

## THERMATECH PAINT REMOVAL SYSTEM.

THE OLD WORKHOUSE, BREAKSPEAR ROAD NORTH, HAREFIELD, MIDDLESEX.

The Thermatech system is a tried and tested method of stonework and brickwork cleaning and paintwork removal.

The system, by Restorative Techniques is a variable controlled water pressure and temperature application that is adjusted according to the substrate, be it stone or brickwork. The Thermatech system is recognised as a highly effective system by English Heritage, Historic England, Commonwealth War Graves Commission, the Canal and River Trust and is used upon their historic buildings and structures.

The Thermatech system has been used for brick and stone cleaning on prestigious historic properties such as Hampton Court Palace, the Palace of Westminster, Elizabeth Tower, Lincoln Cathedral, Canterbury Cathedral, Gloucester Cathedral, Exeter Cathedral, Winchester Cathedral, Chester Cathedral, York Minster and the Bath Royal Crescent.

Following initial visual inspection sample areas were tested to identify the presence and concentration of any toxic constituents and any historic finishes.

The application of the gentle highly controlled Thermatech system is carried out by trained operatives. Restorative Techniques undertake the training before releasing the equipment for use.

The main contractor, London Building Renovation are fully trained in the use of the Thermatech system by Restorative Techniques.

Restorative Techniques technical information sheet states a typical scenario might be to find a number of layers of acrylic paint in turn over linseed or polyurethane decoration which is over cement-based paint and then over the weathered remains of limewash.

It can be seen therefore that the more modern coatings tend to be organically bound and the newest are generally the easier to remove by a combination of chemical and Thermatech superheated water.

London Building Renovation state:

"How we approach the removal of the paint layers is slowly and methodically working through the layers then to assess how further we can proceed. In our experience the results can be dramatically different on each wall in the same building. It may be necessary to cease the removal processes if it is felt that proceeding would cause harm to the substrate.

This can be the case when the ultimate aim is to apply a breathable paint finish such as Keim paint, over previously painted surfaces.

The Thermatech system is a gentle highly controlled system and is operated by our trained operatives.

The primary aim is to remove harmful coverings that trap water within the masonry walls causing damage to the brickwork and internal finishes and also to maintain the longevity and health of the Listed Building."

Included photographs indicate the poor condition of the painted masonry at the Old Workhouse and assessment areas where paint layers have been removed with very good results through the use of the Thermatech system.





PAINTED BRICKWORK TO REAR ELEVATIONS.





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BRICKWORK TO AREA OF REAR ELEVATION FOLLOWING REMOVAL OF PAINT.





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## TECHNICAL INFORMATION SHEET

# PAINT AND COATING REMOVAL - MASONRY SUBSTRATES

Successful removal is likely to result from exploiting a significant physical or chemical difference between coating and substrate. It should be considered that in general the more complete the removal of coating, the Successful removal is likely to result from exploiting a significant physical or chemical difference between coating and substrate. It should be considered that in general the more complete the removal of coating, the higher the risk of damage to the substrate.

## PAINTS AND COATINGS

Paints vary widely in their physical characteristics and chemical composition. Presently most paints are commercially manufactured but historically painters would obtain ingredients and prepare paints to their own or an established recipe. Despite this the majority of paints can be placed into one of two principal categories;

**Organically bound** – containing a resinous binder e.g. linseed oil, polyurethane, alkyd and acrylic.

**Inorganically bound** – containing a mineral binder e.g. lime, cement, sodium or potassium silicate.

Some treatments, 'Impregnators', are designed to absorb into the capillary matrix of a substrate and are especially difficult, often impractical, to fully remove. For this reason such treatments should perhaps be assessed for re-treatability rather than reversibility.

The earliest paints in common use for buildings are typically of lime (an inorganic binder type). In most cases these will have a 'chalky' composition, sometimes removable by rigorous brushing alone. Such coatings were also fortified

by the addition of tallow or casein making them more resilient and less water permeable. For this, mechanical removal would need to be more aggressive. Casein or tallow will inhibit certain chemical reactions, making hydrochloric or other acid treatment ineffective. However, low pressure abrasive (i.e. the VorTech system) is often successful so long as any overlying flexible coatings are first removed.

Oil based paints (i.e. organic) were regularly used for painting stucco, particularly Roman Cement, but also for softer stone masonry in polluted environments, during the Victorian period and beyond. Linseed oil was effectively displaced by polyurethane and alkyd formulations (both organic types) during the latter decades of the C20th.

Portland Cement (inorganic) based paint came into widespread use during and after ww2 due to the scarcity of linseed and other imported oils. It became the most popular masonry paint available during the 1950s and '60s. 'Snowcem' (inorganic) was still being recommended as a primer for brick and stone masonry in the 1970s prior to painting with 'Sandtex' (organic), the two products then being manufactured by the Blue Circle Cement Company.

The basic formulations of Sandtex, Dulux Weathershield and other plasticised masonry paints are typically of acrylic binder but the tougher versions of these brands are normally alkyd/acrylic. A number of companies will be found operating in the UK to directly supply and spray apply high build textured coatings. The removal of these is normally achieved as recommended for acrylic or alkyd/acrylic formulations.