be used. All corners shall be full; no broken corners on ends that are covered.
 4. Masonry and stucco interfaces: Prior to commencing installation of slates, inspect all masonry work to ensure that all required masonry work is completed and raggles are struck back 1 inch at the proper locations. Inspect stucco and flashing interfaces are complete and ready for slating. Do not start roofing until all adjoining work is completed and approved.
 5. Flashing: Verify that sheet metal to be incorporated with the slating work is of

specified weight and cut to dimensions and shapes as determined by field measurements.

- C. Cover all openings to prevent entrance of slate shingle trimmings and debris.

3.2 INSTALLATION

- A. Sheet Metal Flashing Installation: Install sheet metal flashing as indicated and in compliance with details and recommendations of the "NRCA Steep Roofing Manual" (1989).

1. Incorporate flashing into slate work as it progresses. See Section 07600. Flashing is to be provided at valleys, roof/wall intersections, roof hatches, chimneys, ridges, crickets, eaves and rakes.
2. Fabricate metal flashing as detailed on the drawings and approved shop drawings.

- B. Underlayment Installation: Install in one continuous piece across the roof plane beginning at the eave and over the eave and rake flashing. Do not adhere material with adhesive to the substrate. Anchor at the eave with the starter wood "kick". Attach by tack nailing at the top and bottom with nailing at 24 inches on center maximum. Continue applying additional sheets in a shingle fashion, lapping sheets 4 inches, to the ridge and lap the ridge 12 inches. At valleys, extend 12 inches onto the adjacent roof surface and anchor. No vertical seams shall occur. Provide temporary holddown weights as required if weather conditions could prevail that would lift or damage the underlayment. Holddowns shall not penetrate the underlayment.

- C. Slate Shingle Installation: Slate patterns will vary on each building and the roof planes are not even and thus require field adjustments.

1. Buildings 1A and 1B shall be laid in a modular pattern lapping one half the underlaying slate, with a minimum of 3 inch side lap. The exposure maximum for Building 1A is 10-1/2 inches maximum, and Building 1B 9-1/2 inches.
2. Buildings 1C and 1D shall be laid in a non-modular pattern with a minimum of 3-inch side lapping of the underlying slate. The exposure maximum is 6-1/2 inches. The roof planes of these buildings are trapezoidal and are interrupted with unequally placed dormers and roof hatches, and the west eave is curved. It is not intended that the coursing be equal. Rather, the rule for layout should be that the coursing shall be adjusted. Aesthetic appearance shall govern. The ridge coursing shall be of even and equal length. Special consideration shall be given to the intersections of the dormer ridges and the main ridge. Do not exceed the maximum exposure and minimum overlapping.
3. Prior to slating provide the Contracting Officer with a layout plan for approval. Indicate the methods to be employed to adjust the coursing, interfacing of ridges, dormers, and valleys and the final appearance to be expected.
4. Beginning at eaves, install slate roofing shingles according to recommendations of manufacturer and with details as drawn. Provide at least 4-inch-lap between

succeeding courses of slate shingles. Provide 2-inch projection of slate at eaves and 1-inch projection at rakes. Cut and fit slate neatly around roof projections through roof.

5. Nail slate shingles so nail heads just touch slate lightly. Do not drive nails home or draw slates downward.
6. Install slate at ridges and crickets in pattern as detailed. Lay ridge slates in plastic cement spread generously over unexposed surfaces of lower course of slate. Nail ridge slates in place through joints of underlying slate where possible. Cover heads of exposed nails with plastic cement.
7. Cut slate at valleys to form open valleys with a straight border.
8. Cutting Slate: Neatly cut slates where necessary to fit the diagonal slopes of cricket and valleys.
9. Insure that nailing of slate does not penetrate flashing.

3.3 ADJUST AND CLEAN

- A. Remove and replace damaged or broken slates.
- B. Remove excess slate and debris from site.
- C. Sweep roof clean of debris and clear gutters as specified.

END OF SECTION

SECTION 07600

FLASHING AND SHEET METAL

PART 1: GENERAL

1.1 DESCRIPTION

- A. The work of this section consists of furnishing and installing the following:
 - 1. Built-in lead coated copper, (LCC), flashing and crickets.
 - 2. Repair to existing gutters.
 - 3. Installation of gutter straps.
- B. Roofing accessories installed integral with roofing slates are specified in Section 07315 as roofing work.

1.2 RELATED WORK

- A. Section 04525 - Brick Masonry Restoration.
- B. Section 07315 - Slate Shingles.

1.3 SUBMITTALS: As specified in Section 01300.

- A. Shop Drawings: Show profiles, methods of joining, and anchorage details, including counterflashings, and crickets. Show methods of waterproof connection to masonry.
- B. Product Data: Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- C. Layout Drawings: Provide full layout drawings for roof penetrations, flashing and cricket assemblies.
- D. Field Samples: Demonstrate fabrication, installation and soldering of required work.

1.4 QUALITY ASSURANCE: Mechanics shall possess skill and experience of sufficient levels to qualify them as expert sheet metal mechanics. Mechanics shall be carefully supervised in such a manner as to insure weather-tight installation.

- A. References: All details, materials and workmanship not otherwise shown or specified shall be in conformance with the applicable provisions of the following literature:
 - 1. Revere Copper Products, Inc., Rome, NY, "Copper and Common Sense", 1982.
 - 2. Copper Development Association, Inc., Greenwich, CT, "Copper Brass Bronze Design Handbook - Sheet Copper Applications", 1979.
 - 3. "Architectural Sheet Metal Manual," Sheet Metal and Air Conditioning

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Contractors National Association, Inc. (SMACNA), fourth edition, 1987.

1.5 DELIVERY, STORAGE AND HANDLING: Deliver and store materials in original containers. Store in secure dry spaces protected from the weather. Avoid exposure to any deleterious conditions.

1.6 PROJECT CONDITIONS: Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

1.7 COORDINATION

- A. Substrate: Proceed with metal installation only after substrate construction, and other penetrating work is complete.
- B. Coordinate the work of all other trades related to the successful completion of the work of this section. Do not proceed with this work in areas that first require the work of other trades, until all such other work is complete.

1.8 CLOSEOUT SUBMITTALS: As specified in Section 01700.

- A. Warranty: The Contractor shall warrant the installation of the metal flashing and gutters to be watertight and free from leaks for a period of ten years from the date of Substantial Completion. Any defects shall be repaired during the warranty period at no additional cost to the Government.
 - 1. Contractor shall furnish a written guarantee that the materials used in the work are in strict accordance with the requirements of the Contract Documents and that any and all repairs due to defective materials or workmanship provided under this Contract shall be made without cost to the Government for a period of ten years.

PART 2: PRODUCTS

2. 1 SHEET METAL FLASHING AND TRIM MATERIALS

- A. Lead-Coated Copper: Lead-coated copper sheet complying with ASTM B 101-92, temper designation H00, consisting of cold-rolled copper sheet coated both sides with lead weighing not less than 12 lbs. nor more than 15 lbs. per 100 square feet (one-half of total weight of lead applied to each side), and as follows:
 - 1. 16 oz. Coated Sheet: Not less than 17.1 oz. per sq. ft. (nominal weight of bare copper sheet, 16 oz.), where indicated.
- B. Paper Slip Sheet: Minimum 4 pound rosin-sized building paper, FS UU-B790A, Type I, Grade A, Style lb.
- C. Solder: For use with lead-coated copper, provide 60-40 tin/lead solder (ASTM B32-87) with rosin flux.
- D. Fasteners:
 - 1. Nails: FS FF-N-105B. Material, copper, bronze, and brass, large, flathead, wire

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barbed or slating type, 0.109-inch minimum not less than 7/8" long.

2. Screws: Material, Stainless steel or brass, flathead countersunk wood screws, length as shown.
 3. Rivets: Copper with copper cores or stainless steel with stainless steel cores.
- E. Cleats: Continuous or 2" wide x 3" long, 16 ounce cold rolled lead coated copper as noted on the drawings.
- F. Gutter Straps: 16-Ounce Lead Coated Copper as detailed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate and conditions under which roof and flashing work is to be performed; notify Contracting Officer in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected.
1. Roof Conditions: Inspect the conditions of each work area to determine that all nails, old flashing and damaged underlayment are properly removed. Inspect to determine that all debris from previous work has been cleaned from the roof sheathing. Ensure that all damaged sheathing has been adequately repaired or replaced. Verify that surfaces are clean and ready to receive new material. Report unsatisfactory conditions to the Contracting Officer, indicating method to be used to remedy problems. As work progresses, verify that all underlayments, membranes and flashing are properly incorporated into the work.
 2. Verification: Before commencing work, verify shapes and dimensions of surfaces by field measuring.
 3. Flashing: Verify that sheet metal to be incorporated with the roofing work is of compatible materials, specified weight and cut to dimensions and shapes as determined by field measurements.
- B. Cover or otherwise plug gutter drains to prevent entrance of trimmings and debris.

3.2 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with SMACNA "Architectural Sheet Metal Manual" (1987). Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Underlayment: Where lead-coated copper is to be installed directly over wood or underlayment substrates and/or soldered, install two slip sheets of red rosin paper.
- C. Gutters: Repair existing gutters to straighten pieces to original profiles, and realign to correct position. Rivet and solder all broken or loose joints to a leak proof condition.

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Attach gutter straps with rivets and solder prior to attachment to the roof substrate.

- D. Field Soldering: Comply with recommendations of the AWS publication "Soldering Manual" (1978) for all field soldering. Pre-tin surfaces to be soldered.
- E. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, waves and avoidable tool marks. Provide uniform, neat seams with a minimum exposure of solder. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.
- F. Prep only work that can be soldered within 24 hours. Any work that cannot be soldered within this time frame must be reprimed. Protect from weather prepped work.
- G. Gutter Field-Test: Demonstrate with water hose applications that all gutters are pitched properly to drain to downspouts and that all downspouts are not clogged with debris. This demonstration to be performed prior to installation of slate. Repeat test after completion of all roof work and final cleaning has been completed.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Do not use acids or acidic agents near or on sheet metal work. Clean with mild detergent and clean water.
- C. Protection: Establish procedures for surveillance and protection of flashing and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF SECTION

SECTION 08610

DOOR AND WINDOW REHABILITATION

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of rehabilitating existing doors and wood windows and replacement windows after removal of existing lead based paint.

1.2 RELATED WORK

A. Section 09900 - Painting.

1.3 SUBMITTALS: As specified in Section 01300.

A. Field Sample of Wood Window Rehabilitation: Rehabilitate one existing frame and sash using materials and methods specified in this Section. Approved field sample shall serve as the quality standard for all windows to be rehabilitated.

B. Submit methodology and description of temporary window and door closures.

1.2 STORAGE AND HANDLING: Keep all materials and fabricated items dry and protected from damage, soiling and deterioration.

1.3 JOB CONDITIONS

A. Field Measurements: The Contractor shall be responsible for field measuring to determine the correct sizes.

B. The Contractor shall be responsible for providing temporary protection in openings where window sash and doors are removed during construction for rehabilitation.

C. Coordinate work with Section 09900, Painting.

PART 2: PRODUCTS

2.1 RESTORATION PRODUCTS

A. Wood Filler: Benwood Paste Wood Filler (238) by Benjamin Moore Paints, 1000 Walsh Ave., Santa Clara, CA 95050, (408) 727-3565, or approved equal.

B. Adhesives for Window Frame and Sash Repair: Non-staining waterproof glue by 3M Company, St. Paul, MN, 800-480-1704; PPG, Pittsburgh, PA, 412/434-2858; or approved equal.

2.2 GLAZING: Existing windows scheduled for rehabilitation shall be field glazed.

2.3 WINDOW SASH: Where replacement of window sash is called for, replace sash with units of equal material, size, profile and design.

2.4 GLASS: DSB, Double strength, B Quality.

2.5 WOOD SPECIES: Eastern White Pine, B or better.

PART 3:EXECUTION

3.1 INSPECTION: After paint removal, Section 09900 Painting, inspect doors, door frames, windows and window frames for deterioration and provide a list of required repairs for approval by the contracting officer.

3.2 FIELD CONDITIONS: Take all necessary field measurements and verify all conditions prior to ordering the fabrication of material. Provide and maintain protection for windows and doors on site and in situ.

3.3 GENERAL RESTORATION SEQUENCE

- A. Inspect units and frames and determine deficiencies.
- B. Remove all dirt and debris and all extraneous nails, staples, bolts, hooks, etc. from sash.
- C. Remove paint, See Section 09900 for lead base paint removal.
- D. Proceed with required rehabilitation work.
- E. Lightly sand prior to repainting.
- F. Tag units for reinstall in original location.
- G. Make final adjustments and assure that sash operates properly.
- H. Protect all openings with temporary protection when windows and doors are removed.

3.4 WOOD WINDOW RESTORATION, PERFORMANCE REQUIREMENTS

- A. Replace all missing or otherwise deteriorated window components to match original materials and profiles.
- B. Patch holes, indentations, gouges, etc., with wood filler. Replace with wood dutchman for sill and jamb components.

3.5 SASH RESTORATION

- A. Inspect all sash components for condition. If repairs other than filler are required, carefully remove glazing glass from sash, disassemble sash and remove deteriorated components and replace with replicated components.
- B. Replace all muttons, rails, and stiles that are missing or deteriorated.
- C. Dutchman Repairs:

1. Where practicable, repair deteriorated, split, or missing wood with Dutchman repairs following procedure described in this section.
 2. For Dutchman repairs of sills, stiles and rails, join dutchman to existing wood using interlocking diagonal scarf joints and/or interlocking joints (such as open mortise and tenon joints) to increase the bonding surface of the joint and the structural strength of the completed assembly.
- D. Tighten loose and open joints in sashes by disassembling sash, and reassembling using waterproof glue and replacement hardwood pins. Clamp sash until glue sets.
 - E. Fill all miscellaneous holes, cracks, and gouges in sash with wood filler.
 - F. Sand to smooth surface.
 - G. Prime paint all bare wood surfaces and edges of sashes with one coat of primer.
 - H. Reinstall existing sound glass, if removed, and install new glass to replace cracked or missing glass.
 - I. Install rehabilitated or new hardware.
 - J. Finish paint as indicated in Section 09900.
 - K. Reinstall level and plumb, without warp or rack of sash. Properly support, anchor, or secure window components.
 - L. Adjust all operating sash and hardware to provide smooth operation. Lubricate hardware and moving parts.
 - M. All windows shall be in excellent operating condition at the conclusion of the work. Demonstrate to the Contacting Officer operation and rehabilitation of all repaired windows and doors for approval.

3.6 DOOR AND DOOR FRAME RESTORATION

- A. Follow similar procedures in these restorations as window units. Treat door transoms as windows.
- B. Where indicated remove deteriorated door wills and replace in whole with matching sills.
- C. Reinstall doors level and plumb, adjust hardware and locks.

- 3.7 CLEANING: After rehabilitation of windows, clean all surfaces including both sides of glass, remove all paint drips from glass, etc., inside and out.

END OF SECTION

SECTION 09220

STUCCO

PART 1: GENERAL

1.1 DESCRIPTION

A. The work of this section consists of the following:

1. Cleaning of existing stucco at specified areas, inspection for deterioration.
2. Removal of deteriorated and designated stucco.
3. Preparation of surface.
4. Application of stucco.

1.2 RELATED WORK

A. Related Sections: The following section contains requirements that relate to this section:

1. Section 07600 - Flashing and sheetmetal for flashing related to stuccowork.

1.3 SUBMITTALS: As specified in Section 01300 - Submittals.

A. Product Data: Manufacturer's product specifications and installation instructions for each product, including data showing compliance with the requirements specified.

B. Samples: Samples of stucco ingredients to be provided as determined from testing of existing stucco together with made-up sample 12-inch-square samples using mix determined from tests.

C. Certification/Test Reports:

1. Certifications: Submit producer's certificate for each kind of stucco aggregate indicated evidencing that materials comply with requirements.
2. Material Test Reports: Independent inspection agency and a qualified testing laboratory employed and paid by Contractor indicating and interpreting test results relative to compliance of the following proposed stucco materials with requirements indicated:
 - a. Preconstruction sample tests of existing stuccos at locations designated by the Contracting Officer to be used for matching stuccos.

1.4 QUALITY ASSURANCE

A. Applicator/Installer Qualifications:

1. Restoration Specialist: For stucco rebuilding and restoration, engage an experienced stucco restoration firm that has specialized in the type of work required for this project.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver cementitious materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.
- B. Store materials inside, under cover, and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

1.6 PROJECT CONDITIONS

- A. Protect contiguous work from moisture deterioration and soiling that might result from stuccoing operations. Provide temporary covering and whatever other provisions may be necessary to minimize harmful spattering of stucco on other work.
 - B. Warm Weather Requirements: Protect stucco against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure stucco as required by climatic and job conditions to prevent dryout during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- 1.7 COORDINATION: Coordinate stucco work with other trades. Stucco work is to be completed and approved prior to commencing slate roofing installation.

PART 2: PRODUCTS

2.1 STUCCO MATERIALS

- A. Stucco materials are to be determined by field testing of existing stucco. In the event the following materials are found to be present in the existing mortars, the following is the minimum criteria for the materials.
 1. Base Coat Cements: Type as indicated below:
 - a. Portland cement, ASTM C150-89, type as follows: Type I or III.
 2. Finish Coat Cement: Material and color as indicated below:
 - a. Portland cement, ASTM C150-89, type as follows: Type I.
 3. Cement Color: White or gray as determined by tests.

4. Lime: Special hydrated lime for finishing purposes, ASTM C206-84, Type S, or special hydrated lime for masonry purposes, ASTM C207-79, Type S.
 5. Sand Aggregate for Base Coats: ASTM C897-88.
 6. Aggregate for Finish Coats: ASTM C897-88 and as indicated below:
 - a. Colored Aggregate: Natural sand selected to produce mortar color indicated.
 - b. Match size, texture, and gradation of existing stucco as closely as possible.
 - B. Water for Mixing and Finishing Plaster: Drinkable and free of substances capable of affecting stucco set or of damaging stucco.
- ## 2.2 MISCELLANEOUS MATERIALS
- A. Bonding Agent: Weld-Crete, ASTM C932-80 (1985), Manufactured by Larsen Products Corporation, Jessup, MD, 20794.
- ## 2.3 STUCCO MIXES AND COMPOSITIONS
- A. Material for Stucco Rebuilding: Match existing stucco as determined from field tests of existing stuccos for mix, color, ingredients, strength and composition. Contractor is to achieve match without the use of color additives, dyes, stains or other foreign ingredients not found in test samples.
 - B. General: Comply with ASTM C926-86 for base and finish coat mixes as applicable to stucco bases, materials, and other requirements indicated.
 - C. Base Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and stucco base indicated. Adjust mix proportions below within limits specified to attain workability.
 1. Scratch Coat: 1 part Portland cement, 1 part lime, 4 parts sand.
 2. Brown Coat: 1- 1/2 part Portland cement, 1 part lime, 5 parts sand.
 - D. Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to match preconstruction test results and match adjacent existing stucco in color, texture and scoring pattern.
- ## 2.4 MIXING: Mechanically mix cementitious and aggregate materials for stuccos to comply with applicable referenced application standard and with recommendations of stucco manufacturer.

PART 3 - EXECUTION

3.1 STUCCO CLEANING

- A. Clean all existing stucco.
 - 1. Scrub surfaces to remove dirt, soot, dust, mold and stains.
 - 2. Use a mild detergent solution and a soft bristle scrub brush to scrub all walls. Rinse with clear water.
 - 3. Protect adjacent roof and wall materials and landscaping materials from damage during scrubbing.
- B. Remove all loose material and vegetation, spalled stucco, insect nests, non-historic attachments and other foreign substances.
 - 1. Use scrapers or brush to remove all vegetation on all stucco walls.
 - 2. Brush or scrap off all other foreign materials down to sound stucco. Do not damage stucco finish.
 - 3. Do not gouge walls while scraping. Keep scraper blade flat and almost normal to the surface.

3.2 PREPARATION FOR STUCCO REMOVAL AND STUCCO REPAIRS

- A. After cleaning all existing stucco walls, mark walls and stucco areas where stucco is to be removed with non-staining water soluble chalk as determined by tapping or sounding walls to determine if stucco is bonded to substrate.
- B. If stucco is sound, examine surface for defects such as cracks, gouges, spalls, loose or other surface damage that is damaged, mark areas affected.
- C. Obtain Contracting Officer's approval for areas marked to be repaired before commencing demolition work.
- D. Use chisels or other cutting tools to clean and shape edges of surface defects to a minimum 1/16-inch depth. Widen holes and cracks to permit adequate patching stucco penetration to sufficiently bond. Scrape off loose or spalling stucco to sound stucco substrate. Shape edges of gouges and dents to receive patching stucco of sufficient thickness (minimum 1/16-inch-deep) without feathering.
- E. Remove stucco from brick chimney surfaces indicated to receive new stucco.

3.3 STUCCO APPLICATION

- A. Prepare existing stucco surfaces for bonded base coats and use bonding compound.
- B. Sequence stucco application with the installation and protection of other work so that neither will be damaged by the installation of the other.

- C. Stucco flush with existing surfaces.
- D. Apply thickness and number of coats of stucco as required by the depth of the defect to the surface.
- E. Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.
- F. Do not use excessive water in the mixing and application of stucco materials.
- G. Tolerances: Do not deviate more than 1/8-inch in 10 feet 0 inches from a true plane in finished stucco surfaces, as measured by a 10 feet 0 inches straightedge placed at any location on surface.
- H. Number of Coats: Unless test results indicate otherwise, apply stucco, of composition indicated, to comply with the following requirements:
 - 1. Use three-coat work over the following stucco bases:
 - a. Brick masonry.
- I. Finish Coats: Apply finish coats to comply with the following requirements:
 - 1. Float Finish: Apply finish coat to a minimum thickness of 1/8-inch to completely cover base coat, uniformly floated to a true even plane with a fine-textured finish matching adjacent existing stucco finish.
- J. Moist-cure stucco base and finish coats to comply with ASTM C926-86.
- K. Score fresh stucco with lines to match or approximate existing scoring lines. Tool to patterns and shapes indicated or to match adjacent scoring lines.

3.4 CUTTING AND PATCHING: Cut, patch, repair, and point-up stucco as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish stucco surfaces around items that are built into or penetrate stucco surfaces. Repair or replace the work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar imperfections. Repair or replace the work as necessary to comply with required visual effects.

3.5 ADJUSTING AND CLEANING

- A. When stuccoing work is completed, remove unused materials, containers, equipment, and stucco debris.
- B. Remove temporary covering and whatever other provisions were made to minimize spattering of stucco on other work. Promptly remove stucco from doorframes, windows, and other surfaces that are not to be stuccoed. Repair surfaces that have been stained, marred or otherwise damaged during the stuccoing work.

3.6 PROTECTION: Provide final protection and maintain conditions in a manner suitable

to Installer that ensures stucco work's being without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 09900

PAINTING

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of preparation work, furnishing and installing the following:

- A. Surface preparation, including removal of lead based paint coats, painting, and finishing of exterior items and surfaces. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming.
- B. Paint all exterior surfaces of gutter sections, and gutter straps. Remove lead-based paint from wood fascia, soffits, siding, windows and window frames, dormers and doors and doorframes.
- C. All paint surfaces are lead-based paint.
- D. Glazing and reglazing windows and door transoms.

1.2 SUBMITTALS: As specified in Section 01300.

A. Product Data:

- 1. Product data for each paint system specified.
 - a. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.
 - b. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.

2. Material safety data sheets for all paint products.

- B. Samples: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
- C. Submit documentation that demonstrates the qualifications and experience of the firm to perform the lead-based paint (LBP) abatement. Provide evidence of the qualifications and training of the personnel to perform and oversee the LBP abatement work on this project. This shall include a statement that workers and supervisor have successfully completed LBP training from an EPA accredited school or State of West Virginia program. Also, the Contractor's Personal Protective

Equipment (PPE) Program including its Respiratory Protection Program shall be submitted. Minimum qualifications are as specified in 29 CFR 1926.62 and, where applicable, State regulations. See this specification for minimum respiratory protective equipment requirements under this contract.

1.3 QUALITY ASSURANCE

A. Applicator/Installer Qualifications:

1. Engage an experienced applicator who has completed painting system removal and applications similar in material and extent to those indicated for the project that have resulted in a construction record of successful in-service performance.
2. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

B. Regulatory Requirements: Comply with personnel safety requirements as established by the United States Environmental Protection Agency and those established by the State of West Virginia.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type)
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F (7 degrees C). Maintain containers used in storage in a clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing,

and application.

1.5 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C)
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C)
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 degrees F (3 degrees C) above the dew point; or to damp or wet surfaces. Painting may not continue during inclement weather.
- D. Protect and avoid damage to existing historic building surfaces.

1.6 COORDINATION: Coordinate the work so that all other finish work is complete prior to installing the final finish coats of paint.

1.7 HAZARDOUS MATERIALS: All existing painted surfaces on the buildings in this project should be assumed to consist of lead-based material. The work of this section includes the disturbance and removal of these lead-based paint finishes. The Contractor shall comply with the requirements of all Federal, state and local regulations in the handling and disposal of these hazardous waste materials. Encapsulation of lead-based paint shall be utilized to the greatest degree possible.

PART 2: PRODUCTS

2.1 MANUFACTURERS: Subject to compliance with Park painting system requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

- A. Pittsburgh Paints, PPG, One PPG Place, Pittsburgh, PA 15272
- B. Fiberlock Technologies, Inc., 630 Putnam Avenue, PO Box 390432, Cambridge, MA 02139-0802
- C. AMTECO: P.O. Box 9, Pacific, MO 63069, (314) 271-1300.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based

on testing and field experience.

- B. Material Quality: Paint material containers not displaying manufacturer's product identification will not be acceptable. The use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of approved equal products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide custom colors, as required, of the finished paint systems to match existing colors.
- D. Anti-mildew Additive: Provide in all paints.
- E. Lead Paint remover: Fiberlock Piranha III
- F. Lead Paint remover neutralizer: Fiberlock P-III Neutralizer
- G. Wood surfaces:
 - 1. Primer - One coat, Pittsburgh Seal Grip 17-21, Exterior Acrylic Latex, 100% vinyl.
 - 2. Finish. Two Coats, Pittsburgh Sun-proof 76-110 Series, Exterior Acrylic Satin, 100%, vinyl.
- H. Metal surfaces:
 - 1. Primer - One coat, Pittsburgh Speedhide exterior acrylic latex flat house paint.
 - 2. Finish - Two coats, Same as prime coat.
- I. Glass: DS-B, Double strength, B quality.
- J. Snowboard Painting: AMTECO, TWP heavy-duty sealant No. 210, slate gray stain.

PART 3: EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
 - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
 - 2. Start of painting will be construed as the applicator's acceptance of surfaces and

conditions within a particular area.

- B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers. Notify the Contracting Officer about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Prepare an operations plan for the approval of the Contracting Officer, which defines methods of paint removal, building and grounds protection, and compliance with regulatory requirements.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of new coatings. Remove all lead based paint layers down to bare wood. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition.
- D. Lead based paint removal:
 - 1. Cover glass and adjacent building surfaces and ground and plant materials to avoid contact with material. Collect runoff to avoid contact with the building, grounds, adjacent buildings, vehicles and people. Remove paint in strict accordance with the manufacturer's specification and in compliance with State of West Virginia and Federal regulations. Meet Federal regulation 29 CFR 1926.62 and 40 CFR 260. Use trained and certified employees. Dispose of waste and products as per NEPA and OSHA regulations.
 - 2. Remove window sash and doors for paint removal and provide temporary plywood covers. Remove paint from door and window frames.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's directions. Apply paint with brushes only.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 1. Paint colors shall match existing colors.
 - 2. Apply additional finish coats if undercoats show through final coat of paint until

paint film is of uniform finish, color, and appearance.

C. Scheduling Painting:

1. Apply first coat to surfaces that have been cleaned, neutralized, and otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

D. Application Procedures: Apply paints and coatings by brush only according to the manufacturer's directions, using brushes best suited for the material applied.

E. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

F. Window and door painting: Repaint windows, doors and frames before reinstalling units.

G. Glazing: Remove broken glass prior to prime painting. Reglaze after prime painting. Putty glazing as per paint manufacturer's recommendation.

H. Snowboard Painting: Brush applied only in accordance with manufacturer's instructions prior to placement. Repaint cut ends.

3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
- B. Clean painted surfaces just prior to Substantial Completion using cleaning products recommended by the paint manufacturer.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to the Contracting Officer.

END OF SECTION

