

Technical Papers

Specifications for Cleaning EIFS

BID DOCUMENT AND GUIDE SPECIFICATION (with Metric analogs) FOR GENERAL CLEANING AND REMOVAL OF MOLD AND MILDEW ON EXTERIOR INSULATED AND FINISH SYSTEM

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. EIFS 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

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

*Not Applicable

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) EIFS is a non-bearing exterior cladding consisting of a layer of rigid insulation board and outer lamina. The lamina consists of a fiberglass mesh reinforced base coat layer and an outer layer of synthetic stucco 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 micro toxins.
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

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

B. EIFS

1. The optimum equipment necessary to access all wall areas to be treated shall be utilized.
2. All areas to be masked and protected will be determined.
3. All damaged areas including sealant will be protected and inspected

C. Safety

1. Proper safety equipment shall be utilized by all laborers.
2. Areas to be cordoned off will be determined.
3. Wind velocity will be monitored.

D. Inspection

1. Coating deterioration due to microbiological activity or dirt contamination assessment IAW ASTM D3274 will be made during cleaning by the EIFS Consultant.
2. Photographic and written record of the wall surface condition will be made during the cleaning process by the EIFS Consultant.

E. Joints

1. Contractor shall advise the EIFS Consultant of any failed sealant joints.
2. Failed joints will be protected by masking during the cleaning process unless repaired under separate contract prior to cleaning.

I.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 EIFS Consultant.
- B. The contractor shall provide the equipment, manpower, materials and supervision necessary to clean the wall system in compliance with the project specifications. No labor subcontracts will be permitted.

I.04 SUBMITTALS

- A. The submittal consisting of this bid specification and supporting contractor documentation, including certificates of Liability and W/C insurance, will be provided with the bid submittal.

I.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 (4.4 C) 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.

I.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.

I.07 COORDINATION AND SCHEDULING

- A. State date when all work is to be completed.
- B. Protect the tops of walls to prevent water from entering behind the system.
- C. Protect open joints or penetrations from water intrusion.

PART 2: Materials

- A. All persons handling the mixing or application of the cleaning solution shall wear the following safety equipment:

1. Full coveralls
2. Rubber gloves
3. Safety goggles
4. Dust, mist, fume mask
5. 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.
- E. The EIFS Consultant may test cleaning solution to verify proper mixture.

2.03 MIXING AND PREPARATION OF CLEANING SOLUTION

- A. 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.
- B. Prepare cleaning solution as follows: 1. Start with one gallon of water in a clean plastic pail. 2. Add 1/3 cup of Borax powder and mix until dissolved. 3. Add one ounce of dish washing liquid soap. 4. Add one quart of household chlorine bleach (approximately 5% sodium hypochlorite strength)
- C. The final cleaning solution should be approximately 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 1.25% strength sodium hypochlorite.

PART 3 EXECUTION

3.01 EQUIPMENT

A. Have spray equipment available capable of delivering a low pressure (900 psi) spray of cleaning solution and clear water to the wall areas to be treated. 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 EIFS

A. PREPARATION

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

B. SURROUNDING AREA

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

C. APPLICATION

1. Start at the upper wall areas and work downward.
2. Always use low-pressure spray for either the water spray or the cleaning solution. Spray pressures must never exceed 900 psi.
3. If the wall is warm or if working in the sun in warm weather, wet the wall with clear water.
4. 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.
5. Treat entire vertical sections of wall area before moving to the next area.
6. Allow the cleaning solution to have twenty to thirty 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. Areas may be re-cleaned one additional time, if necessary, as determined by the EIFS Consultant following the above procedure to achieve a more thorough result. This will be determined by visual inspection after the first cleaning, 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 immediately upon completion of contract.
- B. All surrounding areas where materials have been applied shall be left free of debris and foreign substances at the end of each workday. All surrounding areas where materials have been applied shall be left free of debris and foreign substances at the end of each workday.

3.05 INSPECTION

The building EIFS Consultant will visit the job and inspect the walls prior to and after cleaning, to determine if additional cleaning is necessary, in the presence of the applicator. Before and after photos will be taken by the EIFS Consultant for documentation purposes.

END OF SPECIFICATION



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