



Flooring Selection

Slip and Fall Prevention



Poor flooring decisions can lead to unfavorable results for owners and managers of a commercial building. During the selection process, businesses should carefully consider the flooring makeup and whether it has a proper surface for public use.



Key Considerations for Selection

Floor finishes, sealants and maintenance needs may differ depending on the location of the flooring in the business. For example, a high-traffic lobby may require more durable, slip-resistant flooring than a conference room with less traffic. Consider the following flooring properties to help make safer choices:

- **Material** – Is the floor made of a slip-resistant material such as natural stone or smooth ceramic?
- **Surface** – Is the surface water-resistant, and does it have a hard quality that is helpful in creating traction?
- **Condition** – Is the floor surface new and clean, or does it display worn features such as broken, loose, chipped or missing tiles?
- **Cleaning** – What cleaning agents, methods and equipment are best for the floor? Are manufacturers' recommended cleaning agents and practices used for specific flooring types? See our [Floor Cleaning and Maintenance guide](#) for more information.
- **Finishing** – Does the floor have a textured or smooth finish, and will aftermarket sealants, chemical treatments or coatings improve the surface's dynamic coefficient of friction (DCOF)?

As a general rule, obtain a floor's designated COF from the manufacturer at the time of purchase. Flooring that is properly maintained should continue to yield a DCOF of equal to or greater than .42 for (ID) Interior dry, (IW) Interior Wet, .50 (IW+) Interior Wet Plus, .55 (EW) Exterior Wet, .55 (O/G) Oils/Grease as set by ANSI A326.3-21. However, the use of coatings,

Key Takeaways

The Three Cs of Floor Selection

Carefully review flooring choices with architects, interior designers and manufacturers who understand walkway safety.

Consider slip resistance, chemical resistance, durability, and care and maintenance factors before making a selection.

Consult the original manufacturer DCOF when considering aftermarket treatments.

sealants and other finishing treatments may change an original surface COF.

Before proceeding with aftermarket treatments, review the flooring manufacturer's testing data. *Table 1* outlines the types of floor materials and their slip-resistant features.

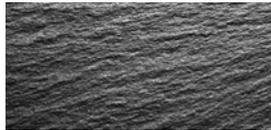
Table 1 – Slip-Resistant Features by Floor

Floor Material	Slip-Resistant Features
<p>Quarry Tile</p> 	<ul style="list-style-type: none"> • Tends to have a naturally high COF value. • Offers good slip resistance when clean due to its rough micro surface. • Slip resistant, but resistance may lessen when the surface is wet or soiled, mainly when cooking grease is present.
<p>Glazed Ceramic Tile</p> 	<ul style="list-style-type: none"> • Resistance depends upon the glaze used and the texture of the tile. • Smooth surfaces tend to have a naturally low COF. • Textured surfaces are generally designed to have a high COF. • Receptive to anti-slip coating additives that enhance floor traction, but they later wear away with heavy foot traffic. • Smooth glazed surfaces can be slippery when wet.
<p>Mosaic Tile</p> 	<ul style="list-style-type: none"> • Unglazed porcelain has a naturally high COF and good slip-resistant properties. • Can be slippery when wet if waxed (manufacturers recommend against waxing). • Glazed porcelain's slip resistance depends upon the type of glaze used. • Decorative mosaic tile slip-resistance depends upon the tile size, grout joints and glaze. • Glass mosaics have a naturally low COF, but frequency of grout joints may help with drainage, improving traction.
<p>Porcelain Tile</p> 	<ul style="list-style-type: none"> • Unglazed porcelain is durable and offers good slip resistance when maintained properly. • Glazed porcelain is durable, but slip resistance depends upon the glaze used and texture of the tile. • Textured tiles also offer good slip-resistant properties when wet. • Polished porcelain tiles are very slippery when wet and can only be used in dry applications.
<p>Concrete</p> 	<ul style="list-style-type: none"> • A honed stone, but not a sealed surface. <ul style="list-style-type: none"> • In interior applications, has a naturally high COF, as liquids from spills are absorbed into the concrete. • In exterior applications, is slippery when saturated by rain or other water sources. • When sealed, it has a naturally low COF and is intended for dry applications.
<p>Terrazzo</p> 	<ul style="list-style-type: none"> • Composed of granite and marble chips bonded with cement, then polished. • Slip-resistant properties are similar to polished natural stone. • Can also be made with epoxy binder. • Has a naturally low COF. • Avoid at entrances in wet, humid climates or areas expected to come into contact with water.

Floor Material**Slip-Resistant Features**

Natural Stone
(granite, marble, limestone, slate, quartz)

- Most often available in polished materials, which are very slippery when wet and should only be used in dry applications.
- Honed stone materials are also slippery when wet and generally have a low COF.
- Flamed and texturized stone or concrete materials are typically recommended for exterior applications, but they must be properly maintained to preserve slip-resistant properties.

Granite**Marble****Limestone****Slate****Quartz****Laminate**

- Composed of a wood layer with a clear, smooth polymeric protective layer on top.
- Has a naturally low COF.
- Intended for **dry applications only**.
- Slippery when wet.

Resilient

(linoleum, vinyl, cork, rubber)

- Surface is polished with acrylic or other polymer coating.
- Intended only for dry applications, per coating manufacturers' recommendations.
- Has a naturally low COF.
- Slippery when wet.

Learn more about [managing slip and fall risks](https://cna.com/riskcontrol) at cna.com/riskcontrol (US) or cnacanada.ca (Canada).