

Section 04531 - Masonry Paint and Stain Removal**1.00 GENERAL**

- 1.1 Scope of Work: The soiling on the stone masonry that are to be repaired insitu or to be re-installed shall be removed in accordance with this specification and related documents. Large rust stains in areas of water ingress are to be removed in accordance with this specification.
- 1.2 Related Documents: The Consultant's drawings and details, test patch analysis and recommendations, submittals, and consultant stabilization process field review shall form part of this specification.
- 1.3 Assumptions: none
- 1.4 Cleaning Concept: The final paint and stain removal treatment will be based on the results of a number of representative test patches. The mildest cleaning solution should be used and augmented, if necessary, by additional applications on hard-to-clean areas or difficult stains. Steam or hot water cleaning accompanied by hand brushing with non-ionic detergents is recommended and abrasive cleaning procedures, including sand/grit blasting or high pressure water are not to be used. An organic stripping agent should be tried before going to a caustic alkaline-based stripper, that could damage masonry.
- 1.5 Masonry Paint and Stain Removal Subcontractor 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 number of test patches of the proposed paint and stain removal method or methods shall be conducted on the representative areas in inconspicuous locations on the facade under the review of the consultant. The testing shall be carefully controlled and documented, utilizing alternative methods or products if requested by the consultant. Paint removal test patches shall be about a one square meter and be allowed to weather a minimum of three days before final evaluation. Full scale paint and stain removal will proceed only when the consultant has indicated that the procedure has achieved an acceptable quality. Stain removal tests shall be conducted on representative stains in consultation with the consultant, with the technique and products reviewed with the consultant before the commencing with the test.

1.7 Submittals:

1.7.1 information on the proposed paint and stain removal agents

1.7.2 information on the proposed methods and equipment to be employed.

1.8 Cautions:

1.8.1 High pressure water spraying is not an acceptable paint or stain removal procedure as it etches or scars masonry surfaces. Low pressure rinsing or soaking subsequent to chemical paint and stain removal is acceptable.

1.8.2 The stone masonry shall be stabilized and repointed prior to paint removal to reduce the hazard of moisture penetration. Test patch locations can be chosen, however, which minimize this hazard, and can thus be undertaken during facade stabilization.

1.8.3 Eye, respiratory and hand protection in accordance with WorkSafeBC guidelines should be observed during paint removal treatments.

2.00 MATERIALS

2.1 Acceptable Materials

2.1.1 Alkaline Paint Removers: An alkaline paint remover based on ammonium hydroxide(ammonia), potassium hydroxide, or trisodium phosphate is acceptable. An organic soya-bean stripper is recommended as the first agent to use, as they have been found to be effective and safe.

2.1.2 Poulticing Powders: Acceptable poulticing powders are clays(attapulgite, kaolin and fuller's earth), talc, chalk(whiting), sepioite(hydrous magnesium silicate), diatomaceous earth(kieselguhr) and methyl cellulose. Diatomaceous earth and absorbent clays are the most effective.

2.1.3 Water Based Paint Removers: ABR Super Bio Strip (liquid or Gel form) available from Canadian Restoration Products (980-3325).

2.1.4 Stain Remover: Oil Lift available from Canadian Building Restoration Products Inc. (980-3325) is acceptable for soot or oil-based stains.

2.2 Unacceptable Materials

- 2.2.1 Alkaline Paint Removers: An alkaline paint remover based primarily on sodium hydroxide - caustic soda or lye - is not acceptable.
- 2.2.2 Poulticing Powders: Generally, whiting, or iron-containing clays should not be used as the absorbent ingredient if an acid is used as the solvent; they will react with, and thus negate, the effectiveness of the acid.
- 2.2.3 Hydrochloric acid(muriatic acid) should not be used in the cleaning process as it dissolves the lime-based mortars and stones. Commercially available acid-based cleaners containing any proportion of hydrochloric acid shall not be used.

3.00 EXECUTION

- 3.1 Paint Removal: The paint remover can be applied with a brush or sprayed on the surface. The softened paint can be rinsed off with a water rinse with the aid of wooden scrapers if required. A trough should be arranged to catch and contain the run-off. Alkaline paint removers should be used, rather than organic solvent paint removers, as the latter tend to spread some stains deeper into the masonry. Multiple layers of paint may require two or three applications of paint remover.
- 3.2 Stain Removal: The first step is to definitively identify the stain. A poulticing procedure should be taken to draw the stain out of the absorbent andesite. A poultice composed of an absorbent material or powder and a liquid chosen to match the requirements of the stain is to be blended and applied to the stain as a slurry. If the absorbent material is compatible with the prime stain constituent, the power or clay will absorb the dissolved stain, rather than redepositing it onto the surface of the stone. Often, a number of trials are required to achieve successful stain removal, hence the test patch approach. Normally water is used as the poultice liquid, but solvent may be required for a stain that is soluble only in solvents. The poultice will clean more effectively if kept wet during the dwell period.

The poultice shall be applied as follows: a 6mm - 19mm layer of the paste is applied to the masonry surface, and the liquid is absorbed into the masonry surface to act upon the stain. As the poultice dries out, the liquid is re-absorbed back into it, drawing out the stain. The poultice is allowed to dry completely, and is gently removed by hand with a wooden scraper or non-metallic brush. A heavy

or thick poultice may require additional support on vertical surfaces in the form of a non-ferrous or plastic mesh which can be held against the wall with non-staining fasteners.

- 3.3. Rust stains are apparent on portions of the brick masonry and can be removed with ammonium oxalate.

End of Section 04531 - Masonry Paint and Stain Removal