

Figure 8.31 The dark coloured parapet on the Corn Exchange in Leith is typical of saturation zone staining. Water can migrate freely through free-standing features such as this, carrying soluble, staining material to the surface. Often this goes undetected until cleaning, when blame is unfairly placed on the contractor or the cleaning material



Figure 8.32 Other situations, where the cleaning material is clearly inappropriate, can be demonstrated by this illustration (above) of staining up to the party wall line on a sandstone terrace. In this case the colour of the entire unit within the facade has been changed from a cream colour to a rich orange-brown in the course of removing dirt with a proprietary hydrofluoric acid cleaner

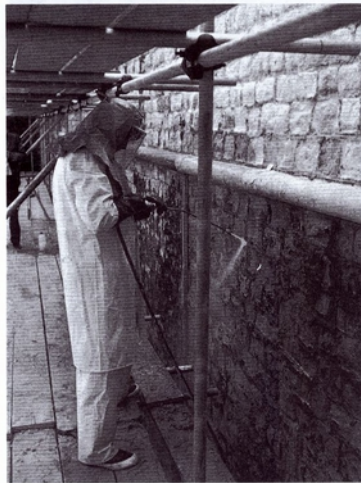


Figure 8.33 Successful cleaning with hydrofluoric acid based cleaners or any other chemical depends on a proper diagnosis of the soil type, identification of the stone/s, detailed specification based on site and laboratory trials, competent, experienced operatives and adequate supervision. In this illustration (left) the operative is properly dressed in full protective clothing, including face and hands. The water lance, a flat 15° v-jet operating at 5000 psi, is being used to remove a cleaning agent after a dwell time of five minutes. The same lance is used to pre-wet the wall before application of the cleaning agent to avoid the risk of dry stones or joints absorbing cleaning material



Figure 8.34 Failure to remove certain cleaning agents successfully can result in disfigurement or damage, or both. This illustration shows staining and efflorescence resulting from residues of sodium hydroxide left in limestone detail. Salt crystallisation damage is likely as wetting and drying cycles promote the distribution growth of sodium salts



Figure 8.35 Failure to remove hydrofluoric acid will result in the formation of colloidal silica bound to the surface of the stone. This illustration shows carefully applied hydrofluoric acid formulation permanently bound to sandstone after being left for over twelve hours instead of 5–15 minutes. This disfigurement could only be removed by spinning, blasting or otherwise redressing the masonry to remove the outer 2 mm



Figure 8.36 Successful cleaning with proprietary chemical products is quite feasible, but must be based on proper investigation and diagnosis of the cleaning problem, and not on a 'hit-or-miss' basis influenced by a particular range of products available. In general, more applications of material diluted down from the supplier's recommendations will achieve a better standard of cleaning. Very dilute hydrofluoric acid formulation was used to clean the flush banded brick and stone of St Pancras Station, London, with excellent results