

# Are Your Floor Graphics Compliant?

Breaking down slip-resistance specifications for graphics print service providers and installers.



Throughout the pandemic, retailers, grocery stores, and other businesses have needed certain floor graphic products, such as materials that are paired with anti-slip overlaminates or anti-slip one-step print-and-stick solutions.

Already known as a valuable marketing opportunity, floor graphic applications have seen a significant increase this past year due to COVID-19 safety measures. From grocery and retail stores to restaurants and pharmacies, schools and universities, health care facilities and more, messaging on the floors of businesses and organizations has become essential to communicate things like social distancing and aisle direction.

To ensure consumer safety, these specialized floor graphics must meet anti-slip specifications and other compliance requirements — including new standards established early last year. In January 2020, the National Floor Surface Institute (NFSI) announced that its American National Standards Institute (ANSI) accreditation to develop floor safety standards had been terminated.

The termination effectively eliminated the industry's then-current standards for measuring a floor's slip-resistance, which were ANSI/NFSI B101.1 and B101.3.

With the NFSI announcement, the new standard for slip-resistance became ANSI A326.3, which was first published in 2017. The new ANSI A326.3 is virtually identical to another well-known ANSI standard, A137.1, which was recommended for common hard-surface indoor level floor materials starting in 2012. However, today's ANSI 326.3 does not involve NFSI. According to information provided by the President of Regan Scientific Instruments — manufacturer of the BOT-3000E Digital Tribometer — a total of 61 organizations represented the approval of the ANSI A326.3 standard, but NFSI was not one of them. The following outlines everything graphics print service ►



**By Amanda Smith,**  
Product Manager, Mactac  
Distributor Products

All images courtesy of Mactac.

This graphic is produced with REBEL media and a removable clear acrylic adhesive, designed for smooth indoor tile, linoleum, and concrete surfaces.



providers (PSPs) and installers need to know about ANSI A326.3.

### The Global Standard for Slip-Resistance Measurement

With ANSI A326.3, slip resistance is determined by evaluating levels of traction through measurement of the Dynamic Coefficient of Friction (DCOF). For years, DCOF has been used across the globe to measure floor traction; however, it has not been commonly used in the U.S. While ANSI/NFSI B101.3 set the stage for more widespread DCOF measurement in the U.S., historically, slip resistance was mostly determined by measuring Static Coefficient of Friction (SCOF).

When comparing DCOF and SCOF, the primary difference is between people or objects already in motion versus those in a static position. Simply stated, SCOF determines the friction measured when two surfaces are static (i.e., an object is moved from a standing position). DCOF tests the friction of an object that is already in motion (i.e., one surface is moving).

Today, with ANSI A326.3 as the new required standard in the U.S., DCOF is the global standard for measuring slip resistance. DCOF is recognized as the more true and accurate measurement for predicting “slip and fall” risks and ANSI no longer has any standards for measuring SCOF. Additionally, although many floor finishes and floor graphic materials are

still classified as slip resistant under specifications like UL 410, it is important to note that UL 410 measures SCOF, not DCOF, so it is no longer recognized for slip resistance.

### Traction Ranges: The Basis for Testing

Using the DCOF method, ANSI A326.3 determines slip resistance by

evaluating three levels of traction: high, moderate, and low. Previously, floor safety specifications primarily focused on measuring slip resistance, not traction. ANSI A326.3 testing is conducted in a laboratory and/or field setting using a tribometer. Tribometers are designed to accurately measure wet DCOF and will test to ANSI A326.3 using hard rubber sliders, or test feet.

According to testing experts, the BOT-3000E Binary Output Tribometer, Modern British Pendulum Tester, and Tortus Tribometer are the most useful and reliable floor friction testers to aid in accident prevention. As stated by Safety Direct America, they allow ample capability for prevention and analysis of “slip and fall” accidents in almost any situation. The BOT-3000E is recommended for rapid and automatically documented dry and wet indoor testing, using a variety of test foot materials. The Pendulum Tester is designed for wet and dry DCOF testing with hard and/or soft rubber sliders, outdoor and barefoot area testing, sustainable ▶

### What PRINTING United Alliance’s Print Business Indicators Research Says

According to preliminary results of the first quarter 2021 survey — in which participants were asked about their expectations for their major product markets — among the 39 participants to date who offer floor graphics, 41% expect the market to grow over the next one to two years, 48.7% expect it to remain at current levels, and just 10.3% expect it to decline.

“We serve very diversified markets: tourism, nonprofits, medical, manufacturing, university, and retail. None of them are growing currently, other than some one-time COVID-19 related purchases, such as single-use menus or floor graphics. A few sectors seem stable, but none are growing. It’s too soon for trends.”

—Research Participant (Volume 1, Number 2, July 2020)

“During the pandemic we have moved into creating personalized floor graphics for our clients. The graphics include the client’s logo and a QR code that registers their customers in the company’s rewards program.”

—Research Participant (Volume 1, Number 3, November 2020)

This research series examines COVID-19’s effect on the printing industry, how printers across segments are responding to the crisis, and how they can create a path forward. Alliance members can access the full reports at [sgia.org/resources/research](https://sgia.org/resources/research).



**Mactac saw a significant increase in demand for carpet applications last year, specifically for low-pile carpet media paired with overlaminates. In addition to appearance and durability, a benefit of this carpet graphic combo is clean and easy adhesive removal.**

slip-resistance testing, and more. The Tortus Tribometer is for testing of pedestrian walkways (not where pedestrians are likely to run) and where numerous wet and dry tests are needed with hard and/or soft rubber sliders. Experts note that the BOT-3000E and Tortus tribometers deliver significantly more tests per hour than the British Pendulum, making them valuable for testing multiple larger floor areas quickly.

During the testing of a floor surface, if the results return a high DCOF score, the surface is deemed high traction, thus equating to the surface having high slip resistance. Hard-surface flooring materials that are suitable for level interior spaces and are expected to be walked upon should have a wet DCOF of 0.42 or greater to

be considered a high-traction surface. However, ANSI states that not all hard-surface flooring materials with a DCOF of 0.42 or greater are suitable for all projects, and specifiers should determine appropriate materials per a project's specific conditions.

Graphics materials with a wet DCOF of 0.42 or more are known as higher traction. Wet DCOF values between 0.41 and 0.30 are considered moderate traction and those with values below 0.30 are low traction. Floor graphics with a low-traction range can be more slippery when wet and present a higher risk of a "slip and fall" event.

### **Ensuring Compliance**

Before recommending or applying graphics to a flooring surface,

manufacturers, distributors, PSPs, and installers alike need to ensure compliance with ANSI A326.3. Graphics material manufacturers are responsible for having floor graphics materials tested per ANSI A326.3 specifications and properly communicating testing approvals to their customers and other industry stakeholders. Similarly, distributors, PSPs, and installers are responsible for confirming the material selected for a project is in compliance with ANSI A326.3.

Failure to comply with ANSI A326.3 can have implications reaching beyond defining what constitutes a high-traction (safer) floor, including litigation, insurance, and U.S. Department of Labor Occupational Safety and Health Administration (OSHA) maintenance implications.



**Although NFSI no longer holds flooring traction/slip-resistance accreditation, the organization continues to offer insight and information,** serving as a helpful resource on the

topic. ANSI considers itself the voice of the U.S. standards and conformity assessment system.

For instance, in “slip and fall” court cases, property owners in compliance with ANSI A326.3 are more likely to come out on top, as courts tend to deem ANSI A326.3-compliant walkway surfaces as reasonably safe. Those who are noncompliant face a greater chance of losing potential lawsuits. The BOT-3000E includes many features that help in validating a flooring traction test and can help establish courtroom credibility, including time/date of last calibration by the manufacturer, number of test runs, and age/number of runs on a test foot.

Not meeting ANSI A326.3 specifications can also have insurance-related implications. For example, company insurance premiums are based, in part, on assumed and predictable risk. If a company’s floors test poorly and have low traction, the insurance

industry as a whole is likely to charge a higher premium than would be charged if floors were tested and deemed to be high traction, as specified by ANSI A326.3.

Another factor to consider is implications from OSHA. To avoid these, every employer must designate a qualified person to perform walkway inspections for compliance with ANSI A326.3. Since the coefficient of friction of installed tiles can change over time due to wear and surface contaminants, deep cleaning, degreasing, or traction-enhancing maintenance may be needed to maintain proper wet DCOF values.

**Moving Forward with Safety and Compliance in Mind**

By choosing to stock, specify, sell, and install floor graphics materials that have been tested and approved according to ▶

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VersaGraphics360 is a premium slip-resistant floor graphic & offers versatility as a wall graphic. Don't be misled by graphics designed for walls but advertised for floors resulting in dangerous slip resistance.

- 17 mil thickness, mesh re-enforced for strength
- Superior safety & slip resistance
- Superior printability & scratch resistant



- Scratch resistant coating
- Print receptive coating
- Textured surface
- Vinyl layer
- Mesh stabilizer
- Adhesive
- Release liner



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the ANSI A326.3 standard, businesses can be assured that they are following the latest requirements, should any floor safety issues arise. Using products that meet ANSI 326.3 specifications will also help minimize business risk, ensure protection from potential failure-to-comply implications, and improve pedestrian safety.

For any projects completed that were tested to specifications other than ANSI A326.3, flooring materials, including floor graphics, need to be retested per the ANSI A326.3 specification. Additionally, although it is not required, it can be useful to conduct dry slip-resistance testing in conjunction with wet testing. Dry testing can be beneficial for many reasons, such as diagnosing problems like inadequate maintenance. Many “slip and fall” claims involve dry floors as well as wet floors, so periodic dry testing prior to an alleged accident can help establish that the floor was safe when dry.

Finally, before using a floor media, distributors, PSPs, and installers should know and understand where and how a material can and should be

**Since the coefficient of friction of installed tiles can change over time due to wear and surface contaminants,** deep cleaning, degreasing, or traction-enhancing maintenance may be needed to maintain proper wet DCOF values.

used (e.g., indoor versus outdoor applications, or short-term or long-term). When the COVID-19 pandemic first began, many businesses tried to get graphics on floors as quickly as possible. Distributors, PSPs, and materials suppliers received notices that graphics were failing, peeling, or becoming tripping hazards. More often than not, the reason the graphics failed was because the wrong material was used for the application. ■

*Amanda Smith is product manager for Mactac Distributor Products. In her role, she manages Mactac’s REBEL,*

*PERMACOLOR, PERMAHOLD, IMAGin, and MACmark product lines. With nearly 15 years of experience serving the print services industry, Smith has extensive knowledge in flexographic, wide-format, and offset print technologies, as well as pressure-sensitive adhesives and graphic applications. She continually partners with Mactac’s R&D team to develop new products and bring them to market. Her responsibilities include creating product branding and marketing strategies, leading sales and customer training, product certifications, and customer technical support.*

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