**OM-RI-04 0131.00-SUP.docx**

**UNIT MASONRY CLEANING**

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| **SECTION USAGE MATRIX** | | |
| C | NA | Seminary and Small Institute Standard Plan (CHURCH EDUCATION SYSTEM) - New Project |
| SM | NA | Standard MEETINGHOUSE and PHASED MEETINGHOUSE Standard Plan - New Project |
| R | SUP | OM/RI (REPLACEMENT & IMPROVEMENT) for Existing Meetinghouse / Seminary and Institute Project |
| CM | NA | Meetinghouse and Phased Meetinghouse Standard Plan with S&I MODULE ADDITION - New Project |
| SI | NA | S&I MODULE Addition to Existing Meetinghouse Building |
| MO | NA | MISSION OFFICE MODULE Addition to Existing Meetinghouse Building |
| UM | SUP | URBAN MEETINGHOUSE for Custom Meetinghouse - New or Addition Project |
| FM | NA | Small Maintenance Project specification for FACILITY MANAGER |
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| **MODIFICATION LOG** | | |
| DATE | SOURCE | DESCRIPTION |
|  |  |  |
| 30 Nov 12 | Gail Olsen | General Upgrade. |
| 16 Jan 10 | Gail Olsen | General Upgrade. |

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| PROCEDURAL NOTES |
| COORDINATION |
| DESIGN INFORMATION AND BACKGROUND GENERAL:   1. This Section contains specification requirements for cleaning many masonry and/or stone surfaces of existing buildings. 2. This Section will require editing to be adapted to a specific Project. 3. If consultation and direction are required, it should be with the local cleaning agent representative who will be able to visit the site and recommend what is to be done. 4. Much of the information in the Section is for the guidance of the Architect rather than the Contractor and may be deleted when it is determined what cleaning agent is to be used. 5. Coordinate with Section 07 1900 if Water Repellent is to be used to seal the masonry after cleaning. |

SECTION 04 0131

UNIT MASONRY CLEANING

1. GENERAL
   * + 1. SUMMARY
          1. Includes But Not Limited To:

Clean exterior masonry surfaces as described in Contract Documents.

* + - * 1. Related Requirements:

Sections under 04 2000 heading: ‘Unit Masonry’ for cutting, altering, and replacing damaged masonry.

Sections under 09 9000 heading: ‘Paints And Coatings’.

Section 07 1900: 'Water Repellent'.

* + - 1. QUALITY ASSURANCE
         1. Regulatory Agency Sustainability Approvals:

Adhere to applicable City, State, and Federal EPA laws and requirements.

Require applicators to observe applicable Federal and State Agency, industry, and Manufacturer recommended safety regulations and precautions. Applicators shall wear safety goggles, rubber gloves, and plastic or rubber rain suits so as to avoid splash to skin or eyes.

* + - * 1. Qualifications:

Installers:

Applicators performing work of this section shall have five years’ minimum experience using specified restorative cleaning techniques.

* + - * 1. Field Samples:

Fundamental consideration for selection of appropriate cleaning procedures shall be that materials and techniques adopted do minimal or no damage to masonry substrates while achieving desired degree of cleaning.

Architect will approve location of test areas.

Clean test areas with recommended specified cleaning material for inspection and approval of Architect.

Conduct tests on each building exposure in unobtrusive locations on representative staining conditions.

Tests shall employ cleansing operation and include evaluation of all surfaces to be cleaned.

Test samples of adjacent non-masonry materials for possible reaction with cleaning materials.

Test procedures shall include evaluation of materials and techniques proposed for protection of surrounding and adjacent non-masonry surfaces from cleaning solutions and rinse waters.

Representative of Cleaning Materials Manufacturer shall be present during preparation and application of cleaning materials for all test areas.

Do not begin full scale cleaning operations until Architect has approved cleaning results in test areas and application procedures.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Storage And Handling Requirements:

Purchase and store on site in factory sealed containers sufficient cleaning materials to complete Project.

Containers shall be available for inspection.

* + - 1. FIELD CONDITIONS
         1. Ambient Conditions:

Conduct cleaning operations at time of year when treated masonry surfaces will have adequate time to thoroughly dry without fear of freezing. Do not perform masonry cleaning at temperatures below 40 deg F (4 deg C), or when local Weather Service reports indicate temperatures below 40 deg F (4 deg C) during ensuing 24 hours are imminent, unless heated rinse water will be used and if approved in writing by Architect.

Do not perform masonry cleaning during winds sufficiently strong to spread sprayed compound to adjacent unprotected surfaces.

1. PRODUCTS
   * + 1. SYSTEM
          1. Manufacturers:

Manufacturer Contact List:

Diedrich Technologies, Oak Creek, WI [www.diedrichtechnologies.com](http://www.diedrichtechnologies.com).

Sure Klean Products by ProSoCo Inc, Kansas City, KS [www.prosoco.com](http://www.prosoco.com).

* + - * 1. Description:

This specification describes cleaning systems designed to effectively clean and restore exterior masonry surfaces.

Selection of specific cleaners to be used shall be dependent on type of substrate, its condition, and results of tests conducted at job site as specified below.

Sandblasting and use of non-proprietary acids, alkalis, powdered or liquid, is not permitted.

Application shall be in accordance with Manufacturer's recommendations and as approved in writing by Owner.

* + - * 1. Materials:

Paint Stripper I:

Primarily for removal of graffiti, paint spills or drips, spray paints, inks and crayons. May be used for heavy-duty coatings, epoxies, urethanes, floor enamels and other chemically resistant coatings.

Type One Acceptable Products:

Sure Klean Graffiti Remover.

Diedrich 505 Special Coatings Stripper.

Equals as approved by Architect before bidding. See Section 01 6200.

Paint Stripper II:

Formulated specifically for removal of certain types of latex and lacquer paints.

Type One Acceptable Products:

Sure Klean Heavy Duty Paint Stripper or SafStrip.

Diedrich 505, 505X.

Equals as approved by Architect before bidding. See Section 01 6200.

Paint Stripper III:

For removing multiple layers of paint coatings and graffiti from exterior masonry surfaces.

Type One Acceptable Products:

Sure Klean Heavy Duty Paint Stripper or SafStrip.

Diedrich 606 Paint Remover.

Equals as approved by Architect before bidding. See Section 01 6200.

Asphalt And Tar Remover:

For removal of asphalt / tar roofing spills, grease, hydraulic oil, motor oil, and other similar stains from masonry surfaces.

Type One Acceptable Products:

Sure Klean Asphalt And Tar Remover.

Diedrich 920 Asphalt And Tar Remover.

Equals as approved by Architect before bidding. See Section 01 6200.

Prewash I:

Formulated for use with Restoration Cleaner I, Limestone Afterwash, and Restorer I.

Acts as 'carbon solubilizer' and assists in removing heavy carbon encrustations from brick, terra cotta, sandstone, limestone, and most other masonry.

Type One Acceptable Products:

Sure Klean 766 Prewash.

Diedrich 707X Limestone Cleaner Pre-Rinse

Equals as approved by Architect before bidding. See Section 01 6200.

Prewash II:

For use on difficult to clean masonry where restoration cleaner alone does not do an adequate job of cleaning masonry surface.

Type One Acceptable Products:

Sure Klean 766 Prewash.

Diedrich 707X,808X Limestone Cleaner Pre-Rinse

Equals as approved by Architect before bidding. See Section 01 6200.

Restoration Cleaner I:

For removing atmospheric staining with heavy deposits of carbon and dirt, paint oxidation, embedded clay and mud stains, rust, smoke, and algae.

Effective on brick, granite, sandstone, unpolished marble, and most other types of masonry surfaces. Do not use on limestone surfaces.

Type One Acceptable Products:

Sure Klean Restoration Cleaner.

Diedrich Envirestore 100

Equals as approved by Architect before bidding. See Section 01 6200.

Restoration Cleaner II:

For removing atmospheric staining from heavy deposits of carbon and dirt, paint oxidations, embedded clay and mud stains, rust, smoke, and algae.

Effective on brick, granite, sandstone, unpolished marble, and most other types of masonry surfaces. Do not use on limestone surfaces.

Provides triple strength cleaning action and is designed for cleaning extremely dirty and heavily carboned masonry surfaces typically found in large cities or high pollution areas.

Type One Acceptable Products:

Sure Klean Heavy Duty Restoration Cleaner.

Diedrich Envirestore 100

Equals as approved by Architect before bidding. See Section 01 6200.

Restorer:

For removing atmospheric and organic stains from high calcium based natural limestone, precast limestone, concrete, exposed aggregate, and similar masonry surfaces.

Type One Acceptable Products:

Sure Klean Limestone Restorer.

Diedrich 707X Limestone Cleaner Pre-Rinse and 707N Limestone Neutralizer After-Rinse.

Equals as approved by Architect before bidding. See Section 01 6200.

Limestone Prewash And Limestone Afterwash:

For removing heavy carbon, dirt, and other atmospheric stains from porous limestone surfaces.

Most appropriate for cleaning extremely old limestone surfaces and limestone structures in high pollution areas.

Type One Acceptable Products:

Sure Klean 766 Limestone & Masonry Prewash and Sure Klean Limestone & Masonry Afterwash.

Diedrich 707X Limestone Cleaner Pre-Rinse and 707N Limestone Neutralizer After-Rinse.

Equals as approved by Architect before bidding. See Section 01 6200.

Strippable Masking:

For protecting glass, non-porous metal, and polished stone surfaces from damaging effect of acidic cleaning materials. It is a liquid, film forming, strippable masking material.

Type One Acceptable Products:

Sure Klean Strippable Masking.

Diedrich Acid Guard.

Equals as approved by Architect before bidding. See Section 01 6200.

Interior Stone Cleaner:

For removing smoke, soot, and other related surface stains from interior marble, limestone, granite, natural stones, slates, etc.

Most appropriate for cleaning occupied stone buildings where strong corrosive cleaners and large amounts of water cannot be used.

Type One Acceptable Products:

Sure Klean 2010 All Surface Cleaner.

Diedrich 707X Interior Stone Cleaner.

Equals as approved by Architect before bidding. See Section 01 6200.

Marble Cleaner:

For removing surface dirt, carbon build-up and other atmospheric stains from marble, polished stone, and other glazed masonry.

Type One Acceptable Products:

Sure Klean Liquid Marble Cleaner.

Diedrich 910 PM Polished Interior Marble Cleaner.

Equals as approved by Architect before bidding. See Section 01 6200.

Poultice:

For removing deep-set oil, dirt, and other related stains from polished marble and stone.

For interior application.

Type One Acceptable Products:

Sure Klean 1260 Limestone & Marble Poultice.

Diedrich General Purpose Poultice.

Equals as approved by Architect before bidding. See Section 01 6200.

Aluminum Cleaner:

For removing aluminum oxidation, atmospheric dirt, carbon, and other related surface stains from architectural aluminum.

Type One Acceptable Products:

Sure Klean Aluminum Cleaner.

Diedrich 970 Aluminum Cleaner.

Equals as approved by Architect before bidding. See Section 01 6200.

1. EXECUTION
   * + 1. PREPARATION
          1. Protection Of In-Place Conditions:

Provide covered access to building for public, employees, and service vehicles at all times.

Protect, or avoid contact with, auto and pedestrian traffic.

Protect aluminum, wood, and painted surfaces from exposure to cleaning solution. Also protect plants and shrubbery.

Protect surrounding landscape and lawn areas from contact with cleaning solutions.

Landscape and lawn areas may be best protected by keeping them as wet as possible through use of lawn soaker hoses which provide a slow but steady mist of water to areas adjacent to masonry being cleaned.

Root systems of adjacent trees and shrubs exposed to cleaning rinse waters can be protected with use of neutralizing trenches.

Protect non-masonry surfaces that are not to be replaced from contact with cleaning solution.

Protect wooden and painted surfaces with sheets of polyethylene or other proven protective materials, firmly fixed and sealed to surface.

Keep non-masonry surfaces, which are not protected, running-wet with clean water throughout cleaning process of adjacent masonries.

* + - * 1. Surface Preparation:

Complete paint stripping and cleaning procedures before installation of new window glazing and paint finishes. Failure to do so will make it necessary to protect such finishes from contact with cleaning and paint stripping agents.

Test surfaces not to be cleaned for possible detrimental effects of cleaning solutions and protect as determined necessary by test results.

Temporarily caulk or otherwise protect open joints to prevent intrusion of washing waters into wall structure or building interior.

* + - 1. APPLICATION
         1. General:

Any dilution of cleaning materials will be with clean water in accordance with instructions on Manufacturer's printed container label.

Surface Treatment:

Thoroughly pre-wet surfaces, which are to be treated with water soluble materials, with clean water before application of cleaning materials. Do not pre-wet surfaces to be cleaned with materials containing solvents, such as Paint Strippers I, II, and III, and Asphalt And Tar Remover.

Purpose of pre-wetting is to limit activity of cleaning solution to masonry surface and prevent cleaning solutions from being too readily absorbed by dry masonries. Failure to adequately pre-wet may result in streaking and other residual staining of treated masonries.

Pressure Application:

Use high pressure rinsing equipment for pre-wetting and rinsing procedures described below. Pressures of 400 to 800 psi (2.76 to 5.52 MPa) and a flow rate of 4 to 6 gallons (18 to 27 liters) per minute have proved most effective.

Use low-pressure spray application for cleaning materials. High pressure application may drive cleaning compounds deep into masonry surface making it impossible to rinse treated surfaces free of cleaning residues.

If spray application of cleaning solution is desired, apply cleaning agents with 50 psi (0.35 MPa) maximum spray equipment.

Equipment that can apply hot water shall be controllable so water temperatures do not exceed 160 deg F (71 deg C).

In areas of high public traffic, perform cleaning operations at night.

Rinse chemicals after appropriate dwell time using garden hose just before rinsing with high-pressure equipment.

Avoid cleaning at times of extreme or excessive winds.

When cleaning from scaffolding in traffic areas, drape scaffolding with plastic or burlap to reduce spray drift.

When working in an area of public foot traffic, build shed over sidewalk to protect pedestrian traffic.

* + - * 1. Paint Stripper I:

Remove as much paint / stain matter as is practical with hand scrappers.

Using a natural fibered cleaning brush, roller or large paint brush, apply a heavy, thick coating of paint stripper to painted / stained areas.

Allow paint stripper to remain until paint / stain 'lifts' or shows signs of dissolving. Do not allow stripper to dry on surface.

Rinse treated surfaces thoroughly with fresh water using pressure washing equipment to remove paint stripper and dissolved paint/stain material.

* + - * 1. Paint Stripper III:

Using synthetic fibered brush, roller, or appropriate spray equipment, apply a heavy, thick coating of paint stripper to painted surfaces. On surfaces that have multiple coats of paint, sufficient material should be applied to produce a 1/8 inch (3 mm) buildup of stripper on surface.

Allow paint stripper to remain on surface for 4 to 24 hours until paint is obviously dissolved. On surfaces that have received 15 to 20 coats of paint, second application of paint stripper directly over first application, before rinsing, will frequently improve efficiency of stripping operation.

Rinse treated surfaces thoroughly with fresh water using pressure washing equipment to remove all paint stripper and solubilized paint material.

Reapply as required to removal all traces of paint coatings.

When all paint has been removed, use a restoration cleaner to remove all traces of stripper and to clean exposed masonry.

* + - * 1. Asphalt And Tar Remover:

Using densely packed masonry washing brush or low-pressure spray, apply Asphalt And Tar Remover liberally to dry masonry surface. When using spray application beware of drift and employ solvent resistant spraying devices.

Allow cleaning solution to stay on wall for several minutes.

Reapply cleaning solution to stained areas with vigorous scrubbing manner with a stiff fibered masonry washing brush.

Rinse treated surfaces thoroughly with fresh water employing full city water pressure or pressure washing equipment removing all cleaning compounds and staining matter.

Allow masonry surfaces to thoroughly dry before determining cleaning results.

Reapply as necessary.

* + - * 1. Prewash:

Apply heavy coating of Prewash to masonry surface using synthetic fiber brush or roller.

Allow material to remain on surface until carbon stains are dissolved. Do not allow prewash to dry on surface.

Rinse treated surfaces thoroughly with fresh water, employing pressure equipment removing all cleaning compound, dirt, etc.

Apply a Restoration Cleaner to area treated using a natural fiber masonry washing brush or low pressure spray.

Allow solution to dwell on surface three to five minutes depending on drying conditions. Do not allow cleaning solution to dry in.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compounds, dirt, stains, etc.

* + - * 1. Restoration Cleaner I:

Apply cleaning solution liberally to masonry surface using low-pressure spray or densely packed, soft fibered masonry washing brush.

Allow cleaning solution to remain on wall for 3 to 5 minutes depending upon drying conditions. Do not allow cleaning solution to dry in.

Reapply cleaning solution in a scrubbing manner.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compounds, dirt, etc.

Reapply as necessary.

* + - * 1. Restoration Cleaner II:

Apply cleaning solution liberally to masonry surface using low-pressure spray or densely packed, soft fibered masonry washing brush.

Allow cleaning solution to remain on wall for three to five minutes depending upon drying conditions. Do not allow cleaning solution to dry in.

Reapply cleaning solution in a scrubbing manner.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compounds, dirt, etc.

Reapply as necessary.

* + - * 1. Restorer:

Apply cleaning solution liberally to masonry surface using low-pressure spray or densely packed, soft fibered masonry washing brush.

Allow cleaning solution to remain on wall for three to five minutes depending upon drying conditions. Do not allow cleaning solution to dry in.

Reapply cleaning solution in a scrubbing manner.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compounds, dirt, etc.

Reapply as necessary.

* + - * 1. Limestone Prewash / Afterwash:

Apply heavy coating of Limestone Prewash to masonry surface using synthetic fiber brush or roller.

Allow material to remain on surface until carbon stains are dissolved. Do not allow cleaning solution to dry in.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compound, dirt, etc.

Immediately apply solution of Afterwash as specified below.

Apply prepared solution (diluted two parts water to one part concentrated cleaner) to area treated using natural fiber masonry washing brush or low pressure spray.

Allow solution to dwell on surface 3 to 5 minutes depending on drying conditions. Do not allow cleaning solution to dry in.

Rinse treated surfaces thoroughly with fresh water employing pressure washing equipment removing all cleaning compounds, dirt, stain, etc.

* + - * 1. Strippable Masking:

Test surfaces to be coated to verify ease of removal before general application. Surfaces should be clean and free of contaminants.

Using brush or roller:

Apply masking material so as to provide a build-up of 2.0 dry mils of coating.

Allow masking to dry before exposing coating to cleaning application.

Remove within 15 days (exterior) to 60 days (interior) by pulling corner of coating free of surface and continue to pull coating from surface.

* + - * 1. Marble Cleaner:

Apply concentrated cleaner to masonry surface using soft bristle nylon brush.

Allow cleaner to remain on surface for 5 to 15 minutes and brush to remove all stains. Do not allow cleaner to dry.

Rinse with clean water using pressure washer, garden hose, or brush and sponges, as condition will allow. Thoroughly rinse surface. Change rinse water frequently.

* + - * 1. Poultice:

Mixing Procedures:

Pour 100 pounds (45 kg) of poultice into wheelbarrow or other suitable mixing container.

While mixing, slowly add enough water to bring mix to dry paste.

Add one to two pints, depending on desired mix consistency, of poultice.

While mixing, slowly add additional water until poultice mix is at desired troweling consistency.

Mixing proportions of poultice additive should be from one to two pints (0.6 to 1.2 liters) of additive to 100 pounds (45 kg) of poultice. Precise amount of poultice additive used will depend on desired plasticity of mixture.

Application:

Apply 1/4 inch (6 mm) thick coating of prepared poultice mix to surface using plasterer's trowel or airless spray equipment.

Press light polyethylene film over poulticed area. Tape or otherwise seal off edges of poly film.

Allow film covered poultice to remain on surface for 12 to 24 hours.

Remove protective film. Scrape off poultice. Wash surface thoroughly with fresh water, using sponge or cloth.

Repeat poultice procedures where necessary.

Polish clean surface with soft dry cloth. Use quality marble polish if desired.

* + - * 1. Aluminum Cleaner:

Pre-wet surface to be cleaned.

Apply cleaning solution liberally to aluminum surface to be cleaned.

Allow to remain on surface for approximately three minutes, then apply second coat in scrubbing manner.

Immediately rinse with fresh water. Do not clean hot surfaces or surfaces exposed to direct sunlight.

* + - 1. CLEANING
         1. Remove and dispose of masking materials following completion of cleaning operation. Leave windows and non-masonry areas clean.
         2. Sweep or flush residue washed from building surface away from surrounding sidewalk and service areas nightly. Premises shall be clean and neat at all times.

END OF SECTION