

Section 04525 - Facade Cleaning

1.00 GENERAL

- 1.1 Scope of Work: The exterior Andesite and Granite cladding of the Vancouver City Hall will be cleaned through a highly controlled ice blasting process, followed up with the application of a biological growth inhibiting cleaning agent, and thorough water rinse.
- 1.2 Related Documents: The Consultant's, detail drawings, and test patch analysis and recommendations, submittals, Site Directives, Change Orders, and consultant process field review shall form part of this specification.
- 1.3 Assumptions. It is assumed that the dirt and grime from urban pollution are the principal soiling agents, with graffiti, paint, and rust staining being addressed under Section 04531 Masonry Paint and Stain Removal.
- 1.4 Cleaning Concept: The cleaning concept is the use of the gentlest means possible to clean the stone cladding, starting with a controlled ice blast process followed with the application of a biological growth inhibiting cleaner and a thorough water rinse.
- 1.5 Masonry Cleaning Sub-contractor Qualifications: Only reputable and experienced cleaning contractors specializing in cleaning and restoring historic buildings shall do the work.
- 1.6 Testing: Prior to any work being carried out on the facade, a test patch of the proposed cleaning method or methods shall be conducted in a representative but inconspicuous location on the facade by the restoration sub-contractor under the review of the consultant. The testing shall be carefully controlled and documented, utilizing alternative methods or products if requested by the consultant. The test patch(es) will be allowed to weather for a minimum of three days before final evaluation. Full scale cleaning will proceed only when the consultant has indicated that the cleaning process has achieved an acceptable quality.

Test documentation shall include all details of agents and dilutions, dwell times, and water temperatures to enable exact reproduction of the procedure.

- 1.7 Submittals:

1.7.1 Information on proposed cleaning agents

1.7.2 Information on the proposed methods and equipment to be used

1.8 Cautions:

1.8.1 Only low pressure washing of the stone masonry is allowed. The masonry subcontractor shall soak local areas for no longer than twenty minutes prior to hand scrubbing with natural bristle brushes and non-ionic detergent. All soap and cleaner residue shall be thoroughly rinsed off the terra cotta and brick masonry. A 5% dilution of hydrofluoric acid is acceptable on difficult soiled areas with a dwell time not exceeding 30 seconds followed by an immediate cold water wash.

1.8.2 The stone masonry shall be stabilized and repointed prior to cleaning to reduce the hazard of moisture penetration. All openings shall be thoroughly protected against moisture penetration through the use of plastic sheeting and removable non-stain caulking.

1.8.3 All chemical cleaning is to be reviewed with consultant prior to application.

1.8.4 During pre-wetting and rinsing operations, the water runoff shall be carefully controlled and channelled through gutters and downspouts to avoid drainage down facade areas not being cleaned.

1.9 Related Work Elsewhere Specified

Section 04531

Masonry Paint and Stain Removal

1.10 Scheduling

Facade Cleaning, as specified in this section, is to occur after masonry stabilization and masonry paint and stain removal is complete.

2.00 MATERIALS

2.1 Acceptable Cleaning Products

2.1.1

i)CSP masonRE Cleaners B+ (Cathedral Stone Products)

2.2 Unacceptable Cleaning Products

- 2.2.1 Hydrochloric acid(muriatic acid) should not be used in the cleaning process as it dissolves the lime-based mortars and causes etching damage to most historic masonry . Commercially available acid-based cleaners containing any proportion of hydrochloric acid should not be used.
- 2.2.2 Hydrofluoric acid is acceptable only as part of a tested detergent masonry cleaner, and not as a direct acid cleaning treatment.
- 2.2.3 Sodium hydroxide or ammonium bifluoride are not acceptable as an alkali agent in an alkaline cleaner or as a cleaner in themselves.

3.00 EXECUTION

- 3.1 Following ice-blasting, the stone masonry areas shall be pre-wetted for periods not exceeding twenty minutes by soaker hose at not more than 90 p.s.i. to soften and loosen the attached sulphate crust. The use of a hot water pressure washer for severely soiled protected areas under mouldings and cornices, or where a cold water soaking is proving ineffective, is recommended. A commercially available unit is pictured for reference only.

Following pre-wetting, a straight aqueous solution should be used first and followed if necessary with a solution containing non-ionic surfactants, in conjunction with hand-scrubbing with natural fibre bristle brushes; wooden scrapers may be required to remove heavy sulphate crusts. Only a manageable area should be cleaned at a time to avoid drying detergent or cleaner on the facade.

Soaking and scrubbing is to be followed by a final water rinse.

If required, scrubbing can be followed by steam cleaning with a flash boiler through a very low pressure nozzle(10-30 psi) having an 12mm diameter aperture for loosening sulphate crusts in protected areas and sculptural relief.

The cleaning approach will be determined by the test patch results, but may require modifications for difficult to clean areas.

END OF SECTION 04525