

January 2024

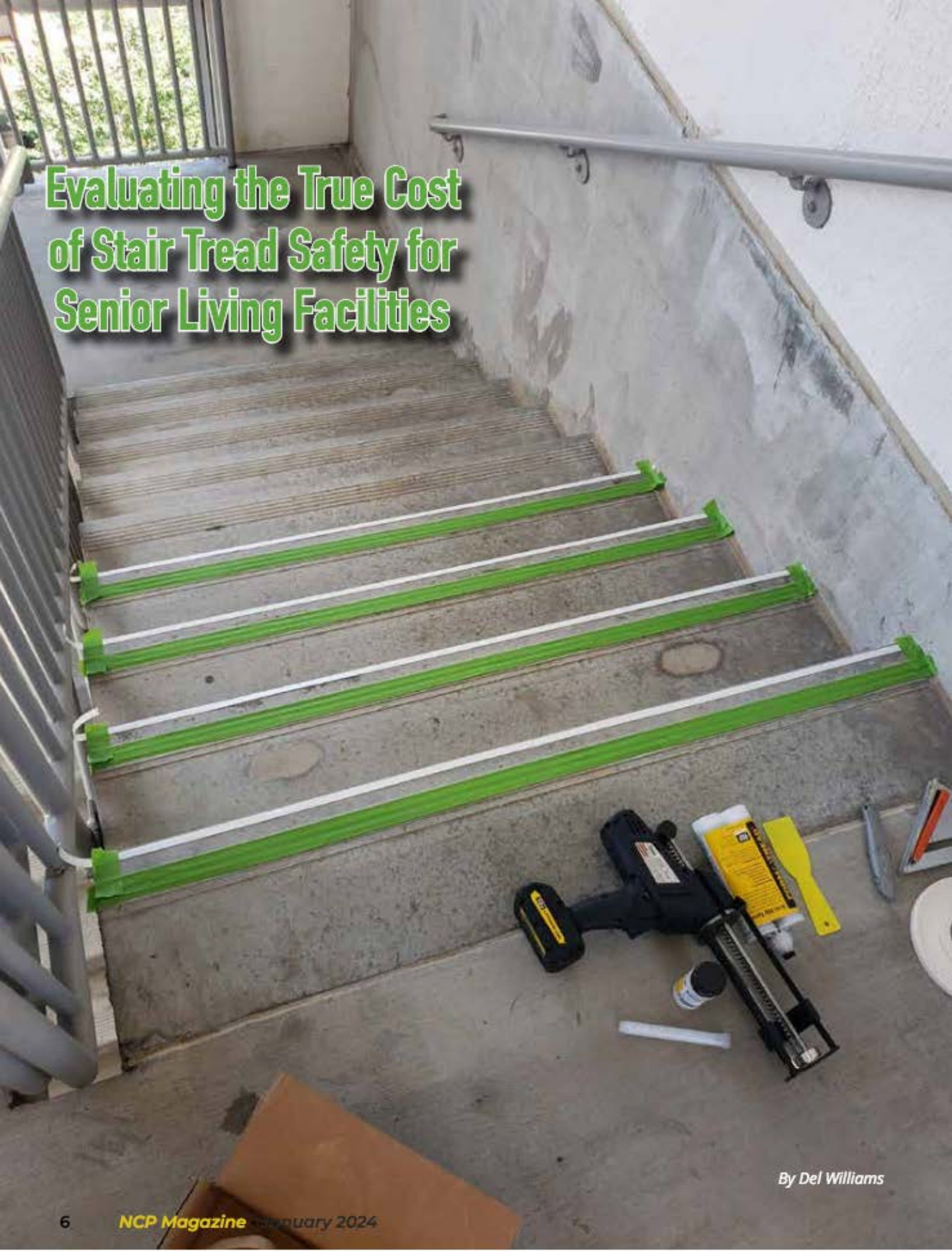
# NEW CONSTRUCTION

Products

## Prinoth Expands Westward

Evaluating the True Cost  
of Stair Tread Safety for  
Senior Living Facilities

# Evaluating the True Cost of Stair Tread Safety for Senior Living Facilities



By Del Williams

*Purchase price is just the start. Assessing the total cost of ownership requires long-term analysis, but the savings and increased safety can be significant.*

In the nation's senior living communities, stairs are very prevalent even when elevators and ramps are available. The challenge is that stairs can present a slip and fall hazard, especially when wet or slippery, an issue which is only elevated for those who are vision and mobility challenged. Traditional short-term methods of deterring slip and fall incidents on stair treads, however, can become very costly over time and still must comply with all relevant regulations.

To be readily accessible and usable by individuals with disabilities, senior living facilities must comply with the 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design, which applies to newly designed and constructed or altered state and local government facilities, public accommodations, and commercial facilities.

It is also vital to provide a clear visual contrast on stair steps to improve safety since today almost 20 million Americans — 8 percent of the U.S. population — have visual impairments, which is a leading cause of loss of independence among people 65 and older. The International Code Council (ICC) A117.1-2017 Standard for Accessible and Usable Buildings and Facilities contains specifications designed to promote accessibility to people with disabilities such as mobility issues and visual impairment. Among these, as a best practice, the leading 1 to 2 inches of every tread and landing, measured horizontally from the leading edge of the nosing, must consist of a solid color having visual contrast of dark-on-light or light-on-dark from the remainder of the tread. The contrasting marking must be durable and must extend from one side of each tread to the other side of each tread. Alternatively, durable distinctive warning markings are required by the adopted building code of ANSI safety standards.

For senior living facility managers, complying with important safety codes as well as evaluating the Total Cost of Ownership (TCO) for purchases is critical to acquire items at the lowest long-term

cost. Assessing TCO requires not only understanding the initial purchase cost but also consideration of the operating costs, longevity, and remaining value beyond its expected life.

TCO is an even more critical analysis when new products enter the market that disrupt the status quo. After all, it is difficult to evaluate the value of an innovative product that promises to be a much more effective, long-term solution but initially costs more, uses different materials, or is applied differently. For managers at senior living facilities, this is the case when analyzing the TCO of non-skid stair tread striping applied to interior and exterior stairs to prevent slip and fall accidents.

Although simple in concept, the application and maintenance of safety stair tread striping is particularly challenging in outdoor or high-use settings. The traditional choice – non-skid adhesive tape – can peel or wear away in a short time so must be replaced frequently. However, new innovative 100% epoxy-based material containing embedded nonskid aggregate are now available that promise to last much longer, requiring minimal reapplication.

To evaluate the TCO of both options, senior living facility managers can apply a specific formula used for capital equipment, with slight variations for stair treads:  $TCO = \text{initial cost (I)} + \text{maintenance costs over 5 years (M)} + \text{estimated downtime (D)} - \text{remaining value after 5 years of depreciation (R)}$ .

#### Initial Cost (I)

When choosing among alternatives in a purchasing decision, buyers often look at the initial purchase price. However, they should also consider the long-term cost of ownership.

In the case of non-skid adhesive tapes, the initial cost is approximately \$1.50 per linear foot. In typical indoor conditions, non-skid tape generally lasts only about six months before requiring removal and reapplication. At this rate, using the tape costs about \$3 per linear foot per year or \$15 per linear foot over five years.



Stairways, Paragraph 504.6 Visual Contrast, and ANSI A117.1, Section 504 Stairways.

While the durable tread initially costs more than non-skid tape, it takes just 18 months to reach the breakeven point for indoor use. After 18 months, the Form-A-Tread stair tread saves the facility the cost of reapplying new non-skid tape every six months. In outdoor applications, the material savings is \$25.50 over the same period of time.

#### Maintenance (M)

Non-skid tape is difficult to maintain, can become unsightly, and must be frequently inspected and replaced. Since tape cannot be repaired, it must be replaced if damaged. The remaining tape and residual adhesive must be thoroughly removed from the surface before the new tape is applied.

Peeling tape can also pose a trip hazard. Tape often peels off in a short time because it does not bond well, especially to common surfaces like concrete, stone, and masonry. The surface non-skid grit layer can also become ineffective and quickly compromised, especially in high traffic locations.

Because non-skid tape is not very durable it is primarily used on interior stairs. In outdoor applications, it may only last for as little as a week or less in harsh conditions or consistent exposure to sun, rain, snow, ice melt chemicals, power washing, and other cleaning methods.

"In my experience, non-skid tape comes off repeatedly. It is a temporary solution, so you are wasting your time, energy, and effort every time you reapply it," says Gani Bajraktari, Senior Property Manager at New York-based Bajraktari Realty Management Corp.

Maintenance cost should also include facilities personnel's time and labor required for frequent inspection and reapplication of the traction tape. In addition, purchasing and inventory costs accrue when the tape must be continually replaced and kept available for use.

Today, a 100% solids epoxy paste that contains

On exterior stairs or ramps, the expected life of traction tape is only three months but can be considerably shorter particularly in areas exposed to chemicals, moisture, high-temperatures, or high traffic. With a three-month lifespan, tape costs approximately \$6 per linear foot per year or \$30 per linear foot over five years.

Compare tape to a more durable option: a 100% epoxy-based material that creates a superior tread with an initial cost of \$4.50 a linear foot. Designers created the material to last at least five years in most outdoor applications and many more years in indoor applications. The product from Form-A-Tread Company achieves a strong bond to a wide range of stair tread surfaces and contains embedded nonskid aggregate to increase traction.

Architects, engineers, building owners and safety professionals use Form-A-Tread Black and Safety Yellow to comply with various U.S Standards and Building Codes including 2010 ADA Standards for Accessible Design, ICC A117.1-2017, Section 504



associated with frequent inspection and replacement and significantly lowers the total cost of ownership.

According to Bajraktari, he first used the Form-A-Tread to improve the safety and footing of outdoor stairs in residential projects that could become slippery when wet. "It held up amazingly well to the sun's UV and outdoor weather. Seven years later it still looks as good as the day we applied it."

#### Downtime (D)

The evaluation of TCO includes consideration of any downtime due to equipment failure. In the case of stair treads, the equivalent of "downtime" is when the safety tread loses adhesion, starts to peel off, is damaged, or the surface traction is worn away.

The reality is that in many cases stair tread replacement does not occur immediately, or even for some time if not discovered or facility personnel are busy elsewhere. This can effectively mean the facility is not following its own safety protocols.

Stair tread "downtime" can have serious financial consequences if slip and fall accident occurs, leading to litigation, liability, workers' compensation claims, and rising insurance rates. A long-term solution that doesn't require constant replacement minimizes any potential downtime, provides a consistent and predictable level of safety and can reduce the potential for such claims.

According to Bajraktari, the epoxy product not only improved safety and eliminated the need for frequent re-application, but also had a more aesthetic look over time due to the lack of visible wear. He has found the approach surprisingly cost-effective in reducing maintenance, potential liability, and commercial insurance rates. In his experience, the cost to apply the product proved more cost-effective than dealing with additional claims and insurance costs.

#### Remaining Value After 5 Years (R)

Even with depreciation, capital equipment often

embedded slip resistant aggregate is a more cost effective and long-term stair safety tread solution. These materials create a tread with consistent, superior traction and safety for at least five years, even outdoors, with essentially no maintenance. They also resist UV, moisture, chemicals, ice melt, temperature extremes, aggressive cleaning and pedestrian and vehicle traffic.

Because the nonskid aggregate is held in suspension within the formula and is not just adhered to the surface, as with traction tape, it does not wear away. The hardness of the formula (75 Shore D) enhances the abrasion resistant, so the overall tread is much less susceptible to damage compared to traction tape. Unlike tape, if the epoxy material were to be damaged, by an ice chopper for example, it is easily repairable. If damaged, just clean the surface, and reapply. The formula adheres to itself, which is nice added feature. Overall, this innovative formula removes the cost

retains some value after five years. In a similar way, more durable solutions like 100% solids epoxy pastes with embedded aggregate often still have value far beyond five years.

These epoxy pastes are formulated to create a permanent mechanical bond. Not only does an epoxy paste adhere to the stair tread surface, but it also flows into the microscopic cracks and crevices of concrete or other porous substrates and

mechanically bonds. The formula has also shown to have excellent adhesion to smooth surfaces like tile, and steel or aluminum diamond plate.

The bond is so strong that a chisel or angle grinder is required to remove the stair tread line, an advantage in high-traffic areas. Since the aggregate is embedded throughout the entire epoxy paste and not just on the surface, as the epoxy paste wears over time new aggregate is continually exposed to provide renewed traction.

"Instead of temporary applications, it is much more effective to solve the problem the first time with a product like Form-A-Tread and be done with it. The footing is amazing, and you feel more secure going up and down the stairs," says Bajraktari.

"As far as durability, I expect the stair treads to last for at least ten years or more in indoor applications," he adds.

Although it is natural for facility managers to seek solutions with the lowest initial cost, considering the TCO is a much more cost-effective alternative. Given this, senior living facilities can achieve significant long-term savings and increased safety by looking beyond short-term choices like non-skid tape in favor of much more durable options like epoxy paste stair tread that does not require continual replacement.

For more information: Call 610-994-2138; Email [info@rgfmaterials.com](mailto:info@rgfmaterials.com); Visit [www.form-a-tread.com](http://www.form-a-tread.com) •



An ounce of prevention is worth a pound of cure



Line Guard | Pole Guard | BirdBloc  
Learn More at [CritterGuard.org](http://CritterGuard.org)

