

GUIDE SPECIFICATION  
 FOR GENERAL CLEANING AND REMOVAL OF MOLD AND MILDEW  
 ON EXTERIOR INSULATED AND FINISH SYSTEMS AND STUCCO  
 DIVISION 07240 and DIVISION 09240  
 8/05

PART I: GENERAL

1.01 DESCRIPTION AND SCOPE

- A. Requirements contained within Division I (General Requirements) are applicable to the work required of this section. Provide labor, materials, equipment and supervision necessary to complete the cleaning of the exterior wall and finish systems including:
- 1 Substrate inspection and preparation
  - 2 Protection of damaged wall areas
  - 3 Protection of adjacent materials sensitive to cleaning
  - 4 Protection of plants and sensitive vegetation
  - 5 Use of safety equipment
  - 6 Handling and mixing of cleaning chemicals
  - 7 Operation of application equipment
  - 8 Final inspection of and assessment of cleaning
- B. Related Sections
- |     |               |  |
|-----|---------------|--|
| 1.  | Section 01010 | Summary of Work                          |
| 2.  | Section 01040 | Coordination of Work                     |
| 3.  | Section 01300 | Submittals                               |
| 4.  | Section 01613 | Materials Delivery, Storage and Handling |
| 5.  | Section 03300 | Poured-In-Place Concrete                 |
| 6.  | Section 03470 | Precast Concrete                         |
| 7.  | Section 04200 | Unit Masonry                             |
| 8.  | Section 05400 | Metal Framing                            |
| 9.  | Section 06160 | Wood Sheathing                           |
| 10. | Section 07240 | Exterior Insulated and Finish Systems    |
| 11. | Section 07460 | Siding                                   |
| 12. | Section 07620 | Flashing and Sheet Metal                 |
| 13. | Section 07901 | Joint Sealants                           |
| 14. | Section 09220 | Portland cement Plaster                  |
| 15. | Section 09260 | Gypsum Sheathing                         |
| 16. | Section 09820 | Cementitious Coatings                    |
| 17. | Section 09830 | Elastomeric Coatings                     |
- C. Referenced Documents:
- Standards
- |            |  |
|------------|--|
| ASTM D4610 | Standard Guide for Determining the Presence of and Removing Microbial Growth on paint and Related Coatings |
| ASTM F923  | Guide for High visibility Materials to Improve Individual Safety   |
| ASTM E1542 | Terminology Relating to Occupational Health and Safety   |
| ASTM D2020 | Standard Test Method for Sampling and Analysis of Chlorine Containing Bleaches                             |
| ASTM D460  | Standard Method for Sampling and Analysis of Soap Products   |

ASTM D3274	Test Method for Evaluating the Degree of Surface Disfigurement of Paint Films by Microbiological Growth or Soil and Dirt accumulation
ASTM C920	Joint Sealants
ASTM C1193	Use of Joint Sealants

D. Terms and Definitions

1. Exterior Insulated and Finish System (EIFS) and Hard Coat Stucco  
EIFS is a non-bearing exterior cladding consisting of a layer of rigid insulation board and an outer lamina. The lamina consists of a fiberglass mesh reinforced base coat layer and an outer layer of synthetic stucco finish. A hard Coat Stucco system is a Portland cement plaster base top-coated with a synthetic finish or plaster finish.
2. Bleach - An alkaline aqueous solution of a known quantity of sodium hypochlorite.
3. Borax - A white powder consisting of Sodium Metaborate.
4. Soap -A chemical designed to lower the surface tension of water and promote an oil-in-water emulsion system.
5. Microbiological Growth – the presence of algae, fungus, bacterial or their related byproducts including spores or mycotoxins.
6. Dirt pickup – the accumulation of soil, dirt and pollutants on a surface.
7. Sealant -A permanently flexible self-sticking compound that is used to seal seams in the system.

1.02 DESIGN LIMITATIONS

All procedures shall conform to job document recommendations and shall be consistent with the project requirements.

- A. Substrate
  - a. The optimum equipment necessary to access all wall areas to be treated will be determined.
  - b. All areas to masked and protected will be determined.
  - c. All damaged areas including sealant will be protected or repaired.
- B. Safety
  - a. Proper safety equipment will be available for all laborers.
  - b. Areas to be cordoned off will be determined.
  - c. Wind velocity will be monitored.
- C. Inspection
  - a. If desired, coating deterioration due to microbiological activity or dirt contamination assessment IAW ASTM D3274 will be made prior to cleaning.
  - b. Photographic record and written record of the wall surface condition will be made prior to cleaning.
  - c. Photographic record and written record of the cleaning process and result will be made.
- D. Joints
  - a. The condition of the sealant joints will be noted. Failed joints will be protected by masking during the cleaning process unless repaired under separate contract prior to cleaning.

1.03 QUALITY ASSURANCES

- A The contractor shall have a minimum of one year experience in the wall construction and cleaning trades, demonstrate the ability to clean the wall based on projects of similar size and complexity, and meet the approval of the general manager.
- B The contractor shall provide the equipment, manpower, materials and supervision necessary to clean the wall system in compliance the project plans and specifications.

1.04 SUBMITTALS

- A. The submittal consisting of this bid specification and supporting contractor documentation will be provided to the building owner-representative.

1.05 PRODUCT DELIVERY AND STORAGE

- A Delivery: Deliver all materials necessary for cleaning in original, unopened containers with legible identification intact.
- B Storage:
  - 1. Store all materials off the ground, under cover and protected from dampness and sunlight.
  - 2. All liquid products shall be stored at 40 F or above and protected from freezing. Protect from exposure to direct sunlight during storage and temperatures exceeding 110 F.
  - 3. Keep materials secure from children, pets and the general public.

1.06 JOB CONDITIONS

- A Install all materials in strict accordance with all safety and weather conditions required by this specification.
- B Apply cleaning solution when the ambient temperature is 40 F (4.4 C) and rising.. Do not apply or rinse solutions on a frozen surface.
- C Avoid application in high wind (wind speeds in excess of 12 mph). Avoid application in direct sunlight as this will reduce the effective contact time of the cleaning solution.
- D. Protect surrounding areas and sensitive surfaces including metalized glass during application and rinsing of the cleaning solution.
- E. Hot walls may be cooled by rinsing with clear water prior to cleaning application.

1.07 COORDINATION AND SCHEDULING

- A Closely coordinate work with related sections and trades.
- B Protect the tops of walls to prevent water from entering behind the system.
- C Protect open joints or penetrations from water intrusion.

1.08 SYSTEM WARRANTY

- A. A Warranty application for warranty form shall be completed prior to completion of the installation.
- B. Upon completion of the installation in accordance with specifications and payment of monies due, a limited 90 day materials Warranty shall be issued.

PART 2: MATERIALS

2.01 SAFETY EQUIPMENT

- A. All persons handling the mixing or application of the cleaning solution shall wear the following safety equipment:
  - a. Full coveralls
  - b. Rubber gloves
  - c. Safety goggles
  - d. Dust, mist, fume mask
  - e. Hat or other head covering

2.02 CLEANING SOLUTION MATERIALS

- A Chlorine Bleach. A labeled solution of sodium hypochlorite in water such as Clorox Bleach.
- B Borax. Sodium metaborate powder available as Borax Laundry Booster or Twenty Mule Team Borax.
- C Liquid dish cleaning soap. Acceptable brand name soaps are Joy, Ivory or Palmolive.
- D Water. Cleaning requires a faucet source of clean, potable water.

2.03 MIXING AND PREPARATION OF CLEANING SOLUTION

Cleaning solution will be prepared immediately prior to application. Only fresh cleaning solution shall be used. Cleaning solution that is more than one hour old will be discarded down a sewer drain.

- A. Prepare cleaning solution as follows:
  - a. Start with one gallon of water in a clean plastic pail.
  - b. Add 1/3 cup of Borax powder and mix to dissolve.
  - c. Add one ounce of dish washing liquid soap.
  - d. Add one quart of household chlorine bleach (approximately 5% sodium hypochlorite strength)
- B. The final cleaning solution should be approximately 1% to 1.25% strength sodium hypochlorite. When starting with a known strength sodium hypochlorite solution, adjust the mix ratio with water to achieve a final concentration of approximately 1% to 1.25% strength sodium hypochlorite.

PART 3 EXECUTION

3.01 EQUIPMENT

- A. Have spray equipment available capable of delivering a low pressure spray or stream of cleaning solution and clear water to the wall areas to be treated.
- B. Have sufficient manpower available for the use of equipment to access all wall areas. This equipment may include bucket-lift trucks, drop staging, scaffolding, scissors scaffolding, and ladders.

3.02 SUBSTRATE

A PREPARATION

- A. Mask and protect all materials and surfaces that could potentially be sensitive to chlorine bleach solution.
- B. Cover or mask any openings, holes or damaged areas to prevent water or cleaning solution from entering the wall cavity.

B SURROUNDING AREA

- A. Protect plants and sensitive vegetation from over-spray with tarps or polyethylene sheeting.
- B. Insure that cars and pedestrians are kept clear of potential over-spray areas. If necessary, rope off these areas.
- C. Insure that building windows are closed and that occupants are advised of the cleaning process.

C APPLICATION

- a. Start at the upper wall areas and work downward.
- b. Always use low-pressure spray for either the water spray or the cleaning solution. Spray pressures must never exceed 300 psi.
- c. If the wall is warm or if working in the sun in warm weather, wet the wall with clear water.
- d. Starting at the top of a wall area, apply cleaning solution to the wall with a low-pressure spray or stream. Use horizontal sweeps to apply the cleaning solution. Keep a six to twelve inch run-down of cleaning solution on the wall surface below the stream. Adjust the spray or stream to avoid excessive misting and bounce-back of the cleaning solution.
- e. Treat entire vertical sections of wall area before moving to the next area.
- f. Allow the cleaning solution to have three to five minutes of contact time with the wall surface. Thoroughly rinse the wall surface beginning at the top with a clear water spray.

3.03 RE-APPLICATION

- A. Wall areas may be re-cleaned one additional time, if necessary, following the above procedure to achieve a more thorough result. This will be determined by visual inspection after the first cleaning a permitting sufficient time for the wall area to dry.

3.04 JOB SITE CLEANUP

- A. All excess materials, tarps, equipment and masking shall be removed from the job site by the applicator.
- B. All surrounding areas where materials have been applied shall be left free of debris and foreign substances.

3.05 INSPECTION

A building owner-representative will visit the job and inspect the walls prior to and after the cleaning in the presence of the applicator. Before and after photos will be taken by the applicator and dated for documentation purposes. Notes of the inspection will be made by the applicator and initialed by the applicator and building owner-representative. Both parties will retain a copy of the inspection notes.

END OF SPECIFICATION