

Toxic Mould leads to £10Million Warrant claim

In 2007 Building Forensics were asked to investigate possible health issues regarding a small patch of black mould in a three year old luxury apartment in south London. The findings resulted in possibly the biggest ever warranty claim currently in excess of £10,000,000.

The client had health concerns over a small patch of black mould in the hall ceiling and asked for an sampling and assessments.

A sampling hypothesis following internationally recognised protocols was developed to identify cause and effect of potential moisture problems and types of mould and relevant health concerns.

Infrared Thermography

A scan of the property showed dramatic gaps in insulation and identified thermal bridging most likely to cause condensation, and resultant mould growth within cavities.

Moisture mapping

Ultrasonic and conductive moisture meters were used to identify high moisture content of walls ceilings and floors. This identified wet patches from leak, condensation and cold bridging issues.

Laminar & Turbulent air flow

The variations in temperature and moisture within interstitial cavities, the building envelope and general voids raised concerns of major building defects. Anemometers and manometers were inserted into electrical fitting plasterboard housings and used to assess the pressure differentials. This showed the inspected areas alternating from positive to negative pressure. This evidence pointed to major failures of the building envelope.

Intrusive Investigation

From the forgoing measurements and general concerns small areas of plasterboard were removed to allow visual inspection. In light of the forgoing the following areas of concern were raised with our client (the homeowner) which needed to be assessed by the builders and NHBC under the terms of their warranties:

- Facing bricks stuck directly onto OSB
- No Vapour barrier or drainage plane on external facade
- Missing wall insulation
- Visible gaps between window frames and walls
- Missing lintels
- No insulation or adequate protection to steel support structure
- Missing Fire stops
- Cold bridging of balcony and internal floors (continuous cast)
- Vapour barrier on wrong side

- Windows inserted into OSP apertures without adequate or indeed any proper weatherproofing or sealing.
- External Air flow directly into building and construction envelope through major leakage points in roof and façade generally

Floor

The concrete floor was covered in laminate wood flooring which showed signs of swelling and cupping. Sections were removed to show that the screed saturated, Moisture sleeves were inserted to assess compliance to British Standards and the floor was found to be saturated. Leaks from windows and cold bridging were identified. This was exasperated by the 40mm of foam insulation under the 75mm screed and acted as a reservoir.

Walls

The plasterboard walls fixed onto metal studding but touched the wet floor in places causing wicking (capillary action). This resulted in mould growth in the internal cavities on plasterboard backing paper.

Pre fabricated pods

Part of the initial construction involved the use of pre constructed drop in pods for the kitchen and bathroom. These pods built within a metal frame allowed no access for inspection. Moisture Mapping, visible distress and mould were adequate pointers to undertake intrusive investigation which identified leaks form various pipe couplings, drainage joints and general seams.

Mould Sampling

Bulk samples were taken from visible mould growth. Air sampling designed to identify viable and significantly non viable mould spores, was undertaken throughout the property and common parts.

Sampling Results

As was expected from long term water ingress or condensation, Cladisporium was abundant but the significant health issues were from Stachybotrys, and Penicillium/ Aspergillus.

These moulds have been identified as potential triggers for a variety of health issues including :

- Asthma
- Brain tumours
- Lung and liver cancer
- Depression
- Flu like symptoms

Current issues

The building is currently under major repair with many families moving out to facilitate remediation and retro fitting of construction shortfalls. Major decontamination and clearance has been under taken by Building forensics and the 999team Ltd. The cost is now well over £10 million and steadily rising.

About the author.

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