A CASE FOR DRY SLIP TESTING ACTUALLY THREE….

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Firstly, you may ask yourself why do I need dry slip testing? And who slips on a “dry” floor?

Well the dry slip testing machine can be a powerful tool for ascertaining responsibility and causation of a slip fall incident and monitoring a floor surface during operational conditions.

Below are three case studies that have helped shape procedures and shifted responsibility for a slip fall incident and/or complaints off the management company to the relevant person/company responsible. In all these cases there was no water present on the floor surface during the slip fall incident and/or complaint, also none of these cases were located in a food court.

Case #1: The Fish Shop

We were called out to a popular Gold Coast shopping centre where an elderly lady had slipped and fallen outside a fresh fish shop resulting in a substantial head injury. We were on our way back from Coffs Harbour so it was going to take four to five hours before we could get to site. Management were instructed to barricade the area and not to conduct any cleaning in the vicinity of the area until after the slip tests had been conducted. We finally arrived on-site at nine o’clock that night and were directed as to the location of the slip fall incident by a security guard. An area of approximately three-square metres was cordoned off. We conducted our first test noticing that as the Tortus II’s (dry slip testing machine) 800mm path length came closer to the display of the fish shop in question, the results were dropping drastically from 0.75 to 0.13 COF as if there was some sort of contaminant on the surface of the terrazzo floor adjacent to the fish shop’s display. We then concentrated the test areas closer to the glass display cabinet of the fish shop where we were recording results ranging 0.07- 0.13 COF (Coefficient of Friction) over the entire 800mm path length, with the overall average of the five test areas conducted only reaching 0.11 COF (The minimum recommended COF ≥0.40). When Security returned to find out if we had finished the testing, Peter (Peter Vournechis of Slipsmart Pty. Ltd.) asked security if there had been any change to the cleaning of the area in the immediate vicinity of the slip fall. This is when security mentioned that the owner of the fish shop in question had earlier that same morning sprayed his tile/glass display cabinet with silicon spray. It seemed that the overspray from the method of application had settled on the terrazzo floor surface making a very dangerous and slippery floor surface. This information along with the slip test results was conveyed to management the next morning the area was then stripped and resealed the next night. The litigation that arose from the incident was then passed from the management company of the shopping centre to the tenant responsible, effectively wiping their hands of the incident, and allowing them to put procedures in place for every tenant in the shopping centre in relation to how they clean and maintain their shopfronts.

Case #2 The Doughnut Kiosk

We were called out to a popular Ipswich shopping centre as the centre management were having a number of complaints and a few slip falls in one particular area of the shopping centre. We arrived on-site and were directed to an area outside a doughnut kiosk. After conducting one test where the complaints had been reported, the averages recorded by the Tortus II were well below the recommended ≥0.40 COF whilst the rest of the floor surface in the shopping centre would record results between 0.55-0.70 COF. After completing the five test areas around the tenancy in question Peter observed the operation of the doughnut kiosk and found, where they would deep fry the doughnuts was adjacent to the area where the slip falls and complaints were recorded. The staff member of the doughnut shop had just put a batch of doughnuts in the deep fryer and after a couple of minutes you could observe the smoke and oil vapour rising above the kiosk walls to settle on the external terrazzo floor, the kiosk in question did not have an extraction fan above the deep fryer. The settled oil was affecting the frictional characteristics of the floor surface and creating the hazard. The cleaning company were then instructed to concentrate efforts on this area until ultimately the doughnut company in question installed an extraction fan (under centre managements request). I am not aware of any litigation that came from this oversight but I am sure there were many prevented.

Case #3 – The Furniture Polish

This particular case has helped shape the procedures used by cleaning companies in Queensland and around the country for applying furniture polish to timber furniture inside shopping centres. We were called out to a popular Brisbane shopping centre as management had received a number of complaints that seemed to be concentrated around the public bench seating throughout the shopping centre. After arriving on-site and communicating with management we were directed to a number of bench seats where the complaints were reported. We conducted multiple test areas around an under the bench seats in question. The averages recorded in these areas were between 0.15-0.20 CoF. After we had conducted the recommended five test areas, (as per Peter's request) management then called the cleaning supervisor on the radio to come and demonstrate how the furniture polish was applied to the bench seats. The cleaning supervisor went on to spray the entire bench seat with furniture polish and remove the excess with a cloth. The overspray from the furniture polish had settled on the floor making the area dangerously slippery. After this revelation the cleaning company was instructed to apply the furniture polish to a cloth then wipe the polish on to the bench seats. Again, I am not sure if past litigation had resulted from this oversight but I am sure it prevented any future litigation, especially when the furniture of the shopping centre was relocated leaving the areas under the furniture exposed to regular foot traffic.

In Summary

These are just three cases, there have been many more in the 19 years I have been using the Tortus II dry slip testing machine including:

- Charity Prize cars using tyre shine and when the car is removed from the centre leaving an open walking space contaminated with the chemical used to shine the tyre rubber.
- Scrubbing Machines with faulty vacuum systems and squeegees not removing all the detergent from the floor surface leaving behind a powder residue over the floor surface.
- Tenants spraying roller door tracks with silicon spray to stop them from getting stuck and jamming.
- Construction in shopping centres without adequate dust control measures.
- Food tenancy staff walking grease/oil from the tenancy staff entry/exit out on to the shopping centre floor.

In summary I cannot ultimately conclude that the pendulum wet slip test would not have detected these anomalies, but the method in which the pendulum wet slip tests are conducted may have removed the evidence of these contaminants. The rubber slider on the pendulum arm and the water applied to the surface may have cleaned these contaminants from the surface in the first few swings of the machine. And as only the last three swings of the pendulum are used to average the SRV, we may have never known about the cause of the slip falls / complaints.

Additional Information and excerpts from HB 198:2014

HB 198:2014 / 5.3

Background to specifications based on AS 4586-2013 tests
The following definitions apply to Tables 3A and 3B.
(a) Dry areas Those areas in which appropriate control measures ensure an area remains dry and clean when in use.
(b) Transitional areas Those areas that are intended to be kept dry such as by the provision of design features (awnings, drains, mats, air locks, etc.) appropriate to the physical location, climate and general exposure to water, as maintained in a dry and clean condition by the facilities manager.
(c) Wet areas Those areas that are not defined as a dry or transitional area, which may be either constantly or intermittently wet or otherwise contaminated.

Excerpts from Table 3B HB198:2014

Entries and access areas including hotels, offices, public buildings, schools, kindergartens, common areas of public buildings, internal lift lobbies	
Wet area	P3/R10
Transitional Area	P2/R9
Dry Area	P1 (see Note 3)/R9

NOTES TO TABLE 3B:

1 The slip resistances of pedestrian surface materials set out in Table 3B are intended as guidance in the context of design for pedestrian safety, taking account other factors including abnormal wear, maintenance, abnormal contamination, the presence (or otherwise) of water or other lubricants, the nature of the pedestrian traffic (including age, gait and crowding), the footwear (or lack thereof), slope, lighting and handrails.

2 The contents of Table 38 are subject to further review by Committee BD-094, in its on-going project to provide guidance on the specification and testing of slip resistance.

3 The minimum classifications listed in Table 3B are P1 and R9. It is inappropriate for Table 3B to list the lower classification, P0, since there is no lower limit on Classification P0. Notwithstanding, some smooth and polished floor surfaces, which do not achieve Classification P1, may be considered to provide a safe walking environment for normal pedestrians walking at a moderate pace, provided the surfaces are kept clean and dry; however, should these surfaces become contaminated by either wet or dry materials, or be used by pedestrians in any other manner, then they may become unsafe. Therefore, the type of maintenance, the in-service inspection of floors, other environmental conditions and use should be taken in to account when selecting such products.

4 When using the oil-wet inclining platform 'R' classifications, consideration should also be given to the determination and use of volumetric displacement 'V' classifications. In some cases, a specifier may choose either a particular combination of R and V values, or a more severe R value alone. For example, either Rl0 + V4, or R11.

Excerpts from HB198:2014

3.2 Methods of testing

AS 4663-2013 provides two methods for determining the slip resistance of existing in situ pedestrian surface materials, as follows:

(a) Wet pendulum test method

(b) Dry floor friction test method

The dry floor friction test provides a quick and simple assessment of the slip resistance of a dry surface, and is therefore useful for management and maintenance of such surfaces.

The wet pendulum test is normally carried out under water wet conditions, although in the case of internal textile floor coverings it is appropriate for it to be carried out in dry conditions and reported as such.

Apart from the method of interpretation and reporting, there are no major differences between Appendices A and B of AS 4663-2013 and AS 4586-2013.

Excerpts are from HB198:2014 and can be purchased on-line at:
https://infostore.saiglobal.com/en-au/Standards/SA-HB-198-2014-111742_SAIG_AS_AS_233726/

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