MOISTURE MEASUREMENT & CONTROL

FROM F. BALL

MEASURING AND CONTROLLING SUBFLOOR MOISTURE

BALL

F. Ball and Co. Ltd.
Undertake an initial test for the presence of moisture in the subfloor using a radio frequency moisture meter such as the Aquant™ Protimeter. If moisture is present, investigate further.

Confirm and accurately measure the moisture levels present using a F. Ball Digital Hygrometer. If the relative humidity is below 75%* it is safe to proceed with fitting. If above 75% RH go to step 3.

If relative humidity is above 75%, treatment is required. Use the chart opposite to determine the appropriate treatment.
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* For resilient & textile floorcoverings. For wood floors F. Ball recommend a maximum of 65% RH. Consult wood floor manufacturer.

Proceed with fitting

Use one coat of Stopgap F76, F77, F78 or Isolator Membrane

Use one coat of Stopgap F76, F77 or two coats of F78 or Isolator Membrane

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If there is no structural DPM or the DPM is damaged, F. Ball recommend Stopgap F77
Moisture Measurement

**Aquant™ PROTIMETER**
The Aquant™ is the quick and easy way to check subfloors and determine if areas potentially contain excess moisture and are of concern.

- Handy size and non invasive
- Quickly identifies potential moisture
- Affordable

**Digital HYGROMETER**
The F. Ball Digital Hygrometer allows you to accurately determine the % Relative Humidity level and decide whether a waterproof surface membrane is required.

- Ready to use - pre calibrated
- Simple and reliable way to measure Relative Humidity in subfloors
- Recommended by British Standards

**MMS PROTIMETER**
The MMS is a complete multi-mode system. It can provide a quick check for moisture presence, or with the use of probes or humidity boxes, allows % RH to be measured directly.

- Handy size - convenient to use
- Complete moisture checking system
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Impervious loose lay sheet designed to be laid over damp subfloors prior to laying of some textile and resilient floorcoverings
- Isolates floorcoverings from damp and contaminated floors
- Easy to lay and easy to remove, leaving the surface in its original condition
- Ideally suited for fast-track and refurbishment projects

F76 One-Coat High Performance Waterproof Surface Membrane
- Suppresses passage of construction moisture or moisture from water ingress from above up to 92% RH
- Pigmented blue to aid coverage uniformity
- Can be used with STOPGAP Accelerator to speed up cure times

F77 One-Coat Epoxy System High Performance Waterproof Surface Membrane
- Suppresses passage of construction moisture and rising damp up to 98% RH
- Pigmented black to aid coverage uniformity
- Can be used over underfloor heating up to 90% RH
- Contains accelerator to speed up cure time.

F78 Two-Coat Water Based Rapid Drying Waterproof Surface Membrane
- Suppresses passage of construction moisture up to 95% RH
- Pigmented blue to aid coverage uniformity
- Eco friendly, No waste
- No priming of the floor prior to application of waterproof surface membrane

STOPGAP ISOLATOR MEMBRANE
Proven Loose-Lay Impervious Laminated Sheet Membrane
- Impervious loose lay sheet designed to be laid over damp subfloors prior to laying of some textile and resilient floorcoverings
- Isolates floorcoverings from damp and contaminated floors
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www.f-ball.co.uk/moisturecheck
What is the problem?

It was only in 1965 that it became mandatory to install a Damp Proof Membrane (DPM) in new buildings. Where there is no DPM or in cases where the DPM has failed, moisture can rise into the slab from the ground. In cases of new construction the slab itself will contain a considerable amount of residual moisture and although this will generally reduce with time, dependent on environmental conditions, this can cause a significant delay to building occupancy. There are of course, other circumstances where a floor slab may temporarily absorb water, after a flood, broken pipe etc.

In any circumstance where the floor slab contains significant amounts of moisture, if floorcoverings are installed without precautions being taken, the floorcovering will reduce moisture release thereby trapping moisture under the covering with the potential to cause blisters or even failure of the adhesive. When problems like this occur (after floorcovering installation) there is no ‘quick fix’ other than to undertake an expensive rip out, then to either let the floor dry or install a Waterproof Surface Membrane (WSM) and install a new floorcovering.

The difficulty is that moisture is not always visible and estimates of drying times can be very inaccurate. The best estimate of how long a floor takes to dry to an acceptable level of 75% RH is at a rate equivalent to 1 day per 1mm of subfloor thickness up to 50mm. So typically a 50mm thick screed will take at least 50 days to dry given good drying conditions. Thicker floors can dry at an even slower rate than that and a tight floor finishing (eg power floated concrete) will prolong it further. Given the financial pressure to occupy a building the temptation is to take a risk and proceed with installing the floorcovering - however, the costs of getting this wrong can be substantial, not only in wasted material but because occupancy may be even further delayed while remedial action is taken.

If a floor slab is dried by heating, this may also cause the ground to heat up. Moisture can then be transferred from the ground to the concrete when heating stops. In certain circumstances underfloor heating may be used to dry the screed in accordance with suppliers instructions.

How can you tell if it is safe to proceed with installing a floorcovering?

Where there is a suspicion that the floor may contain moisture, this needs to be carefully checked - visual inspection is inadequate as what may appear dry on the surface may conceal retained moisture that is being slowly released.

Firstly the presence or absence of moisture can be checked easily using a radio frequency moisture meter such as the Protimeter AQUANT™ or Protimeter MMS2®. These devices are quick and easy to use and give instant readings that indicate whether moisture is present or not.

If no moisture is present then the flooring installation can proceed, but if there is an indication of moisture presence, then this needs further investigation.

Measurements need to be made at a number of points across the floor and over a period of time to allow measurement of moisture release from the slab.

Traditionally such measurements have been undertaken using a hair hygrometer that itself required careful calibration immediately prior to use. This method has now been superseded by the use of a pre-calibrated F. Ball Digital Hygrometer® which is temporarily sealed to the floor surface for a period (typically 4-24 hours) and regular readings taken until an equilibrium result is achieved and gives a direct read out of the relative humidity of the floor. Thicker power floated slabs will take longer.

An alternative measurement method is to utilise a Protimeter MMS® in conjunction either with humidity boxes (similar to those used with the digital hygrometer) or using moisture probes that are inserted into pre-drilled holes in the slab.

Where Relative Humidity (RH) levels are measured at below 75%**, flooring may proceed without further treatment. At levels over 75% further treatment is required.

*For detailed operating instructions and information on how to interpret results please see the relevant product data sheets and operating instructions.
**For wood floors F. Ball recommend a maximum of 65% RH.
Consult wood floor manufacturer.
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suﬃciently in as little as 45 minutes at 20°C. Alternatively, Isolator can be laid

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in as little as 45 minutes at 20°C. Alternatively, Isolator can be laid directly on the floor and a floor covering installed immediately using the recommended Styccobond adhesive.

The appropriate treatment depends on the Relative Humidity (RH)
of the floor:

The F. Ball high performance range of Stopgap waterproof
surface membranes; Stopgap F76, F77, F78 and Stopgap

Isolator membrane have been specifically developed to
provide a moisture solution for Relative Humidity (RH)
values up to 98%. Please refer to the products technical
data sheet or contact Technical Service for advice.

If there is no DPM or the DPM is damaged, F. Ball
recommend Stopgap F77 or Stopgap Isolator Membrane.

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What if there are other problems?

If the floor suffers from other problems in addition to moisture, these can generally be overcome by using one of F. Ball’s specialist range of underlayments in conjunction with the WSM. For example:

- Stopgap Green Bag & 114 Liquid or Stopgap 1200 PRO
  smoothing underlayments can be used under Stopgap Waterproof Surface Membranes, if presmoothing is necessary.

- When time is important, Stopgap Fast-Track 30 can be used over the appropriate Stopgap WSM. Stopgap Fast Track 30’s unique rapid setting, rapid drying technology allows the floor to be smoothed and levelled and is ready to receive floor coverings from 45 minutes.

Many old floors may well have previously been painted or be suffering from efflorescence. Where the subfloor is flaking or contaminated, Isolator Membrane provides a solution as well as providing an effective WSM. For advice on subfloors refer to the F. Ball Subfloor Preparation Guide.

For details of other products that can be used in conjunction with WSM’s please either contact F. Ball’s Technical Service Department, view the F. Ball website on-line at www.f-ball.co.uk or consult F. Ball publications or Individual Product Data Sheets.

F. Ball manufacture a complete range of primers and adhesives for use with WSM’s.
For further information about products from F. Ball and Co. Ltd.
or technical advice, please contact:

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