

Balistraat, Dordrecht

9th – 10th June 2006

The Property

The house is a typical 2 bed roomed terrace house. Built in 19th century, it is of brick construction on stone foundations. It has a suspended wooden floor and a sand sub-base. The water table in Dordrecht is extremely high & the sand is fully saturated.

The problem

The sub floor area including sand substrate, walls and joists were heavily infected with *Serpula Lacrymans* (dry rot), as can be seen in the photo's below, joists had over 100mm of mould built up, which was heavily saturated with water.

The conditions, wet, dark & humid were the ideal spawning ground for this infestation, with a temperature band between 5°C and 35°C & a large volume of timber (food source)



The 2 photo's show the heavy infestation, along with the moisture beads, clearly visible

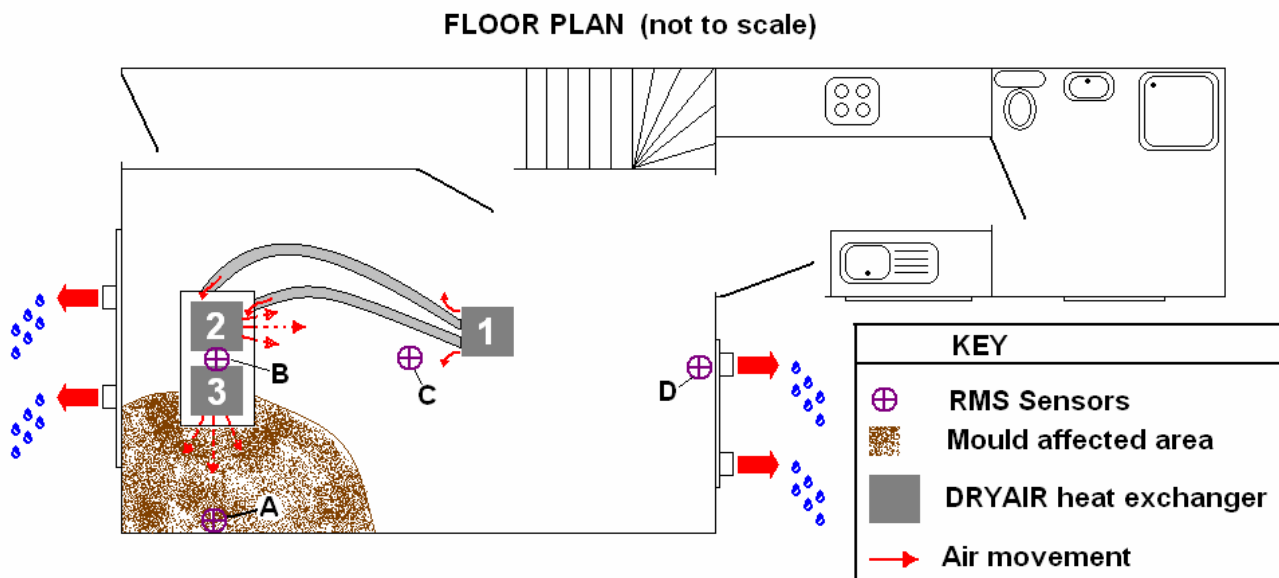
The Solution

All living organisms die when subjected to the extremes of temperature, *Serpula Lacrymans* is no exception. This particular mould requires a temperature in excess of 54°C for a period exceeding 2 hours.

The temperature and times quoted, relate to temperature and time within the matrix of the host material, they **do not** refer to air temperatures. For this effect to take place, the Dryair system has to raise the air temperature to at least 70°C and in many instances much higher.

DRYAIR used a 180-EU heater with three PHE 25-EU heat exchangers to;-

1. Raise the air temperature
2. Dry the affected walls and timbers
3. Kill the infestations



The DRYAIR trailer was on site at 08.30 and was set up and running at 11-30.

Two heat exchangers, numbers 2 and 3 on the floor plan, were lowered into the sub-floor void.

Heat exchanger 3 was positioned to give maximum heat in the mould contaminated area whilst heat exchanger 2 was positioned to encourage air movement and dry the saturated timbers.

Heat exchanger number 1 had two ducts fitted to a four port air diffuser. The ducted air used the "moisture flush" system to create a positive pressure in the sub-floor floor void and force humid and contaminated air out of the under floor vents.

The remaining two ports provided hot air to kill and dry the mouldy wall and to prevent secondary damage from condensation.

Remote monitoring probes (RMS) were fitted in four areas to ensure even heating and drying.

The “Moisture Flush System”

Moisture Flush is the method of using air as a medium to push water out of a property using heat and positive pressure. The hot dry air travels around a room using the natural movement of convection; hot dry air rises up and displaces the air on the ceiling. The air on the ceiling then rolls down the walls, as the Dryair system in many instances reduces the RH to less than 5%, the air then acts as a sponge, absorbing moisture from both the surface and mass of the host materials. The positive pressure takes the “sponge like” humid air and pushes it out of the nearest air vent (air bricks, windows, etc)



Figure 2

Heat exchangers, numbers 2 and 3 on the floor plan, lowered into the under floor void prior to being sheeted over.

Note; the two grey ducts providing positive pressure for the “moisture flush”

Heat exchanger, numbered 1 on the floor plan, providing the positive pressure through the ducting and preventing secondary damage with the two open ports.



Figure 3

The Dryair PHE 25-EU's are 25kw heat exchangers which move 1500 m³ of hot air every hour. As the under floor void was approximately 50m³, the air was re-circulated through the heat exchangers (numbered 2 & 3) 60 times every hour.

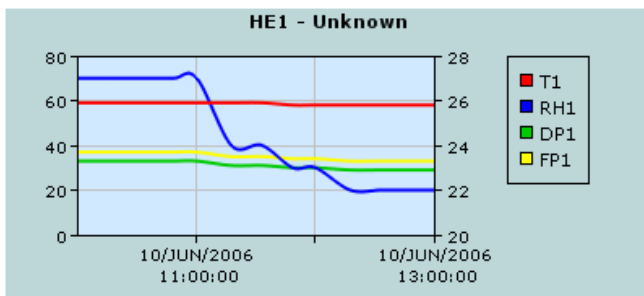
The heat exchanger (number 1) creating the "moisture flush" ensured that humid / contaminated air left the building at a rate of 750 m³ per hour.

The RMS probe graphs

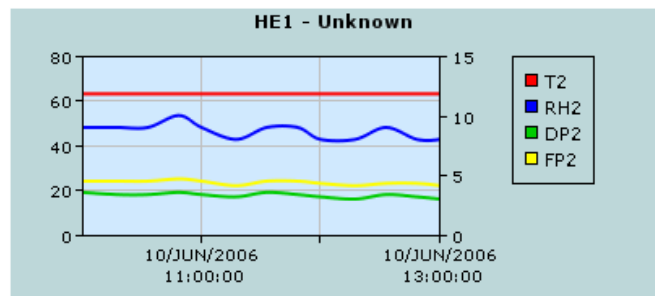
These graphs show the last four hours of data from the probes in positions A – D in the floor plan shown on page 2.

The lines of importance are; - Red showing temperature in °C. Blue showing RH in % and Green showing dew point.

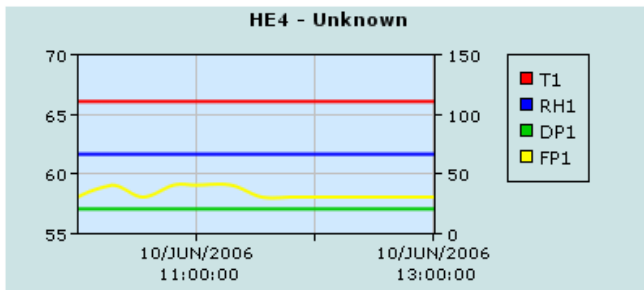
The scales are;- on the left, Temperature and on the right, RH



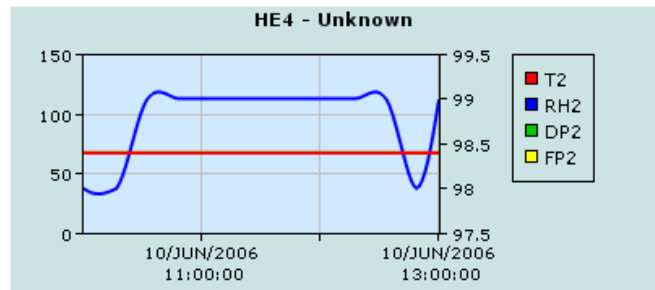
Graph for probe in position A



Graph for probe in position B



Graph for probe in position C



Graph for probe in position D

note:- this probe was reading temperature only)

The Dryair system was switched off at 15.00 on the 10th having ran for just 27.5 hours. During this period, the mould had been held at a temperature in excess of 60 °C for over 12 hours and had been completely destroyed. The saturated wood had been dried to 9% RH and the sand sub-strait had been dried to 100mm deep.



The 2 pictures above clearly show the dried and shrivelled remains of *Serpula Lacrymans*



Once again clear evidence of the effects of controlled heat on the infestation in question.

Showing clearly that Dryair UK Ltd, uses managed & controlled heat in the extermination of mould, insect & pathogen infestations, providing further evidence of its success. The chemical free, Eco friendly alternative available throughout Europe today.