Risk control

Slips, Trips and Falls Toolkit: Slip Resistant Flooring

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Introduction

Selecting an appropriate level of slip resistance when specifying a new floor can save significant costs in management and accident investigation and response throughout the life of a building.

When selecting a floor, understanding the level of slip resistance it offers is essential. Most flooring will provide good slip resistance when clean and dry. Where floors get contaminated during normal use, the level of slip resistance in contaminated conditions needs to be understood. Identifying and understanding the contaminants that are likely to get on the floor can be beneficial, with examples including:

- Oil and grease on kitchen floors
- Water at building entrances
- Body fats in barefoot areas, such as changing rooms or bathrooms
- Dusts and powders in manufacturing areas.

Even small amounts of these contaminants (e.g. wet footprints at an entrance) can increase the risk of slipping to dangerous levels so building controllers need to think realistically about the condition of the flooring at different times.

Which Test?

The best way to measure the slip resistance of flooring in different conditions is to test it with the pendulum test. The pendulum correctly reproduces the way we walk and therefore accurately quantifies the risk of a slip when a person walks on the surface. Importantly the pendulum test gives valid information when testing contaminated floors, something that other commonly used floor slip tests do not.

Pendulum testing can be done on both laboratory samples, as part of specification, and on installed flooring. Testing on site allows confirmation to be sought that the installed floor behaves in the same way as the product was specified in the laboratory. Regular testing can assist in monitoring the slip resistance of a floor throughout its life. New floors which are slippery when wet are unlikely to become less slippery over their lifespan. The grip offered by slip resistant floors can change for several reasons, For example:

- As a result of the installation process
- Wear and tear from foot traffic and cleaning
- Surface contamination due to poor or inappropriate cleaning

Different rubber materials are available for the pendulum that simulate shod and barefoot pedestrians. The test results should be relevant to the installation. For floors in barefoot areas this is likely to mean results from both rubbers.

A common way of testing the slip resistance of flooring which is used by many manufacturers is a ramp test, where an operator walks on a surface, increasing the angle until they slip. This method can produce useful results but has some limitations as a floor test:

- The test conditions are not representative of the conditions in which most slips happen
- The test can only be conducted in the laboratory, making it impossible to measure the slip resistance of installed flooring without removing it for testing
- The results are presented in a way that can be misleading (R9 – R13 for the shod test, A – C for the barefoot test).

There are several small portable tests used by manufacturers and floor treatment companies to demonstrate the slip resistance of flooring but few of them provide meaningful information in relation to pedestrian slipping.

Only the pendulum test is recommended for specifying the slip resistance of flooring by the Health and Safety Executive.

Specification

As part of a flooring selection process, building controllers need to consider where enhanced slip resistance will be necessary and in what conditions. Set a realistic minimum level of slip resistance that is required. Not all areas will need to have excellent slip resistance when contaminated. Consider:

- What contaminants will get on the floor?
- How often the floor is likely to become contaminated?
- What other controls are in place for preventing slips?

Make sure that the pendulum measurements were made in all the relevant conditions. It is common for manufacturers to present only the dry data (which will almost always be good). This may not be the most relevant information for the situation.

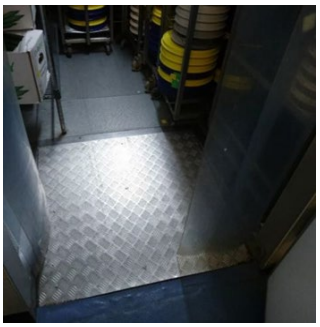
In-situ floors, such as resin floors containing aggregate, are produced on site. If you specify slip resistant for in-situ floors they will usually contain sand or grit to give them good slip resistance when contaminated. It is especially important that these floors are installed carefully so that the distribution of

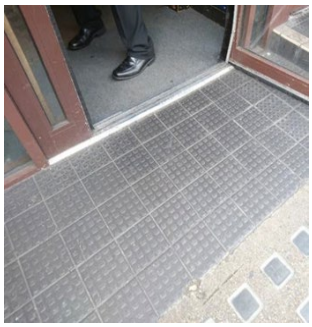
the sand or grit is uniform. If it is not uniform the slip resistance can vary widely and can lead to serious problems in use as people move across a surface where the slip resistance varies. Moving from an area of high slip resistance to one of lower slip resistance will increase the chances of a slip occurring. Moving from an area of lower slip resistance to higher slip resistance may increase the likelihood of a trip or a stumble occurring.

Profiled Flooring

It is frequently assumed that flooring with a raised pattern or profile, such as metal chequer plate, will offer good slip resistance, but this is often not true. Users will normally only experience a benefit if their footwear happens to interlock with the surface which depends on the shoe, the floor and where the feet land. Where the interlock is not achieved then the level of grip will depend on how rough the floor is, and many profiled floors have a smooth finish which can be slippery when wet. Slips are often seen on this type of floor.

Examples of profiled flooring





Other Design Considerations

Consider where in the building the floor will be laid.

It may be in a clean dry area but consider what other parts of the building are next to it (e.g. a serving area next to a kitchen, a corridor next to a wet room etc.). When moving between different areas, e.g. at entrances, other design features may need to be considered such as matting.

Sloping surfaces will need to offer more grip than level floors to prevent slips. Even shallow slopes, such as those used in swimming pools or showers for drainage, will increase the level of grip you need to walk on them safely. However, the drainage they offer will not leave the floor dry.

Many installed floors can be modified to improve their slip resistance. There are many types of floor slip resistance treatments, some of which have health and safety considerations of their own. Installing a suitable slip resistant floor in the first place is the preferred solution than installing a slippery floor and having to treat it.

Remember that avoiding slipping accidents will be much easier with a floor that is not slippery when contaminated, so careful selection can save a lot of time and money.

References

Risk Management Partners and Gallagher Bassett would like to thank QBE European Operations for the material used to shape this toolkit segment.

Further information

For access to further RMP Resources you may find helpful in reducing your organisation's cost of risk, please access the RMP Resources or RMP Articles pages on our website. To join the debate follow us on our LinkedIn page.

Get in touch

For more information, please contact your broker, RMP risk control consultant or account director.

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