

Home and dry

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Chris Netherton describes drying techniques for flooded property

There are close to 500,000 incidents of water damage to domestic and commercial property in the UK annually, from a minor dishwasher leak to a burst mains pipe in the attic. However, only a small fraction of the householders appoint a surveyor to assist them through the clean-up and repair process, despite most insurance policies allowing for this. With some householders clearly in need of help, and with the insurer picking up the fees, why are there not more surveyors focusing on this growing market?

So, what skills are needed to deal with flooded properties? Top of the list is an understanding of insurance contract law. Policy documents are easier to understand than they used to be, and insurers try to ensure the key facts are represented clearly. The [Financial Ombudsman Service](#) is the go to place for any tricky issues concerning cover. It is well worth an hour or two looking on its website at recent cases concerning flood, storm and escape of water claims.



Figure 1: damage caused by mould growth and zero dehumidification after a burst attic

pipe

A knowledge of the initial drying and emergency repair process is also vital. The objective is to remove excess water, to inhibit further deterioration such as mould growth and to return affected structural materials to their pre-incident dryness ? the 'drying goal'.

Works need to be undertaken in a time sensitive manner to minimise the disruption to owners or occupiers and get them back into their properties, a key stage in alleviating the mental anguish often suffered by flood victims.

Effective drying solutions are an important part of the total recovery process so a competent surveyor must understand how and when to use them. [British Standard Institution's](#) recent code of practice [PAS64:2013 Mitigation and recovery of water damaged buildings](#) clearly signposts the process and equipment currently in use in the UK.

Initially, moisture content readings should be taken in affected areas to establish the extent of the water damage. This is most often done using a non-destructive method using a capacitance type moisture meter. Where the degree of damage and circumstances indicate the possible presence of moisture below the surface, then in-depth readings should be taken. One word of warning ? in coastal cases, the salt content in the flood water will likely present false positives when using an electrical moisture meter. Salt content can be checked using the [Bresle method](#) , details of which can be found online.

Drying methods

Failure to remove evaporating moisture can retard the drying process and in the worst instances, create conditions in which secondary damage can occur, e.g. mould and microbial growth (above 65% relative humidity).

A number of techniques are currently used:

- **Open drying system:** Ventilation is increased within a building, which can be done by simply opening windows. For this to be effective, the outside air should be warmer and drier than the inside air.
- **Closed drying system:** All windows and doors are shut and dehumidification equipment is installed to remove and control the evaporated moisture.
- **Air exchange and heat drying systems:** Heating equipment is used to increase the temperature of the indoor air, which absorbs the evaporated water from the wet structural materials. The air is then either pumped out of the building or passed through machinery to remove the extra water.

Mechanical dehumidification equipment

Refrigerant dehumidifiers work by cooling the evaporated air below its dew point, which results in condensation appearing on the internal coils. Water is then automatically pumped away, or removed in containers. They work best when the air is warm (20o-25oc) and the humidity high (60% relative humidity (RH) and above).

With desiccant dehumidifiers, moisture is removed using direct absorption and vapour pressure differences. The machine has 2 outlets; one blowing wet air out of the building and the second blowing dry air back in, drying the water via air movement.

Desiccants work in all temperature and humidity conditions but are particularly useful on dense structural materials such as masonry walls, where they can reduce moisture in the air to as low as 10% RH.

In the case of convectant dehumidifiers, room temperature is increased by recirculating the air through a heating system. Once it has reached a pre-defined temperature or specific humidity levels, the machine switches to exhaust mode expelling wet air to the outside. Convectants are generally trailer size, and can dry a three-bed semi in three days after a flood event.

Air movement

Increasing air movement over the surface of a wet structural material encourages evaporation of the moisture within. It also encourages turbulence, which can make drying equipment and techniques more effective.

When the usual heating system in the building is not functioning or is insufficient, a secondary heat source may be needed to achieve the required drying conditions and to accelerate the evaporation of moisture. Heating systems may also be used to target specific troublesome drying areas. However, heating alone may be dangerous because uncontrolled evaporation can lead to secondary damage to the building.

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Sometimes damage is confined to a single wall. If so, drying can be localised by attaching plastic sheeting or special purpose materials around the target area.

The technician should design a monitoring programme in accordance with the method used. This may entail daily visits when drying with dehumidifiers or hourly for trailer-sized heating systems. Do not accept less than weekly checks for drying with refrigerant dehumidifiers.

As part of the programme, the technician should monitor the drying equipment installed and record the measurement of moisture and progress. Once the drying goal has been met, a drying certificate or report is issued, signalling the starter's gun for the reinstatement, which becomes a conventional building repair process.

Flood restoration projects should be of particular interest to small, local surveyors, especially in rural areas where the property stock is non-standard and they will often know more about their drying and repair than a national surveying network appointed directly by the insurer. That said, the transient nature of flooding, and its potentially overwhelming severity, can often require a substantial manpower and administration resource to deal with multiple projects across a wide-ranging geography.

It is time for surveyors to pick up the baton and look to this sector to showcase their skills positively and assist flood victims to recover post disaster.

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Further information

Image ? National Flood School

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