SECTION 04 01 00 - MAINTENANCE OF MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes spot cleaning (water and/or chemical); replacement/repair of stone units; repointing mortar joints; parapet rebuilding; and repair of damaged masonry. For repointing, resetting, relaying of historic masonry as shown on the Drawings and as specified in the construction documents and Preservation Briefs 1, 2 revised, and 6, U.S. Department of the Interior, National Park Service, Technical Preservation Services.

1.2 REFERENCES

A. American Concrete Institute:
   1. ACI 530 - Building Code Requirements for Masonry Structures.
   2. ACI 530.1 - Specifications for Masonry Structures.

B. Preservation Briefs:
   1. No. 1 - The Cleaning and Waterproof Coating of Historic Buildings, Robert C. Mack, U.S. Department of the Interior, National Park Service, Preservation Assistance Division, Technical Preservation Services.
   2. No. 2 – Repointing Mortar Joints in Historic Brick Buildings, Robert C. Mack, John P. Speweik, U.S. Department of the Interior, National Park Service, Preservation Assistance Division, Technical Preservation Services.
   3. No. 6 – Dangers of Abrasive Cleaning to Historic Buildings, Anne E. Grimmer, U.S. Department of the Interior, National Park Service, Preservation Assistance Division, Technical Preservation Services.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate special supports for the work. Detail shoring, bracing, scaffolding, and temporary or permanent support. Contractor to supply all scaffolding drawings for permit.

C. Submit the following items in time to prevent delay of work and to allow adequate time for review of submittals, if needed. Do not order materials or start the execution of the work before receiving the written approval:
   1. Written certificates from mortar manufacturer should be submitted stating that all installers of the repointing mortars have successfully completed the training workshop for the installation of the mortar, or have met alternative workmanship qualifications acceptable to the manufacture, or provide written

certification from the manufacture that site training services have been contracted. In lieu of training, documented experience executing successful lime mortar installations may be acceptable. Two day Lime Mortar Workshops are offered by U.S. Heritage Group, Inc., at 3516 North Kostner Ave., Chicago, IL 60641 Phone: 773-286-2100; Fax 773-286-1852. Course schedule is available at www.usheritage.com, advance registration is required.

2. Samples of all specified materials and Material Safety Data Sheets (MSDS) as appropriate.
3. Certificates, except where the material is labeled with such certification by the producers of the materials, that all materials supplied comply with all the requirements of these specifications and the appropriate standards.
4. Color–match repointing mortar samples to existing mortar or specified alternative.
5. Written verification that all specified items will be used. Provide purchase orders, shipping tickets, receipts, etc. to prove that the specified materials were ordered and received.
6. Restoration Program: Submit written program for each phase of restoration process including protection of surrounding material on building and site during operations. Describe in detail material, methods and equipment to be used for each phase of restoration work. (Contractors proposal/bid can serve this purpose.)

D. Product Data: Submit data on cleaning compounds, cleaning solutions, and manufacturer's printed literature for each product.

E. Samples: Submit four unit samples of masonry units to illustrate color, texture, and extremes of color range to match existing where replacements are necessary.

F. Manufacturer's Installation Instructions: Submit installation procedures for products selected for use, manufacturer's installation instructions, perimeter conditions requiring special attention, and test data indicating compliance with requirements, and installation instructions.

1.4 SUBSTITUTIONS

A. If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide written description, and program of testing to demonstrate effectiveness for use on this project. Provide documentation showing compliance with the requirements for substitutions and the following information: Coordination information, including a list of changes needed to other work that will be necessary to accommodate the substitution.

B. A comparison of the substitution with the specified products and methods, including performance, weight, size, durability, and visual effect.

C. Certification that the substitution conforms to the contract documents and is appropriate for the applications indicated. Material substitution requests must be accompanied by independent laboratory test reports from a lab designated by the architect to establish equivalent performance levels and specification compliance. The submitting party shall pay for testing.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1 requirements.

B. All repointing must be performed by a craftsperson that is familiar with historic lime mortar formulations, curing conditions and performance characteristics. Contractor shall provide proof of such knowledge to the Architect by submitting a certificate from a U.S. Heritage Group Lime Mortar Workshop, similar workshop course, or sufficient proven project experience. Work must be performed by a firm having not less than 5 years successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration process and operations indicated.

C. Only skilled journeymen masons who are familiar and experienced with the materials and methods specified and are familiar with the design requirements shall be used for masonry restoration. One skilled journeyman mason, trained and Certified by the specified manufacturer, shall be present at all times during masonry restoration and shall personally direct the work.

D. Source of Materials: Obtain materials for stone repair and mortar repointing from a single manufacturer source to ensure match quality, color, texture, and detailing.

E. Test Panels: Before full-scale application, test products to be used on panel mock-ups on the actual building to be approved by the Architect.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum five years documented experience.

1.7 MOCKUP

A. Section 01 40 00 - Quality Requirements: Mockup requirements.

B. Field Construction Mock-ups: Prior to start of general masonry restoration, prepare the following sample panels and sample areas on building where directed by Architect. Obtain Architect's acceptance of visual qualities before proceeding with the work.

C. Mortar Repointing: Prepare 2 separate sample areas of approximately 3-feet high by 3-feet wide for each type of repointing required, one for demonstrating methods and quality of workmanship expected in removal of mortar from joints and the other for demonstrating quality of materials and workmanship expected in pointing mortar joints. Prepare, install and finish each sample according to specifications. Sample must be applied to the actual masonry. Samples should cure a minimum of 14 days prior to Architect approval.

D. Stone Patching With Stone Repair Mortar: Prepare separate sample area of a masonry unit for each type of stone patch repair required (ornamental and face stone). Prepare, install and finish each sample according to specifications. Sample must be applied to the actual masonry. Samples should cure a minimum of 14 days prior to Architect approval.

E. Cleaning: Areas slated for cleaning are small. Prepare 3 separate spot cleaning sample areas for each type required to determine the extent of cleaning, cleaning methods, dwell time, and cleaning products. One test sample MUST consist of a hot water wash at low psi using a flat 25-50 degree wide spray stainless steel tip. Record and note all dwell times, surface and air temperatures at the time of testing each possible solution. Architect to be present during mockup execution. Note cleaning detergent or chemical mix, psi, nozzle orifice distance from wall face, dwell times, and any other specific cleaning procedures.

F. Repeat, using different cleaning methods up to three locations, until acceptable without causing surface damamge.

G. Locate where directed by Architect.

H. Acceptable panel illustrating results of restoration and cleaning will become standard for work of this section. Retain acceptable panels in undisturbed condition, suitably marked, during restoration as a standard for judging completed work.

1.8 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Deliver masonry, stone, and all other materials neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

C. Store all mortar ingredients in manufacturer's packaging, or when delivered loose, with adequate weatherproof covering.

D. Deliver materials to site in manufacturer's original unopened containers and packaging, bearing labels as to type and names of products and manufacturers.

E. Deliver and store restoration material in manufacturer's original, unopened containers with the grade, batch and production data shown on the container or packaging.

F. Protect restoration materials during storage and construction from wetting by rain, snow or ground water, and from staining or intermixture with earth or other types of materials.

G. Protect mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

H. Comply with the manufacturers written specifications and recommendations for mixing, application, and curing of repointing mortars and patching materials.

I. Deliver products in time to avoid construction delays.

J. Deliver and store products in manufacturer's original packaging with identification labels intact.

K. Store products protected from weather and at temperature and humidity conditions recommended by manufacturer.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F (4 degrees C) will remain so for at least 48 hours after completion of work.

C. Do not use frozen materials or materials mixed or coated with ice or frost. Do not lower the freezing point of mortar by the use of admixtures or anti-freeze agents, and do not use chlorides in the mortar.

D. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F (38 degrees C) or surface and ambient air temperature is greater than 90 degrees F (32 degrees C) with wind velocity greater than 8 mph (13 km/h). Phase repointing during hot weather by completing process on

the shady side of the building or schedule installation of materials during cooler evening hours to prevent premature evaporation of moisture the mortar.

E. Do not apply products under conditions outside manufacturer's requirements, which include:
1. Surfaces that are frozen; allow complete thawing prior to installation.
2. When surface or air temperature is not expected to remain above 40 degrees F for at least 8 hours after application.
3. Wind conditions that may blow materials onto surfaces not intended to be treated.
4. Less than 24 hours after a rain.
5. When rain is expected less than 6 hours after installation.

1.11 SEQUENCING

A. Section 01 10 00 - Summary: Work sequence.

B. Perform repointing after cleaning masonry surfaces.

1.12 OTHER PROJECT CONDITIONS

A. Protect persons, motor vehicles, building site and surrounding buildings from injury resulting from masonry restoration work. This includes surface areas on adjacent wall surfaces or roofs not included in this scope of work.

B. Prevent repointing mortar from staining the face of masonry or other surfaces to be left exposed. Immediately remove all repointing mortar that comes in contact with such surfaces.

C. Cover partially completed work when work is not in progress.

D. Protect sills, ledges and projections from droppings.

E. Damage occurring to the building as a result of work of this section of Contractor's failure to protect against such damage shall be the Contractor's responsibility. The contractor shall restore damaged areas to the complete satisfaction of the Architect at no expense to the Owner.

1.13 WARRANTY

A. See Section 01780 - Closeout Submittals, for additional warranty requirements.

B. Provide manufacturer's standard warranty for not less than one year, commencing on Date of Substantial Completion.

US Heritage Group
3516 N. Kostner Ave., Chicago, IL 60641
v. 773-286-2100 f. 773-286-1852
info@usheritage.com or visit www.usheritage.com

1.14 SCHEDULING

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Perform cleaning, washing, stripping, repointing, etc. to exterior masonry and stone between hours of 7 AM to 9 PM.

PART 2 PRODUCTS

2.1 REPOINTING MORTAR MATERIALS

A. Repointing mortar shall be prepared and placed in accordance with the Department of the Interior National Park Service Cultural Resources Preservation Briefs 2, "Repointing Mortar Joints in Historic Masonry Buildings", Revised edition October 1998, and in compliance with the guidelines set forth by the Secretary of the Interior's Standards for Rehabilitation.

B. The repointing mortar shall match the original in color, grain size, and texture. The compressive strength of the repointing mortar shall be equal or less than the compressive strength of the original mortar and surrounding brick or stone. The replacement mortar shall contain approximately the same ingredient proportions of the original mortar.

C. All replacement mortar ingredients and mortar formulations will be established from test data gathered from the original materials sampled from site. **Test sampling analysis to be completed by USHG, see lab report provided by Architect.**

D. Mortar Testing Contact: U.S. Heritage Group, Inc., 3516 North Kostner Ave. Chicago, IL 60641 Phone: 773-286-2100 Fax: 773-286-1852. Email: info@usheritage.com; www.usheritage.com.

E. The testing laboratory shall supply a ready mixed mortar sample sufficient in size for a mock up sample at the site.

F. Mixing of individual mortar ingredients at the construction site will not be permitted.

G. Repointing mortars shall be pre blended in single containers in a factory-controlled environment. All ingredients will be converted from volume measurements to weight measurements to ensure quality production of the mortar.

H. All containers shall be marked including manufacturing date and batch number. Manufacture is required to maintain production-sampling procedures for each batch for quality control purposes. Manufacturer to provide samples of proposed materials for mock up panels at the site. All pre blended products are to meet applicable ASTM standards and project specification requirements.

I. Mortar Materials Contact: U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641 Phone: 773-286-2100 Fax: 773-286-1852. Email: info@usheritage.com; www.usheritage.com. Mortar supplied from other suppliers is acceptable provided that these sources meet the standards outlined in this document, match the historic mortar formulation and aesthetics, and meet or exceed the quality standards of USHG mortars.

2.2 MASONRY RESTORATION AND CLEANING

A. Masonry Cleaners shall be in accordance with the Department of the Interior National Park Service Cultural Resources Preservation Brief 1, "The Cleaning and Waterproof Coating of Masonry Buildings", and Preservation Brief 6 "Dangers of Abrasive Cleaning to Historic Buildings", and in compliance with the guidelines set forth by the Secretary of the Interior's Standards for Rehabilitation.

B. **Cleaning baseline procedure:** Hot water wash at low psi. If hot water wash proves to be insufficient, see item "J" for acceptable manufacturers of alternate cleaning products. Pressure to be measured at the gun or as closely to it as possible. 200-300 psi may be satisfactory; 400-800 psi (field test psi ranges) are more typical. A bristle brush may be used to supplement the water wash as long as it does not remove or damage the limestone surface. Nozzle size and configuration: Stainless steel flat tip with 25-50 degree wide spray. Distance from nozzle orifice and the surface being cleaned shall be evaluated and tested during the mock-up phase.

C. **Algae growth:** Treat areas of algae/moss growth with an anti-fungal agent prior to masonry cleaning.

D. **Sample cleaning area:** An initial test-cleaning sample with hot water at low psi is requested to evaluate this methods effectiveness and establish a baseline for cleaning techniques. Work with architect to determine locations of cleaning test panels (1'x1').

E. All cleaning techniques should use the gentlest means possible to avoid etching, staining, bleaching, or masonry damage.

F. The goal of the masonry cleaning is not to remove 100% of surface soiling but to generally enhance the stone by removing sufficient particulate caused by pollution. Architect will establish parameters on-site for acceptable levels of cleaning.

G. **Heavily soiled areas** (likely carbon and sulfates): The undersides of limestone sills, ornament, belt courses, etc., may require alternate cleaning methods or additional applications of cleaner to achieve successful results.
   1. Diedrich Chemicals Restoration Technology, Model 808 Black Incrustation Remover (for spot treatment of carbon encrusted black streaks).
   2. Substitutions: Approved equal or better.

H. **Dwell times:** For all cleaning methods, testing and implementation, dwell times shall be closely watched and adhered to in an effort to avoid damaging the masonry (etching the surface).

I. Properly protect all adjacent wall surfaces, roofs, clock faces, windows, doors, glass, adjacent plant material, etc., from overspray.

J. Manufacturers:
1. Mortar Materials Contact: U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641 Phone: 773-286-2100 Fax: 773-286-1852. Email: info@usheritage.com; www.usheritage.com
2. Cleaning Materials:
   a. PROSOCO, Inc., 3741 Greenway Circle, Lawrence, KS 66046. ASD. Tel: (800) 255-4255 or (785) 865-4200. Fax: (785) 830-9797. Email: marketing@prosoco.com; www.prosoco.com
   b. Diedrich Technologies, Inc., 7373 South 6th Street, Oak Creek, WI 53154. Tel: (800) 323-3565 or (414) 764-0058. Fax: (414) 764-6993. Email: diedtech@execpc.com; www.diedrichtechnologies.com
3. Substitutions: See Section 01600 - Product Requirements.
4. See Section 04 – Stone Repair Mortar for products including steel anchors.

2.3 COMPONENTS

A. Cleaning Agent: Premixed solvent cleaner type.

B. Blasting Sand: NOT permitted.

C. Mortar Materials: Conform to requirements of Section 04 05 03.

D. Stone: Indiana limestone (carved and ornamental).

E. Brick: Solid red face brick (field).

F. Brick: Solid common brick (parapet back-up), proposed.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify surfaces to be cleaned and restored are ready for work of this section.

C. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.

D. Do not proceed until unsatisfactory conditions have been corrected.

E. Verify that substrates are acceptable for product installation; do not begin until substrates meet manufacturer's requirements.

F. Do not begin until test panels have been approved by Architect and Owner.

G. Replacement of masonry units to be confirmed by Project Architect prior to execution.

3.2 PREPARATION

A. Protect elements surrounding work of this section from damage or disfiguration.

B. Immediately remove stains, efflorescence, or other excess resulting from work of this section.

C. Protect roof membrane and flashings from damage. Lay 1/2 inch (13 mm) plywood on roof surfaces over full extent of work area and traffic route.

D. Provide waterproof dams to divert flowing water to exterior drains and catch basins.

E. Carefully remove and store fixtures, fittings, finishing hardware, accessories.

F. Close off, seal, mask, and/or board up areas, materials, and surfaces not receiving work of this section to protect from damage.

G. Construct dust proof and weatherproof partitions to close off occupied areas, if any.

3.3 INSTALLATION

A. Rebuilding:

1. Cut out damaged and deteriorated masonry with care in manner to prevent damage to adjacent remaining materials.
2. Shore or support structure in advance of cutting out units to maintain stability of remaining materials. Cut away loose or unsound adjoining masonry and mortar to provide firm and solid bearing for new work. Cut out full units from joint to joint and in a manner to permit the replacement of full size units.
3. Build in reclaimed masonry units following procedures for new work specified in Section 04 05 03.
4. Mortar Mix: As specified in Section 04 05 03.

US Heritage Group
3516 N. Kostner Ave., Chicago, IL 60641
v. 773-286-2100 f. 773-286-1852
info@usheritage.com or visit www.usheritage.com

5. Ensure anchors, ties, reinforcing, stone cramps and dowels, and flashings are correctly located and built in.
6. Install built in masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build in openings, accessories and fittings.
7. Re-use masonry to the fullest extent possible. Integrate new replacement masonry in concealed areas or shielded from public view.
8. All new brick units to be solid, no voids, consisting of salvaged historic matching material.
9. Build new masonry to the full thickness as shown on drawings. Key brick or stone into existing structure wherever possible providing mortar as required.

B. Repointing:

1. Leave one intact and serviceable example of original mortar on the building; location and size to be determined with Architect.
2. All joints (unless otherwise noted) shall be raked back to sound, solid, back up material. All raking out should leave a clean, square face at the back of the joint to provide for maximum contact of pointing mortar with the masonry back up mortar. Shallow or feather edging shall not be permitted.
3. Existing mortar joints shall be raked out a minimum depth of 2.5 times the height of the existing mortar joints, however, so as not to compromise the structural stability of the wall, the joint should not be raked out more than half the width of the masonry unit.
   EXAMPLES:
   a. 1/16" Mortar joint needs to be cut out to a depth of 3/16" minimum
   b. 1/8" Mortar joint needs to be cut out to a depth of 5/16" minimum
   c. 1/4" Mortar joint needs to be cut out to a depth of 5/8" minimum
   d. 1/2" Mortar joint needs to be cut out to a depth of 1-1/4" minimum
   e. 3/4" Mortar joint needs to be cut out to a depth of 1-7/8" minimum
   f. 1" Mortar joint needs to be cut out to a depth of 2-1/2" minimum

4. Utilize hand tools and power tools only after test cuts determine no damage to masonry units results. Vertical joints (head joints) SHALL NOT be raked out using rotary power saws. All vertical head joints must be removed by hand in stonework unless a demonstration can be made that rotary use can be implemented without over cutting the joint, i.e. "over running." *Vertical joints exceeding 6" in height may be approved for cutting with rotary power saws pending a successful demonstration to the Project Architect.*
5. Do not damage masonry units.
6. Existing horizontal mortar joints (bed joints) that are filled with a hard Portland mortar may be raked out using a diamond blade that is narrower than the joint width. The middle one-third of the mortar joint may be cut using a rotary power saw. The remaining mortar shall be removed from the masonry joints by hand using masonry chisels or pneumatic carving tools powered by air.

US Heritage Group
3516 N. Kostner Ave., Chicago, IL 60641
v. 773-286-2100 f. 773-286-1852
info@usheritage.com or visit www.usheritage.com

7. Existing historic mortar shall be removed using only small-headed chisels that are no wider than half the width of the existing masonry joints. Pneumatic air carving chisels are permitted.
8. Contractor shall not widen the existing masonry joints. The surrounding masonry edges shall not be spalled or chipped in the process of mortar removal. Damage to surrounding stone resulting from rotary blade over running shall not be permitted. Contractor shall replace all brick or stone damaged during mortar removal with replacement units that match the original exactly.
9. Brush, vacuum, blow out, or flush joints with water to remove dirt and loose debris, working from top to bottom of wall.
10. Exposed surface of masonry adjacent to joint shall be wet prior to repointing. Maintain a water sprayer on site at all times during the repointing process.
11. Walls should be pre-soaked with water 10 minutes prior to pointing.
12. Rinse masonry joint 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. Joint surfaces should be damp but free from standing water.
13. Mortar shall be mixed according to manufacturer recommendations. The mortar material shall resemble the consistency of brown sugar during installation. This drier consistency enables the material to be tightly packed into the joint and allows for cleaner work and prevents shrinkage cracks as the mortar cures.
14. Joints should be pointed in layers or "lifts" where the joints are deeper than one and one-quarter inch (1-1/4 inch or 9mm). Apply in layers not greater than 1/2 the depth but not more than 1-1/4 inch or until a uniform depth is formed. Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.
15. LIFT EXAMPLES:
    a. 3/16" joint depth (1/16" joint existing) point in one lift
    b. 5/16" joint depth (1/8" joint existing) point in one lift
    c. 5/8" joint depth (1/4" joint existing) point in one lift
    d. 5/16" joint depth (3/8" joint existing) point in one lift
    e. 1-1/4" joint depth (1/2" joint existing) point in one lift
    f. 1-7/8" joint depth (3/4" joint existing) point in two lifts approx.-1" (each)
    g. 2-1/2" joint depth (1" joint existing) point in three lifts approx.+3/4" (ea.)
    h. over 2-3/4 joint depth- point in lifts of no more than 1-1/4" (each)
16. When mortar is thumbprint hard the joints shall be finished to match the original historic joint profile.
    a. Indiana Limestone: raked joint
    b. Face brick: raked joint
    c. Confirm with Architect once scaffold is erect and direct inspection of protected areas is possible.

US Heritage Group
3516 N. Kostner Ave., Chicago, IL 60641
v. 773-286-2100 f. 773-286-1852
info@usheritage.com or visit www.usheritage.com

17. Keep mortar from drying out to quickly. Protection from direct sun, high winds for the first 72 hours after installation. Thoroughly soak the wall after the mortar has set and the finish joint profile is complete. Water soaking the wall is to be carried out nine (9) separate times allowing the wall to dry out between applications. Protect freshly pointed areas with plastic sheeting for the first 24 hours after installation.
18. Nine (9) wet-and-dry cycles are required and can usually be completed immediately after installation by water soaking the repointing work three times per day for three days. Nine (9) wet-and-dry cycles may take two days or one week depending on the conditions of the wall and the environment.
19. Acceptable curing methods include covering the repointed wall with plastic sheeting, periodic hand misting, and periodic mist spraying using a system of pipes, mist heads, and timers.
20. Adjust curing methods to ensure that the pointing mortar is damp without eroding the surface of the mortar.

C. Cleaning Existing Masonry:

1. Clean only the areas specified in the exterior elevation drawings.
2. Clean all exposed surfaces of masonry using materials specified, so that resulting surfaces have a uniform appearance.
3. When cleaning stains and tough dirt, test masonry for composition and select appropriate cleaner in accordance with manufacturer's instructions and recommendations; use cleaner and cleaning methods selected to minimize damage to surfaces and deterioration of appearance.
4. Mockup testing will determine the most appropriate cleaning solution, treatment, dwell time, psi, and nozzle orifice distance from wall surface.
5. Install and clean up as per manufacturer's recommendations and standards.
6. Capture, store, and dispose of all cleaning products, overspray, wash, and after wash as per EPA and local government standards.

D. Install Work in accordance with State and local Municipality standards.

3.4 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. As work proceeds and on completion, remove excess mortar, smears, droppings.

C. Clean surrounding surfaces.

3.5 REPAIR OF MASONRY

A. Removing metal anchors and filling holes.

B. Repair, patch and fill cracks, voids, defects, and damaged areas to satisfaction of the Architect; allow repair materials to cure completely.

C. Seal joints with sealant and allow to cure completely.

END OF SECTION

US Heritage Group
3516 N. Kostner Ave., Chicago, IL 60641
v. 773-286-2100 f. 773-286-1852
info@usheritage.com or visit www.usheritage.com