

Help and advice



Peter Grant on data logging when measuring damp

Get logging and don't mention the warp!

LAST month I introduced the raison d'être and rationale (pardon my French!) for using data loggers and their place in the toolkits of professionals operating in our industry.

I want to use a case study this month that illustrates a number of points to do with new build, in this case, a barn conversion. It also shows the value of data logging when gathering data.

A few months ago I was called in to have a look at a barn conversion with under floor



heating. It had been occupied for nine months and the first wood laminate floor had failed very quickly, with typical warping and the attendant growth of black mould spots etc. This indicated a very high moisture load.

The warped flooring was removed and mdf was put down in the interim to enable the occupants to continue living there.

Readings at the beginning of April this year indicated 4.2% to 4.5% using a Tramex CME Expert instrument set for sand/cement screed.

The corresponding ERH readings from the humidity box were 82% to 94%. Readings one month later with the CME Expert showed a drop from 4.5% to 3.8%.

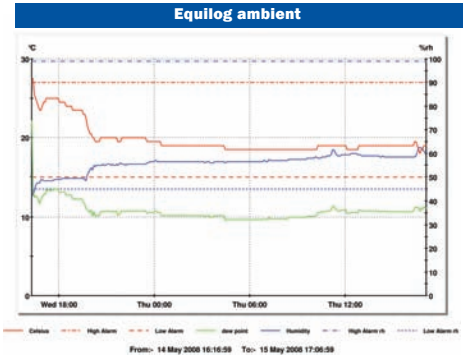
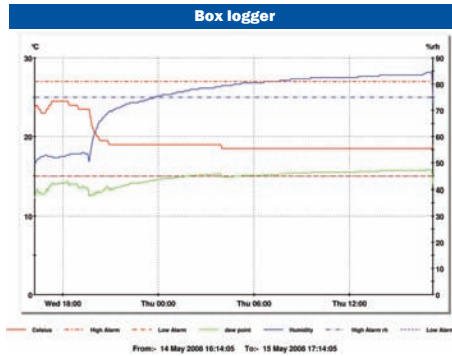
I was asked to look at this and give an



opinion as to the actual or true moisture status of the floor, as condensation was observed on the underside of the Celotex insulation system.

As the location was south of London and my travels were taking me to East Sussex, I took the opportunity to set some hygrometers and my new dual function data logger on site.

I did this on the Wednesday evening and re-visited the site on Thursday afternoon to



Instrument	Location	Hygrometer %RH	MMS Relative	MMS WME
Equilog	Kitchen		600	21.0
F Ball hair hygrometer	Lounge	84.5	350	16.5
F Ball digital floor hygrometer	Spare room	75.0	615	19.0
Fugenex Damp Protect moisture monitor	Master bedroom	Floor: blue +75% Ambient: White less than 75%	900	20.5

retrieve the instruments and to also take real time readings

I used a Protimeter MMS instrument in both its relative (REL) search and WME pin reading modes. I should point out that due to time pressures, I had to pick up the hygrometers a little sooner than would be normal but, nevertheless, the results were interesting.

It gave me the opportunity to compare and contrast readings taken by the Protimeter MMS in its most often used modes. With surface hygrometers it was too good to miss. I set the hygrometers and the data logger in locations where the householder told me the worst moisture effects had showed themselves.

The observed results are shown above.

The two downloads from the Equilog dual data logger clearly show that ambient conditions are perfectly normal; whereas the floor was returning a peak ERH value of 84.5% just before I lifted the instrument.

It is likely that this instrument would have climbed higher should I have had the time to leave it in position for 48 hours as opposed to the 18 hours it actually had on site. You can, however, see that the humidity curve flattens out somewhat which shows the value of a data logger for trend monitoring!

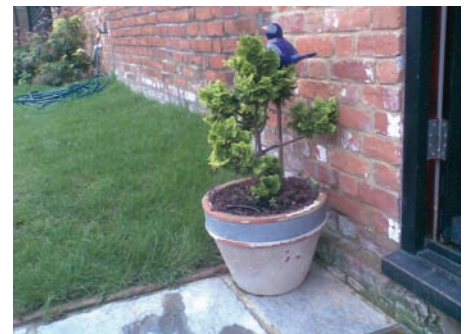
What this demonstrates is that the substrates still gave cause for concern. Note I do not say 'high moisture' at this stage, although this is the most likely cause it has to be said.

The relative search mode just waves a flag at you to say investigate further, i.e. do the hygrometry. However, the surface readings are still at the upper limit, and a little beyond,

what is given in BS8201 when converted to their approximate ERH equivalent values.

To proceed you will require a DPM system of some sort, but there is a further problem. It is one that has, in my opinion, given rise to most of the issues observed so far and it is fundamental in nature – the outside ground levels are too high in relation to the external DPC.

The photograph below shows the problem:



The lawn is well above the internal floor levels and is focusing moisture on the brick, allowing moisture to laterally penetrate the wall.

If you would like data sheets on any of the techniques and instruments mentioned, please contact me:

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Until next month, remember, it's wet out there, don't get warped and twisted! **CFJ**

Peter Grant is an independent moisture measurements consultant working with Martin Lishman. He also instructs on FITA moisture related courses.