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|  LIGHTCEM  | Case Study: | Queen's House, Leicester Square |
| | Contracted by: | T&O Restorations Ltd. |
| | Application: | Chimney Repairs |
| | Requirements: | Lightweight Concrete Spray Repairs Inside Chimney |
| | Solution / Product: | LightCem® SPRAYFAST®™ |

THE PROBLEM Many classic properties with original chimneys and stacks are now in need of renovation. The combination of heat and cold in days gone by and now the imposition of damp in unused chimneys, has led to the gradual deterioration and weakness in mortars holding the structure together.

When refurbishing the building or trying to sleeve the chimney for use with more modern heating equipments, once work begins, the true extent of deterioration is often revealed and a complete re-build of the chimney is the only option to safeguard it from collapse.

An option often used by chimney restoration specialists is to spray a concrete lining to the inside of the chimney. This helps stem the damp problems, seal in old soot to improve fire proofing, but has only marginal effect on strengthening the mortar and chimney structure. Filling the chimney with conventional concrete can actually cause structural failure if the mass of liquid concrete bursts through the brickwork, or the mass itself causes structural overload.

What was required was a lightweight and quick drying concrete. LightCem's SPRAYFAST was the obvious choice.

THE SOLUTION LightCem SPRAYFAST™ has been specifically designed as a lightweight, spray on concrete ideal for such applications. But SPRAYFAST can also be poured in to chimney voids.

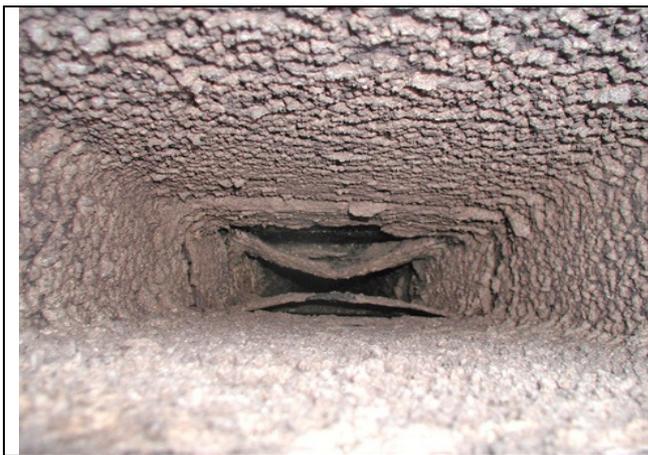
SPRAYFAST can also be configured to be sprayed or poured and set quickly. Once a new sleeve has been fitted in the chimney (or not, as the case may be), liquid SPRAYFAST can be pumped in. The liquid concrete will flow in to all the voids and mortar and pointing gaps and set to significantly enhance the strength of the whole chimney structure.

Using SPRAYFAST will reduce the density of material used without reductions in strength, therefore less material used is less cost. Using SPRAYFAST will also significantly reduce the weight of concrete used by around 40% and thereby not overload the structure.

Test pieces have been produced and subjected to a program of accelerated ageing and fire-check tests. The results were a complete success. The finish was excellent, the product weathered well and, most importantly, a 40% saving in weight gave significant savings in transport costs and ease of handling.



Chimney Refurbishment - Before Old chimney is coated with soot and structural strength is significantly reduced due to heat or damp damaged, weak mortar.



Chimney Refurbishment - After Old chimney is sprayed with LightCem SPRAYFAST which penetrates mortar joints and thereby significantly strengthens structure. Sleeve can then be fitted and additional SPRAYFAST can be poured in to solidify whole structure.

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|  | <p>"LightCem SPRAYFAST is the ideal product for this work and is still functioning perfectly after 20 years.</p> | <p>Mr SK, CemPro Ltd</p> |
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LIGHTCEM®

