

Slip-Resistant Resilient Flooring

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Fig. 1: Example of slip-resistant flooring

Importance of Slip-Resistant Flooring

A clean, dry floor can instantly become hazardous when water or other contaminants appear, leading to a slip or fall. Flooring choices should be assessed based on the activities and function of the room. Wet floors are anticipated in shower rooms and need to have barefoot slip resistance. In spaces where food is prepared, spills from cooking oils, grease, water, milk, flour, and even dropped plastic wrap are highly slippery. To reduce the risk of injury, it is best to provide slip-resistant flooring or safety flooring in spaces where the floor is likely to be exposed to elements that create slippery surfaces.

Design Considerations

Slip-resistant flooring is specifically engineered for areas with a high risk of slipping, providing enhanced traction to improve safety and reduce accidents. Aggregates are added to the substrate material, and the surface may be textured. The level of slip-resistance needed will vary depending on the use of the space. Slip-resistant flooring usually comes in a sheet format and can be covered up the wall to create a watertight installation. To ensure appropriate selection, it is essential to review the manufacturer's technical specifications, installation methods, and maintenance recommendations.

The Difference Between Safety Flooring and Slip-Resistant Flooring

The terms "slip-resistant flooring" and "safety flooring" are sometimes used interchangeably, but each has different ratings, is used in different applications, and requires different cleaning methods.

Safety flooring has higher slip-resistance ratings than slip-resistant flooring, contains more aggregates in the substrate, and requires specialized cleaning methods and equipment. In addition, it cannot provide barefoot comfort.

Applications

Slip-resistant flooring is recommended in:

- Foods classrooms, cosmetology classrooms, shower rooms, universal washrooms, patient rooms, laundry rooms, and janitor rooms.

Safety flooring is recommended in:

- School serveries and commercial kitchens (including food preparation zones, dishwashing areas, and walk-in fridges/freezers)



Fig. 2: Slip-resistant flooring example from Altro

Testing Standards

Slip-resistance is measured using several standards.

- Dynamic Coefficient of Friction (DCOF) value or Static Coefficient of Friction (SCOF) value
- Ramp Test (R Value)
- Pendulum Test (PTV Value)

Dynamic Coefficient of Friction (DCOF):

DCOF is measured for a moving object, whereas SCOF is measured for a static, nonmoving object. DCOF can be a more accurate measurement since it relates more closely to how floors will be used.

DCOF quantifies how slippery a surface is when walked on. It uses ANSI A326.3 as a testing method. Values typically range from 0 (very slippery) to 1 (very grippy).

General Guidelines:

- ≥ 0.42 : Suitable for wet interior conditions (minimum benchmark).
- 0.30–0.42: Moderate resistance; increased risk of slipping.
- ≤ 0.30 : Low resistance; high risk of slipping.



Fig. 3: R-value ramp test taken from Altro slip-resistance test guide video

R-values are based on the European ramp test (ISO standard), measuring the angle at which a person slips on an inclined surface when oil is applied. Ratings range from R9 (least resistant) to R12 (most resistant).

Note: An R13 rating is mainly used in slip-resistant tiles and not covered here.

General Guidelines:

- R9: Non-slip-resistant flooring
- R10: Slip-resistant flooring
- R11–R12: Safety flooring

Pendulum Test:

This is a portable test that measures slip-resistance by swinging a rubber slider to determine DCOF. This provides an accurate assessment of dry and wet slip resistance values, as it can be tested on site after installation. The least slip-resistant flooring will have readings closer to 0, and as the reading increases, so does the slip resistance. The results of the Pendulum Test are listed as Pendulum Test Values (PTV).

General Guidelines:

- PTV 36+: Low slip potential (1 in 1 million slip risk).
- PTV 25-35: Moderate slip potential.
- PTV 0-24: High slip potential (1 in 20 slip risk at PTV 24).

Using a combination of the DCOF, R Value, and PTV Value provides a more accurate understanding of a floor's slip-resistance.

Maintenance Considerations

Proper cleaning and maintenance are essential to preserve slip-resistance properties. Avoid waxes or sealants that may reduce surface traction. It is important to note that safety flooring can damage mops, as the added aggregates tend to shred the fibers, so using the proper cleaning pad and solutions is critical. Follow the manufacturer's cleaning guidelines to maintain warranties and compliance with safety standards.

Information/Image Sources From:

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