Gramercy Park Block Association
Historic Preservation

Bluestone Sidewalk Cleaning and Maintenance

Since we are in the Gramercy Park Historic District, and many sidewalks are bluestone, below is a detailed description by Richard Wilson of J. D. Wilson Construction, for removing rust stains on bluestone at 18 Gramercy Park South. Wilson installed the cobblestone thresholds at the north and south gates of Gramercy Park, and has repaired the bluestone surrounding Gramercy Park.

The natural full colored Pennsylvania bluestone used on this project is a type of sandstone only much more dense and less absorbent than the lighter colored sandstones. Bluestone inherently many times contains iron (ferrous) compounds that will leach out to the surface over time. The ferrous staining can also be originating in the Portland cements used in the setting bed, a combination of sand and Portland Cement.

There are no ' secret, sure fire ' methods or solutions when it comes to working with natural products, such as stone. A large part of construction/ restoration methodology is subjective, many times the by product of tried and proven methods from even ancient times, such as using fine grit and human muscle power to generate the heat needed to ' polish' marble, digging a trench and filling it with water, using the principle that water will seek its own level, to level the base of thee pyramids of ancient Egypt, the same water, in today's construction levels. The use of a poultice, as previously mentioned is another ancient remedy for the cleansing of wounds and soiled surfaces of natural products such as wood, clay, and in this case stone.

The term poultice has its origins in the field of medicine with the application of a cleaning pack to the body of the infection. The notion of the poultice has been adapted for the cleaning of historic buildings and a true poultice is intended to draw out deep-seated contaminants and staining from the surface of masonry and stone. In current practice the word poultice is extended to a wide range of cleaning materials and techniques, not all of which achieve a true poultice effect on the substrate.

A true poultice contains water and the poultice medium only, relying on these ingredients to achieve the mobilization and removal of the contaminant, in the case of the bluestone sidewalk pavers at 18 GPS, the ferrous and other mineral staining, such as manganese. The most widely used poultice medium is clay, although paper and cotton fibers are also used, and talc, chalk and even flour are traditional poultice materials. A moisture of clay and paper fiber produces an absorbent and plastic (flowing) mixture that is favoured by conservators of stone, and is the poultice that will be used on the bluestone at 18 GPS.

This basic and true poultice medium is used to draw out mineral staining, such as ferrous (iron) staining, and it is a process of desalination, to draw out soluble mineral salts.

The poultice is allowed to dry out and the soiling and / or salts are drawn into the poultice by capillary action with the moisture. Multiple applications are many times necessary to draw the mineral salts from the surface pores. Bluestone is not porous and the drawing action will be more difficult to achieve than with softer stones. It is a trial and error procedure. Whatever the medium, the poultice is mixed with water to form a material that will adhere to the substrate. Clay forms a sticky mass that adheres well to stone and other surfaces.

The plain clay poultice can be mixed by hand as required on site with the addition of water to the poultice medium. The plain dry clay poultice may be modified. With the addition if certain compounds to target particular stains or surface coatings. These ' active' or ' chemical' poultices are designed for the removal of the various types of soiling and contaminants that are soluble in water and for those, which have penetrated deeply deep into the surface pores. These chemical agents introduced into ' plain' poultices are called ' sequestering agents, and are available for the removal of metallic stains, the copper and iron(ferrous) stains which frequently appear on bluestone paving. Sequestering agents chemically isolate specific staining materials, such as metals, forming compounds, which are soluble and can be removed from the surface with a low-pressure water rinse. Sodium hydroxide is one of many commonly used sequestering agent. Sodium hydroxide is an alkaline cleaning agent for a range of masonry substrates, including limestone, sandstone, brick and terra cotta. Several trials in the field will be necessary to establish the most efficient method to draw out the ferrous staining, be it a plain clay poultice or a poultice with a sequestering agent(s).