ideal RESPONSE

DISASTER RECOVERY & HYGIENE EXPERTS

Sewage Remediation In London For Innoventive

CASE STUDY

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THE CHALLENGE

We were called to a client of Innoventive's where a sewage backup had resulted in blackwater contamination across the basement floor of a popular restaurant. Because a sewage backup usually includes human excrement along with other bodily fluids, it means that the water is grossly unhygienic. Blackwater – especially when caused by a sewage backup – poses a serious health risk to anyone who comes into contact with it. Not only can it make you seriously ill, in extreme conditions, it can even prove to be fatal.

For the restaurant in question, the work planned included the cleaning and sanitation of the affected areas and contents. However, during the works, it became apparent that the damage was a lot more severe than initially thought. Blackwater – and subsequently contaminants – had become trapped within the wall cavities and under the linoleum flooring in multiple locations.

THE OBJECTIVE

To allow the restaurant to reopen, the whole basement floor and any contents in direct contact with the blackwater required cleaning and sanitising. For this to happen however, an extensive stripout was required. Not only were there obvious signs of water ingress on the basement floor, the ground floor had suffered from cross contamination which also required attention.

The basement level consists of a dining room (the restaurant area), staff room, customer toilets, the kitchen and a walk-in fridge, along with other areas such as an electrical cupboard, storerooms and an office. Water damage was evident on the lower walls and floor of the basement, and on the contents which had been in direct contact with the contaminated water.

The initial survey recorded the atmospheric conditions in the basement, registering at 61.6%

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relative humidity, 23.8°C temp, 15.8°C dewpoint, 11.16g/kg specific humidity and 1.78kPa vapour pressure. Our aim was to reduce these levels to normal range using a two-week bespoke drying regime using absorption and condensing dehumidifiers.

There are several reasons why we measure the atmospheric conditions. One being that it allows us to evaluate whether there is risk of secondary damage to hygroscopic materials (such as wood and plasterboard) due to high moisture levels. Hygroscopic materials can absorb water vapour from the air, increasing the amount of water that they're holding at any one time. Not only can this swell materials such as wood, it can lead to microbial (most commonly mould) growth.

And in this instance, because of the high moisture count in most rooms of the basement level, the risk of microbial growth in the affected areas was significantly increased.

Due to blackwater being trapped within wall cavities and under the flooring, there was also a strong lingering odour of foul water on the basement level which we aimed to eradicate using a combination of chemical cleaning to all surfaces, air scrubbing, the removal of contaminated plasterboard and finally, fogging using Decon 7.

THE TECHNICAL PART

The basement level floor was solid concrete, with vinyl tiles in the main restaurant dining area, the toilets and staffroom, and lino covering the remaining floor. The external walls were plasterboard on concrete walls using the dot and dab method, finished with UPVc panelling. During our survey, it was unknown if the cavities contained thermal insulation.

Our survey concluded that as a result of the blackwater ingress, the foul water penetrated into the lower walls and floor in multiple locations. It was able to ingress due to faulty silicone seals, along with cracks and holes in the floor finishes.

In the location where a third party had removed a section of the UPVc panelling, the exposed plasterboard was visibly saturated. We also found that the water was seeping out from under the walls over a period of two days. In the other locations where lino flooring had been installed, we recorded readings of up to 100% Wood Moisture Equivalent (WME) from the plasterboard walls.

Wood Moisture Equivalent (WME) is the theoretical %mc (moisture content) value that would be attained by a piece of wood in contact with and in moisture equilibrium with the material under test.

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The higher the reading, the damper the material is, with 100% WME being the maximum value. As a general rule of thumb, a WME reading should be less than 17.5% WME.

Due to the organic makeup of plasterboard, its permeance factor of 50.0, and capillary action (moisture moving vertically upwards), there was a high risk of a major bacteria and mould growth outbreak. Therefore, it was vital that enabling works were carried out as soon as possible.

On the basement floor, standing sewage was extracted while all affected surfaces and those which may have suffered from cross contamination on the ground floor were cleaned and sanitised, including all table and chair legs. The ground floor flooring was thoroughly cleaned, followed by a treatment of Decon 7. Lastly, swabbing was completed to confirm results, followed up by a moisture survey.

To avoid further cross contamination, a timber wall was installed between the two floors to separate them. This not only helped prevent cross contamination, but also allowed the business to operate from ground floor up while the drying and decontamination work was carried out on the basement level. Multiple air processing units were also installed to remove airborne contaminants.

The basement floor continued with stripout work including the removal of skirting boards, UPVc panels, plasterboard, and the uplifting of flooring.

During this time, it was found that the exposed plasterboard was heavily contaminated with microbial growth. This indicated either another unidentified leak in the area, or a historic leak where the walls were not dried out or decontaminated properly, allowing mould spores to spread, affecting a large section of partition walls in the area.

It was also identified that due to such a high level of excess moisture, some of the aluminium stud framework had suffered from heavy corrosion and would most likely need replacement as part of the reinstatement work.

Work continued on the basement level and during stripout in the toilet areas, it became apparent that the damage was a lot more extensive than originally thought. Within the female toilets, it was found that one of the waste pipes had been leaking. The toilet was removed and the pipe capped off. But the damage and contamination to the stud frames, plasterboard and insulation was much greater than first anticipated. Although due to a previous incident, it meant that the stripout work was far more in depth than first thought.

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All exposed surfaces – including walls and flooring – were cleaned and sanitised using Decon 7, an environmentally friendly decontaminate which can eliminate 99.9999999% of bacteria, viruses, moulds, biofilms and biological hazards. As a multi-part, non-toxic, non-corrosive, biodegradable decontaminate, Decon 7 remains more gentle than household bleach and is safe to use on almost any surface.

Along with ATP swab testing to confirm cleanliness and the sanitation of affected areas, we also completed ULV fogging as the final part of the decontamination process.

THE RESULT

As planned, the drying cycle lasted a total of two weeks and included the use of adsorption and condensing dehumidifiers. With our bespoke drying regime, we were able to bring the relative humidity readings down from 61.6% to within normal range, and our thorough decontamination techniques brought the RLU readings down to a safe level.

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