SafeGroup

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Case Study

Fire soot removal

Client	Main contractor for Highways England
Sector	Highways
Location	Bristol

Background

An arson attack on a supermarket storeroom located beneath a flyover on the M32 in Bristol left the underbridge covered in soot. Analyse of the soot revealed traces of zinc and lead, both of which were toxic.

Highways England maintenance contractor commissioned SafeGroup to carry out soda blasting to remove the soot from the flyover, with particular consideration given to protecting the environment from further contamination by the soot and the toxic metals identified.

The Challenge

Fire soot is potentially highly dangerous. The presence of zinc and lead which, if breathed in, can cause cancer, made this soot particular hazardous.

Soot is made up of tiny particles made up of carbon and other residues formed during the fire. The storeroom had contained chemical cleaners, which was another risk factor.

Soot can enter the body through inhalation, ingestion, or via the skin or eyes. They can cause breathing problems, including asthma and bronchitis, as well as heart disease as well as cancer.

Another key challenge was the presence, three metres from the flyover, of a river and a pollution monitoring station. Therefore, containment of the soot and any cleaning residues created by the soot removal process was a major priority.

The Solution

SafeGroup's recommended to use soda blasting to clean the flyover was accepted by our client and Highways England.

Soda blasting involves using compressed air to deliver soda crystals from a blast nozzle onto the surface that needs to be cleaned. The soda crystals fragment on impact, exploding contaminate from surfaces, without damaging substrates.

Because soda blasting is carried out at lower pressures than other forms of cleaning, such as shot blasting and high pressure water jetting, there was no risk of the structure being damaged and the toxic soot residue could be more easily contained.

Structure wrapping

Scaffolding was erected to create platforms for the SafeGroup soda blasting team to work from. To prevent pollution, the scaffold structure was enveloped in plastic sheeting. This allowed the SafeGroup team to contain the soda crystals for safe disposal.

Our client carried out continuous monitoring of the site to ensure no soda blasting dust could escape from the encapsulated structure so there was no risk of residue entering the river.

Precision soda blasting

SafeGroup's precision soda blasting technique uses a 130 cubic feet per minute compressor, generating a maximum air pressure of just 3 bar (30psi). For this project, SafeGroup selected a 250 micron crystal that contained flow aids and moisture inhibitors that helped reduce soda consumption, dust emissions and waste to a minimum.

Outcomes

- The soda blasting project was completed on time and on budget
- Extensive monitoring showed that no soda residue or soot escaped from the wrapped workspace
- The nearby river was protected against pollution risks
- Adjacent properties and road users were also protected
- The soda blasting cleaning was carried out to a high standard, leaving the structure clean and soot-free
- The maintenance contractor and Highways England were very pleased with the soda blasting cleaning results.