



*Back Bay*  
COLLECTION

## **Coefficient of Friction**

A common question I get asked regarding tile is, what is the COF? Coefficient of Friction is a number rating, as criteria to measure tile for the appropriateness in a commercial application. But what is COF really? What does it mean, and how is that number derived upon?

Definition of Coefficient of Friction (COF) – The measurement of resistance to friction as related to the effect of how smooth or rough a surface is to prevent material to “slip” across the surface.

When planning for tile in public spaces, the COF should be carefully considered. The higher the COF, the more slip resistant the surface. The ADA guideline recommends a 0.6 or higher in dry conditions to meet the ADA requirements. Typically the COF is indicated in a wet and a dry number under those conditions for the average of the test results. In a situation where there is a potential for water, the tile should meet the COF of 0.6 or higher under wet conditions. The ADA recommendation for COF on a ramped surface is 0.8.

I personally like the explanation of COF that Summitville Tile outlines in their product information, it reads:

“Static coefficient of friction tests are performed according to ASTM test method C 1028 – 96. There is no ANSI Standard for slip resistance. OSHA *recommends* a static COF of .50 minimum for dry surfaces. ADA *recommends*, on dry surfaces, a .60 for accessible routes and .80 for ramp surfaces. There are no ADA requirements for slip resistance. Static COF should be only one method to help you determine slip resistance. Other factors can affect slip resistance, such as degree of wear on the shoe and flooring material; presence of foreign material such as water, oil and dirt; the length of human stride at the time of slip; type of floor finish and the physical and mental condition of humans. Therefore, this test method should be used for the sole purpose of developing a property of the flooring surface under laboratory conditions, and should not be used to determine slip resistance under field conditions unless these conditions are fully described.”

TCA (Tile Council of America) notes on COF – “When coefficient of friction data are required for a specific project, testing shall conform to ASTM C – 1028. However, because area of use and maintenance by the owner of installed tile directly affect coefficient of friction, the COF of the manufactured product shall be as agreed upon by manufacturer and purchaser.” The US testing is a static test – it does not take into account motion.

I like the European test – It tests in both a horizontal and a ramped surface, with the ramped surface increased for a higher degree to test additional slip resistance. It also tests with oil for the wet application.

European standard for Coefficient of friction:

The test is performed on a “level and torsion – free platform...which can be adjusted longitudinally to gradients between 0 degrees and 45 degrees. Initial test surface is clean and dry. Test shoes have a sole, which is an elastomeric rubber sole, with an aggressive tread pattern. “

Slip resistant groups with footwear -

R9 (ramped angle of less than 10 degrees)

Application: residential,  
schools, medical, etc.

R10 (angle from 10 – 19 degrees)

Bathrooms, warehouses, garages, commercial  
kitchens.

R11 (angle from 20 – 27 degrees)

Dairies, freezers, laundries.

R12 (angle from 28 – 35 degrees)

Meat processing plants,

Industrial kitchens, etc.

Evaluation group – letter grouping added to the R value – slip resistance barefoot on a wet surface.

A

Dressing rooms

B

Showers, pool decks,

C

Sloping pool deck,  
submerged stairs.

COF is an important part of material selection for specific applications. It definitely takes into account the important role of the Interior Designer and Specifier of interior finishes in our industry to protect the health, safety, and welfare of the building occupants. I hope this information gives an understanding of Coefficient of Friction, and the ability to better understand the European testing standard for additional information and insight when considering a tile selection.

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