Dryrod Performance Testing

Silane/siloxane based creams are used in the treatment of rising damp. These creams can be either higher strength materials (>60 % actives) of lower strength materials (approximately 20 % actives). The creams work by spreading through the pore system in the masonry. The silane/siloxane actives then react to coat the surface of the pores making them hydrophobic and so repelling the rising damp.

The procedure for applying these chemical damp proof courses involves the drilling of holes along the mortar line and then the use of an applicator gun to pump the cream into the holes. The process, while effective, does not guarantee equal dosing to each hole. It also involves the use of the specialist equipment in the form of an applicator gun. Finally, the process can create mess which then has to be cleaned up.

The purpose of this project was to develop a new method for treating rising damp that overcomes these issues with the cream based technology. Thus, the aims are as follows:

- Ensure that each hole during application gets an equal dosing
- Avoid the use of specialist application equipment
- Minimise waste and mess during the application process
- Match or improve upon the performance of cream technology

1. Concept

The concept of an absorbent rod, Dryrod, containing the active materials was developed (**Photo 1**). The Dryrod concept had the following features considered advantages over the cream technology:

- The rod would act as the applicator for the silane/siloxane. Thus, avoiding the necessity for specialist applicator equipment.
- With the actives absorbed into the rod, spillages and other sources of mess should be avoidable.

While the advantages listed above are determined by the nature of the new technology, the efficacy of Dryrod in treating rising damp had to be determined through testing.

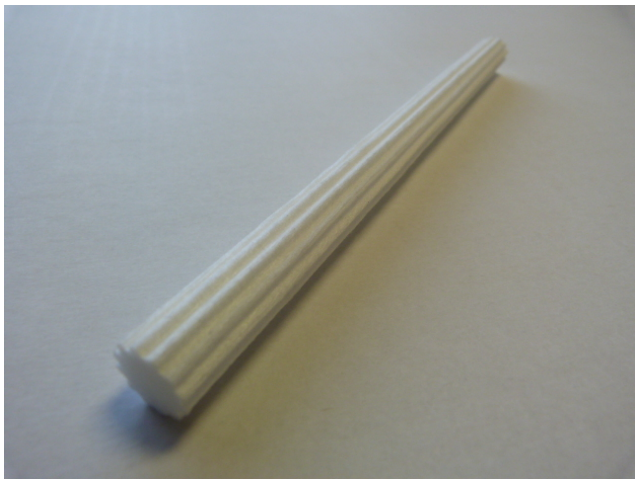

Photo : Dryrod

2. Dryrod Efficacy – Laboratory Testing

In order to determine the efficacy of Dryrod it needed to be compared to cream technology. As a result each test included a sample treated with high strength damp proofing cream, a sample treated with a low strength damp proofing cream and an untreated sample.

Testing was conducted a neutral mortar as this is representative of that found in older buildings. Substrates were prepared according to the standard Safeguard Brickburger Test Method.

Finally, testing was carried out at different substrate saturation levels. Dry substrates were examined to check that the product worked well in situations where it would be applied either during the summer, when the wall may have dried out, or as a preventative measure.

Testing was also carried out with substrates at 50 % saturation. This allowed the performance to be assessed in a wall where rising damp is present.

2.1 Low Moisture Conditions (0 % saturation)

Samples were treated with a low strength cream, a high strength cream and with Dryrod and left for 4 weeks to cure. Untreated samples were also retained for testing. Following the curing period, the samples were introduced to water and the water uptake recorded. The performances of each of the damp proofing treatments after 7 days are shown in Figure 1.

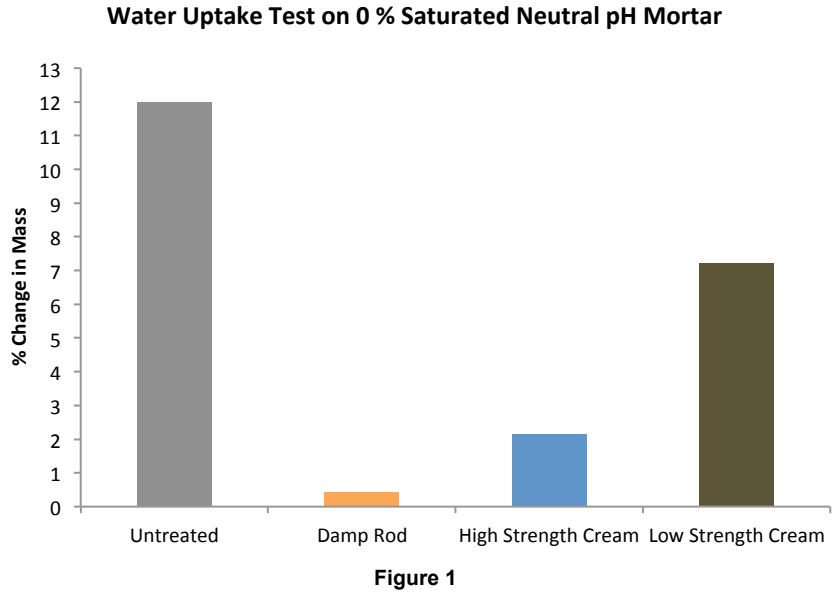

Figure 1

In the neutral mortar under dry conditions all of the methods of treatment have a positive effect on the water uptake compared to the untreated sample. The Dryrod reduced the water uptake by the greatest amount, reducing the water uptake to nearly a quarter of that of the untreated sample. It also reduced the water uptake to less than half that of the low strength cream.

2.2 Damp Conditions (50 % saturation)

The samples were saturated and then allowed to dry down to 50 % of their saturation point before being left to equilibrate. They were then treated with the Dryrod, low strength and high strength creams and left to cure for 4 weeks. An untreated 50 % saturated sample was retained for comparison. Following the curing period, the samples were introduced to water and the water uptake recorded. The performances of each of the damp proofing treatments after 90 days are shown in Figure 2.

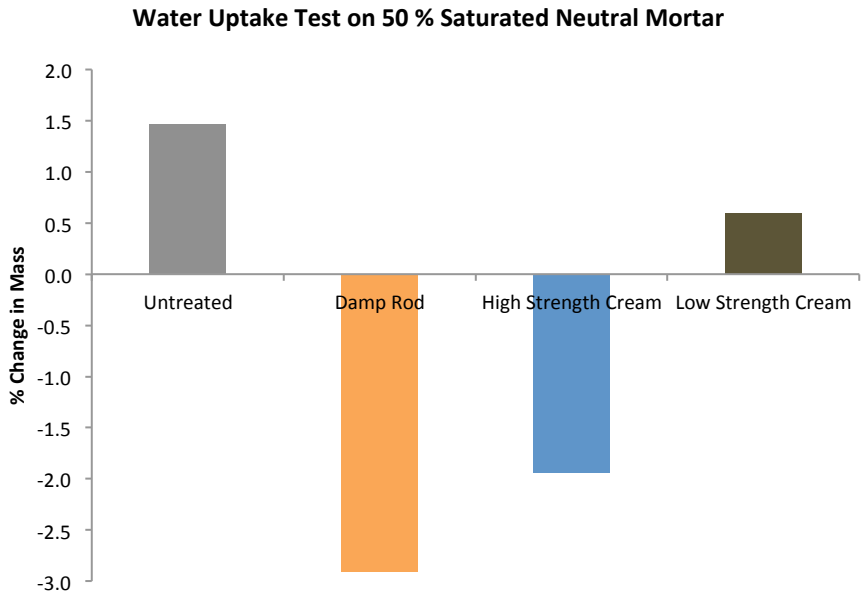

Figure 2

In the 50 % saturated testing the low strength cream reduced the water uptake compared to the untreated sample. Both the high strength cream and the Dryrod both dried out rather than become wet when introduced to the water, indicating the presence of an effective damp proof course being formed. The Dryrod treated sample gave the best result.

3. Conclusions

The tests results show that not only does Dryrod work under conditions where rising damp is absent, but it also outperforms both the high strength and low strength conventional creams.

Similarly in damp conditions where rising damp is present Dryrod can produce an effective reduction in the water uptake, unlike the low strength cream which has little impact. While the high strength cream works well under these conditions, Dryrod out performs it reducing the water uptake further.

The new Dryrod technology for treating rising damp fulfils the requirement of outperforming the current conventional methods.

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