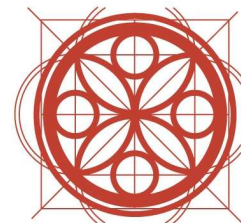




By Appointment to
Her Majesty The Queen
Building Facade Restoration
and Conservation



PAYE

PROJECT NAME: Corinthian House – Tottenham

Court Road, W1T 7RT

REPORT: Façade cleaning sample

Distribution List:

Project: Corinthian House – Tottenham Court Road, W1T 7RT

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Introduction

PAYE have undertaken a masonry cleaning trial to the Portland facade, on behalf of TFT consultants, to a high-level 6F north facing flank wall of Corinthian House. The trial was conducted to ascertain the most suitable method for cleaning the full façade.

These cleaning methodologies consisted of:

- Nebulous Spray Cleaning
- DOFF Cleaning

Methodologies:

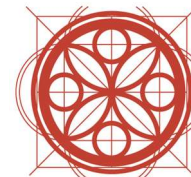
Limestone is soluble and the most appropriate method of cleaning limestone are to soften the surface of the stone with water and clean with agitating brushes and a low/medium pressure washer.

The two methods proposed are:

- Masons nebulous water clean (in accordance with BS8221)
- Superheated water clean

The intention was to sample the methods to ascertain the most appropriate of the two.

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Nebulous Cleaning

The system of nebulous sprays is based on the principle of passing water through a very fine mesh or filter to create a mist that is then passed through fine nozzles.

The mist spray system will be set up with nozzles at intervals along the building, concentrating on areas of greater need and reducing the level where less dirt is present.

The level of water to be controlled electronically or by timers, allowing pulse or intermittent spraying, to avoid ever having water running down the face of the building.

As the system produces such a fine mist it is important to place the nozzles close to the building's surface in order to ensure the water is directed correctly. Depending on the location and exposure of the elevation it is frequently necessary to erect a screen to reduce the risk of wind disturbance however this shouldn't be necessary as a sheeted scaffold will be installed.

Nebulous spray systems can be designed to be incredibly flexible, directing the spray only where needed. Straight or flexible hoses may be employed depending on the requirements of the surface being treated and the nozzles from the hose may be grouped or spaced according to the severity of the dirt or encrustation being treated. Flat surfaces often require less water than a carved heavily soiled detailed stone.

Nebulous cleaning requires a larger volume of water than DOFF with water points required on every lift of the scaffold.

Brown staining is sometimes noted after completion of a nebulous clean. This is caused by migration of naturally occurring organic residues to the masonry surface as the moisture evaporates. The stain will eventually break down over long term UV light or can be cleaned with use of poultice techniques.

Doff cleaning

The hot wash system is controlled by operatives to achieve the best temperature and pressure balance for dealing with varying situation on the façade. The temperature is regulated at 100°C - 150°C. Higher temperatures help to remove the surface contaminants whilst reducing the volumes of water.

The lance needs to be kept at a fair distance away from the wall to prevent gun shading marks occurring on the façade. Differing nozzles may be adopted dependent on the type of soiling to be removed and the type of architectural detail being worked on at that time.

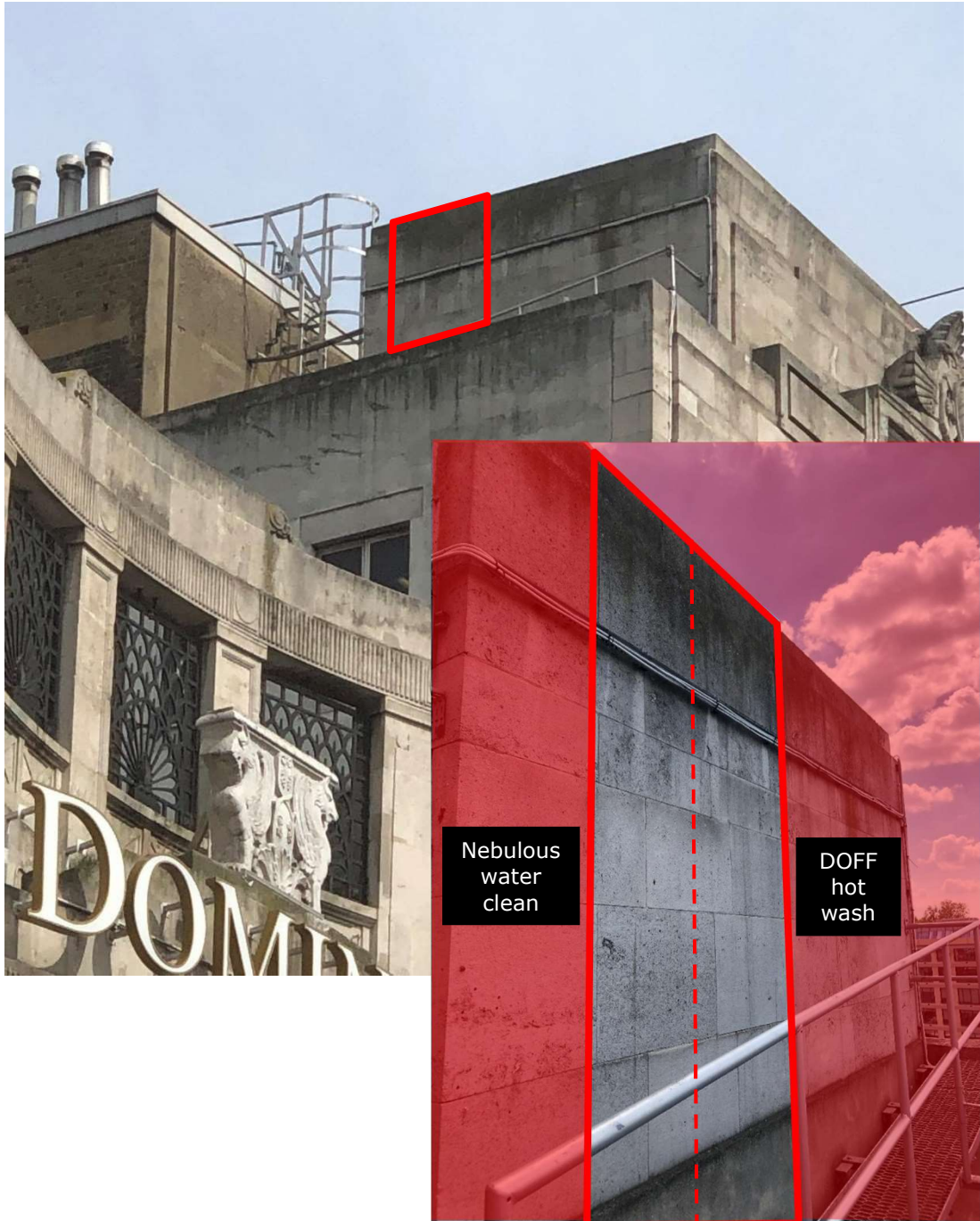
Stubborn areas can be scrubbed using suitable fiber or natural bristle brushes.

DOFF cleaning is usually shorter in programme, however, it requires hoists to transport the kerosene burner to the required scaffold lift.

Wastewater for both techniques is managed through the introduction of temporary gutters to collect run off, and by securing heavy duty polyethene around the window openings with low tactile adhesive tape.



Location of cleaning samples to Corinthian House





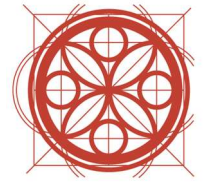
Cleaning Results



The right-hand side was cleaned using a DOFF hot wash. The left-hand side was cleaned using a Nebulous water clean.

Both techniques were very effective in removing the staining caused by atmospheric surface pollutants, including hydrocarbons from diesel exhausts and fungal growths. Both methods were not overly aggressive, giving a clean and consistent finish.

Where a 'deep' clean is not required, but a lesser patina of clean is desired, both methodologies can implement a series of control measures to achieve the required level of clean. These measures are highlighted below.



Review of Methodology and Cleaning Controls

For both techniques, the theory for achieving a required patina of clean is to control the water pressure which flows over the face of the stone.

For a nebulous clean this is achieved by restricting the nozzle diameter, increasing the distance of the nozzle from the façade, and reducing the time that the water mist passes over the stone.

The DOFF cleaning method can manipulate the temperature-pressure combination to achieve a lower level of clean. Setting the nozzle to a lower water pressure (and higher temperature) will reduce the level of clean to a required patina. The increase in temperature will also kill off any fungal growth that may be present.

Conclusion

In conclusion, both methods were very effective in removing the staining. To achieve the required patina of clean, the water pressure should be reduced to minimize the volume of water that flows over the face of the façade. This is achievable for both Nebulous and DOFF cleaning, with the control measures outlined above for each cleaning method.