

In Situ Entrance or Barrier Matting Trials

We have spent the last year or so looking at a wide variety of installed matting systems around the country. We were really interested in how they could be kept on working at maximum efficiency rather than the pros and cons of each system. At the end of this exercise we decided to examine, practically, how dry extraction cleaning could work with these mats.

We wanted, first of all, to examine the rationale for these matting systems.

It seems to be accepted by architects, specifiers, cleaning and maintenance professionals that Entrance or Barrier matting works to remove soil and moisture from the soles of shoes and the treads of wheeled traffic as they cross the threshold from the exterior of the building into the interior. Also, they may exist within a facility, to prevent soil transfer from one area to another e.g. kitchen to dining areas.

Installing matting makes sense for these reasons.

Protection of flooring and flooring finishes beyond the barrier matting

The objective is to protect the floor finish and therefore the floor structure beyond the barrier mat. The type of floor and finish isn't really relevant. Tracked in water, chemical contaminants and non soluble soil (grit) will cause deterioration, no matter what.

Reduction of cleaning costs beyond the barrier matting

The key concept behind matting is that it will trap and localise soil and water. In other words preventing the track in of soils and water onto those expensive floor finishes. There can be a massive payoff if the barrier matting continues to work all the time. Floor cleaning through the rest of the facility can be reduced in frequency.

The following principles seem to be generally accepted within the cleaning industry.

- c. 65+% of cleaning costs are keeping soft and hard flooring looking good.
- c. 85% of soil is tracked in from outside
- c. 15% of soil is deposited from the air.

Analysis of these principles strongly suggests that having barrier matting that operates continually will keep internal floors looking good at a reduced cost.

Safety

Dry soils and water on any floor surface (hard or soft) can be the cause of a slip hazard. Water and dry soils can markedly change the co-efficient of friction. Two examples spring to mind and from personal observation of slip and fall accidents. Firstly, when a supervisor walked from a wet carpet onto a vinyl floor and secondly, watching a colleague go sideways when stepping onto a ceramic floor that was coated in fine grit. Fortunately, only their pride was damaged but both accidents were totally avoidable.

Let's not forget that Barrier or Entrance matting helps provide safe access for all users of buildings, inclusive of wheelchair users and helps to comply with the Equality Act 2010.

Choice of Mat

Again the industry seems to recognise a number of parameters but all times the defensive mantra is "Protect the flooring beyond the Barrier or Entrance Matting"

- Location. The thinking here shouldn't be constrained by thinking "inside" the building. If an exterior mat is protected by a canopy then consider locating it there as well as inside the building.
- Traffic Volume. How busy is the entrance, is there a high volume of wheeled traffic as well as foot traffic?
- Type and Volume of Water/Soil. What's the annual rainfall; is this even or in "large lumps". How much soil is anticipated? Will this soil be dry or oily, some mat constructions are better at dealing with dry soil, for example.

Cleaning Process

There are three basic components of the cleaning process. Firstly, vacuum the mat removing loose dry soil, taking care to ensure that the mat is dry before starting this process. Secondly, using chemistry to remove any sticky soil and finally, extracting this soil that has been loosened.

Often after vacuuming it's possible to see where the remaining sticky soil is and concentrate the cleaning chemistry in that area.

Of course the major modern curse of chewing gum deposits must be dealt with. Whatever method is used, chemical or freezing or a combination it's important to remove all of the deposit to prevent re-soiling. If a mat well is involved make sure that this is cleaned out.

The frequency of the clean should be flexible enough to take into account the two factors that dictate the process. The total footfall during a given period and the external conditions that determine the amount of soil and water carried into the facility.



Matting at Major Shopping Mall



Matting at a Main Line Train Station

Our Overall Observations

We have found that a lot of the mats we looked at were in poor condition. They had not been maintained and were full of dirt. In many cases the matting may as well not been installed.

There seemed to be general failure to vacuum and make sure the soil was extracted. When rain persists there is often no plan to dry the existing matting or maybe extend the matting on a temporary basis further into the building.

It seemed a great pity that having spent upwards of £180.00 per sq metre on the matting its' use and life weren't being maximised.

In general a "FIT and FORGET" policy was common. Then we looked at a different approach.

Trials

We were grateful for the opportunity to trial the HOST method at a large UK Shopping Mall. The centre has some 13 entrances (and therefore exits) but we trialled at one of the large entrances, some 120 sq metres of matting. We established that the mats at the Mall were maintained using upright "brush type" vacuums on a regular basis and apart from some high traffic areas looked alright.

We then carried out extensive trials using the HOST system.

The biggest realisation when we carried out these trials was that the time frame was limited. The earliest we could start was 11.00 pm and the matting had to be clean and dry by 6.00 am.



Matting Configuration

We followed a VCATV approach. In other words Deep Vacuuming, Chemistry, Agitation, Time, Deep Vacuuming. In our view the term Extraction means the same as Deep Vacuuming. The vacuuming or extraction phase means removing loose soil but with the Host system this can be combined with a brushing phase. We used different vacuuming techniques such as lawn mower and double brushing. Also, we experimented with a number of brush types to establish whether stiff brushes worked better.



Lawn Mower Vacuuming

We found that double brushing i.e. North/South – East/West twice was necessary to restore the matting and was used for the first shift. Thereafter, double brushing was only used in the main traffic area and lawn mower used elsewhere. Lawn Mower brushing takes 50% of the time that double brushing takes and so the time taken to vacuum the area dropped from just under 2 hours to 45 minutes.

On the scraper/textile primary matting we found that deep brushing system restored the textile fibres to an upright position.

The amount of dry soil removed during the first shift was staggering weighing at 5.5kg. The filters had to be changed three times during this first clean. Curiously enough the soil had a burnt tobacco odour but the mystery was solved as a smoking area was found adjacent to the entrance. During subsequent shifts the weight of dry soil dropped significantly to around 1.5kg per shift.



Dry Soil Removal

We could see that the visual soiled area had reduced dramatically as the dry soil had been removed. This meant that we could concentrate the HOST chemistry where it was needed.

On the first occasion we applied HOST and then double brushed we found that we were applying chemistry to approximately 60% of the area and used 7 kilos of product. By the end of the trials we were applying HOST to 40% of the area and using under 3 kilos of Host sponges.

During the first two shifts we used a Host Prep prespray but only after the first deep vacuuming.

A significant drop in timing had occurred as the time taken to carry out the cleaning process reduced from 4 hours to 2 hours and the mat was dry immediately. Additionally, the matting in entrance looked much better and as it was cleared of soil would also work as the manufacturers intended.

The process is one of investment. The building has a considerable investment in these systems and it looks from this model that it's possible to keep the mats operating at high efficiency for around a labour time of less than 2 minutes per sq. metre, a material cost of 1.4p per sq. metre and a machine depreciation charge of around 1.8p per sq. metre. This depreciation charge being based on using a machine for 40,000 sq. metres per year over 5 years.

A welcome bonus was when we noticed some soiling on the marble surrounds and a small application of Host brushed through removed the soiling immediately.



Before



After