

Stairway design to optimise anti slip characteristics

Comprehensive tests were carried out regarding how the human being instinctively utilises a stairway. The results of this survey found that it was the first 140mm of the “going” or stair tread that takes the majority of the load exerted on it, by the foot, both in the ascending and descending directions . In addition to this it is the thin corner of the stair nosing that takes the initial impact of the foot at an angle as a person climbs the stair, thus this being the area of the heaviest load and the heaviest wear especially when someone is running.

Instinctively the passenger increases the stride width at the top step or on one of the landings in the ascending direction, planting the entire foot within a width of 280mm even when running. Anything less than 140mm for a normal step and 280mm for a landing step severely diminishes the anti slip characteristics of the stairway if a non abrasive surface is substituted for the optimum width AATi products.

Inevitably, in the context of cost saving, especially for low footfall applications, compromises have been made which have led to a less than ideal solution in certain circumstances, for instance the AATi SN9/55 is adopted which compromises on anti slip characteristics, but suits DDA colour contrast regulations. AATi always request that product designers fully understand every aspect of stair design and footfall characteristics of the application before making a selection. Ultimately stairway safety is of paramount concern and often savings in construction techniques and costs are better made rather than compromise on nosing selection.

Stair Nosing Wear

A regular subject of conversation with specifiers and station managers alike is “How long does a nosing last, and when is it worn out”. Unfortunately the answers to these questions, and similar are that being specific is very difficult. The reason for this is due to the footfall on one particular location and of course the material substrate into which the anti slip silicon carbide is encapsulated. Our engineers will advise on the best product for a particular application.

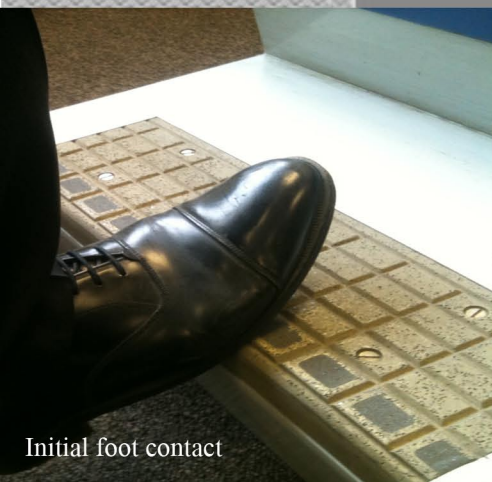
The advantage of AATi products is that they do not wear out catastrophically, i.e. the process of wear in a gentle procedure over many years, which first results in a polishing of the substrate metal and an improvement in the contrast between the resin in fills, and that metal, followed by continued wear of the metal until the silicon carbide granules are no longer encapsulated adequately and they fall out. For a short period of time the last piece of metal surrounding the individual granule stands proud and provides a good wearing surface, but very quickly this itself is worn down and the shiny and therefore dangerous smooth nose edge results.

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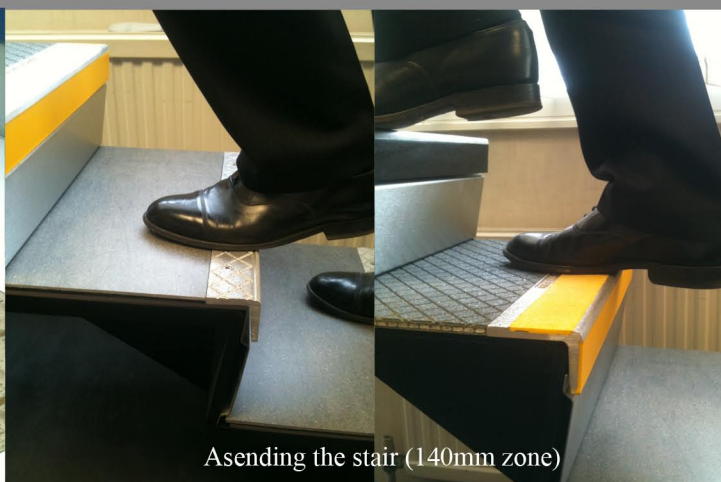
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Part of the
FSE Group



Initial foot contact



Ascending the stair (140mm zone)



Descending the stair