



Stone Cleaning Guidance on Procedures

Masterplanning, Design and Conservation

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Introduction

The cleaning of the stonework on a granite building is widely considered as an improvement in the appearance of the building. Whilst there is, in some situations, a contrary argument to that view, few people would dispute that the change in appearance can be dramatic, particularly when a building has become extensively soiled.

What is not widely appreciated however, is that the cleaning process can cause serious damage to the granite being cleaned. The guidance in this leaflet is intended to reduce to a minimum, the incidences of damage that can result from the incautious application of the various types of stone cleaning methods commonly in use.

Statutory Context

The Town and Country Planning (General Permitted Development) (Scotland) Order 1992, states that the stone cleaning or painting of the exterior of any building or works is not “permitted development” where:

- the building or works are in a conservation area; or
- the building is a listed building.

This means that planning permission is required to clean the stonework of a building if the building is in a conservation area, and listed building consent is required if the building is listed.

Policy and Background

Until September 1997, the detrimental effects of the various methods of cleaning granite commonly in use were largely unknown, although evidence did exist that granite was liable to be damaged as a result of cleaning. While an investigation into the cleaning of granite, being carried out by the Robert Gordon University on behalf of Historic Scotland, was in progress, a cautious approach was adopted by the Planning Authority. Planning permission or listed building consent was granted generally only if the following criteria could be satisfied:

1. the level of soiling was particularly high;
2. the nature of the soiling was liable to damage the granite;
3. the building, once cleaned, did not stand out from its neighbours; and
4. the method of cleaning was the least damaging for the particular type and finish of granite.

New Criteria for Cleaning

The research by the Robert Gordon University into the cleaning of granite buildings resulted in the publication by Historic Scotland, of its Technical Advice Note 9, “Stonecleaning of Granite Buildings”. With the publication of this document, (TAN 9), this Planning Authority now accepts that granite in good condition, that has not been cleaned previously, can be cleaned without causing serious damage. This modified stance does not dispense with the need to obtain planning permission and/or listed building consent where required, nor for the need to exercise extreme care, in selecting an appropriate method of cleaning, and in carrying out the cleaning. The Council’s policy on stone cleaning is stated in Policy 15: Stonecleaning in the Aberdeen City Local Plan as follows:

The cleaning of listed buildings or buildings in conservation areas by abrasive, chemical methods or high pressure water methods will only be permitted provided that:

1. the stonework is in sound condition;
2. the most appropriate method of cleaning is established by a consultant’s report in accordance with the methodology set out in Historic Scotland’s Technical Advice Note 9; and
3. the consultant’s report demonstrates that this method of cleaning will not prejudice the long-term structural integrity and appearance of the building.

Given the the lack of research into the effects of repeated cleaning of granite, where it is proposed to clean a building known to have been previously cleaned, the stone consultants report, required by the Technical Advice Note, must provide a justification for the proposals. The same procedure will also be required in the case of sandstone buildings.

Permission will not be given to clean individual properties when they comprise only part of a building facade, either the facade of a single building or a terrace designed as an architecturally unified composition.

Procedure for Applying for Consent to Clean a Building that is Listed and/or in a Conservation Area

When an owner has decided he wishes to clean his building, he must submit an application for planning permission and/or listed building consent in the normal manner. Along with the application he must provide a report on the stone cleaning, commissioned from an independent consultant who is experienced in all the issues, procedures and methods of stone cleaning. This report will have two stages:

Stage 1

The first stage will be a detailed site assessment of the building, noting the type of stonework, its condition and defects, the level, type and distribution of soiling, and any other factors that may affect the choice of cleaning method and the likelihood of subsequent re-soiling. Pages 15 and 16 of TAN 9 cover the range of issues to be addressed by this preliminary assessment. It is conceivable at this stage that the consultant's advice may be not to clean should, for example, the granite be so friable that any form of cleaning would be liable to damage the granite.

Following the site assessment the consultant will likely have eliminated some cleaning methods as being totally unsuitable. Pages 17 to 25 of TAN 9 describe the characteristics of the various types of cleaning methods available. A number of cleaning methods will then be selected to be tested on trial panels in accordance with the methodology set out in pages 26 to 30 of TAN 9. Notes on the site assessment will be submitted in an initial report for the Planning Authority's consideration, together with the selected range of cleaning methods.

Stage 2

In the second stage the consultant will arrange for the cleaning methods which are acceptable to the Planning Authority to be tested on trial panels. The results of these tests will then be assessed and a second report submitted to the Planning Authority, containing a detailed specification of, and justification for, the preferred cleaning system. Page 31 of TAN 9 covers the range of matters that should be covered by the cleaning specification.

Note:

In assessing an application to clean a building the Planning Authority will at all times have regard to the advice given in Technical Advice Note 9 and the procedures it advocates. Copies of this Advice Note can be purchased from:

**Historic Scotland
Technical Conservation
Research and Education Division
Scottish Conservation Bureau
Longmore House
Salisbury Place
Edinburgh EH9 1SH**

Telephone: 0131 668 8600

Web-site: www.Historic-Scotland.gov.uk



Cleaning of Granite Buildings which are neither Listed nor in a Conservation Area

All granite buildings throughout the city, whether or not they are listed or in a conservation area, are an intrinsic part of the city's character, and deserve to be treated with appropriate respect. Whilst no consents are required to clean granite buildings that are not listed nor in a conservation area, extreme care must, nevertheless, be exercised in cleaning them as damage to the granite, once caused, cannot be undone.

Before any stone cleaning is undertaken it is advisable to obtain the advice of an independent consultant. Failing this, the contractor employed should specialise in this type of work and be a member of the Stone Federation, 82 New Cavendish Street, London W1M 8AD. Operatives who carry out the work should have a Scottish Vocational Qualification in Façade Cleaning which has been available since 1993, or alternatively must have proven skills and knowledge in stone cleaning. High risks are involved in using a contractor for whom stone cleaning is merely an "add on" to his main business, and who may not have the in-depth knowledge and experience for this type of work.

Granite Cleaning Methods

There is available, a variety of stone cleaning methods. The simplest of these is the application of water, either by hand using a brush, or under pressure. Whilst using a high pressure wash (above 50p.s.i) requires consent, no consent is required for the use of water applied with a brush. It is also acceptable to use a non-ionic detergent in connection with the scrub without having to apply for consent. This type of cleaning will remove only loose surface dirt and algal and other biological growths. It will have little effect on ingrained soiling. The cleaning methods in common use that are effective are based either on some form of abrasive cleaning (grit blasting), or chemical cleaning (using acid or alkaline cleaning agents).

Abrasive Cleaning

The most common form of abrasive cleaning is wet grit blasting. An abrasive grit, with the addition of water, is applied to the granite under pressure. Depending on how hard or coarse the grit used, and how high the pressure, this type of cleaning can severely roughen the surface of the granite, and in extreme situations may cause the loss of architectural detail. There could also be a loss of patina which may have served to protect the surface of the granite. The reduced water run off rate caused by roughening the surface of the granite may result in the surface becoming more susceptible to algal growth.

Because of the roughening of the surface that is the usual consequence of abrasive cleaning, only the least aggressive of abrasive systems will receive consent. The most common forms of grit blasting which involve the water and grit being mixed at the application nozzle and applied at high pressure, can be extremely harsh on the granite and generally are not acceptable. The type of grit blasting that is most commonly found acceptable is the low pressure slurry wash system, which involves a softer grit such as olivine being premixed in a blast pot and applied at pressures no higher than 35p.s.i. Even this system can have some roughening effect on the granite. In very sensitive situations, such as when sandstone is used in conjunction with granite, or when the granite is soft or fractured, a very low pressure system employing a fine abrasive such as aluminium oxide powder with no water, may be required. This method, sometimes referred to as a "microsoft" system, is quite slow and is therefore, generally more labour intensive and expensive.

Chemical Cleaning

Acid cleaning is the most common chemical cleaning system in regular use, whilst hydrofluoric acid is the most common active ingredient in acid based cleaning agents. This type of cleaning is generally acceptable on granite of good quality as there tends to be little penetration of the chemical into sound granite, although there will be more into the mortar in the joints.

Some constituents of cleaning chemicals may assist biological growth and therefore encourage subsequent re-soiling. The use of chemical cleaners at too high a concentration can dissolve iron-rich minerals within the granite which may result in iron deposits being left on the surface of the granite in the form of brown staining, or in the surface being bleached. To guard against these possibilities, the dilution of the cleaner and its dwell time, (period cleaner is left on the surface) should be the minimum required to achieve an acceptable level of cleaning.

Chemical cleaning is generally not suitable on highly weathered granite as the chemicals may cause erosion of the surface, whilst the high pressure of water used at the rinsing stage will result in further erosion.

Use of a mixture of cleaning methods

It is unlikely that a whole building can be cleaned using a single cleaning method. Chemical cleaners will not, for example, be able to remove gypsum crusts on their own, and some form of abrasive assistance will be required. If approval has been granted to clean a building using a particular method, the use of secondary methods should be kept to a minimum.

Re-soiling

TAN 9 points out that re-soiling of a building begins immediately after cleaning. As mentioned above, some constituents of cleaning chemicals may assist biological growth and the roughening of the granite surface may encourage both biological and non-biological soiling. Anyone proposing to clean a granite building should therefore, be aware that the granite could return to its earlier state, or worse, quite quickly after cleaning. Re-cleaning of granite on a regular basis will not be acceptable.

Recording

In accordance with paragraph 8.6 of TAN9, detailed records and photographs of the cleaning operations should be kept for future reference, and to inform any subsequent proposals to re-clean the granite. In the case of buildings that are listed or in a conservation area, this information should be made available to the Planning Authority. It may be that at the time of granting planning permission or listed building consent, a questionnaire form will be issued to assist in this procedure.

Further Information

If you require any further information please contact:

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