

APRIL 2019

SAFETYZONE MAGAZINE

**Dual Technology Exit Signs:
Increased Reliability,
Whether Power is
On or Off**

**Optimizing 5S
with Durable
Surface Safe
Labels**

**Terex Team Members Share Stories of Electrical
Safety and STEM Careers with Students**

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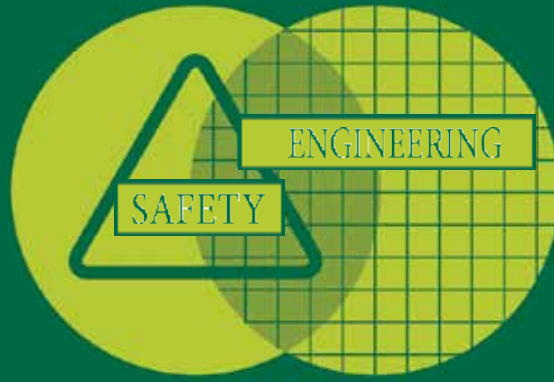
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Terex Team Members Share Stories of Electrical Safety and STEM Careers with Students



Terex Utilities team members recently took the company's Safety Town and Build-a-Boom Workshop to two different groups of students. The purpose was to demonstrate concepts in electrical safety and to offer career exploration.

In February, about 70 3rd through 5th graders in the Florence School District, Florence, S.D., saw a live demonstration of how electricity travels path to ground with the Safety Town kit, learned about the role Terex equipment plays in utility operations, and then designed their own aerial device model in the Build-a-Boom Workshop.

Safety Town shows what happens when two characters in the town, Neon Leon and Lighntnin' Liz, come in contact with live voltage.



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"We describe how birds can sit on one wire, but if a bird touches another bird on a different wire, they would be electrocuted. We teach students the steps for exiting a vehicle if they are in a situation where an energized line has fallen on it. We also cook a hot dog using electricity to represent what happens to our bodies when exposed to electrical shock," explained Marci Lewno, Manufacturing Engineer and member of the Terex Utilities Community Engagement committee.

"My favorite moment of the assembly was when one student finished building her boom very quickly and started helping other kids with theirs. She was excited to show off her 'engineering' skills and did a great job," said Jesse Haagensen, Sales Application Technician for Terex Utilities. "Any opportunity to give students real world

experience is a plus," said Mitch Reed, Superintendent of the Florence School District. "Students have a variety of learning styles, and giving them the chance to work with their hands while constructing is crucial. We appreciate Terex and their efforts to educate our youth."

In March, Terex Utilities participated in a Microsoft DigiGirlz event hosted by Omnitech at the University Center Sioux Falls, S.D. campus. The event is for 8th through 12th grade girls and is focused on dispelling stereotypes of the tech industry. During the event, girls interact with women in technology and participate in technology sessions and demonstrations.

This is the second year that female employees of Terex Utilities participated in the DigiGirlz

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event. In addition to a demonstration of Safety Town, Lewno; Tiara Marcus, Quality Manager; and Ashley Johnson, Manufacturing Engineer, joined a panel discussion about why they chose a career in a STEM-related field.

Students asked about how to prepare for careers in STEM-related fields. "We stressed the importance of internships, finding a mentor, and exploring coursework outside of major study area," said Lewno. "Many technical jobs require people to be detail-oriented, focused, and good problem solvers—traits needed in manufacturing and the utility industry," she continued.

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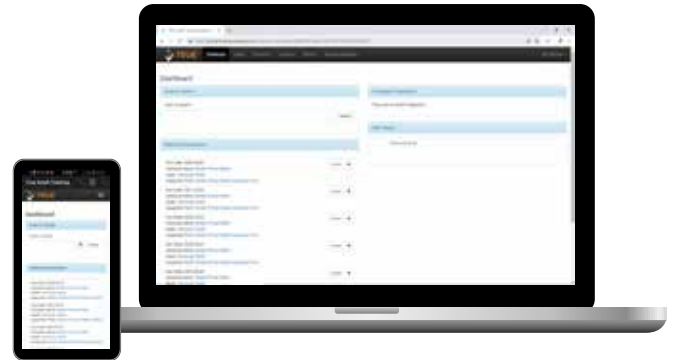


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Optimizing 5S with Durable Surface Safe Labels



The 5S process requires continuous improvement, so using signage or identification labels that easily adapt to change can streamline the process

For facility operations managers, starting a 5S lean manufacturing program can reduce waste and optimize productivity through better workplace organization. With each S (Sort, Set in order, Shine, Standardize, and Sustain) accounting for a separate 5S stage, the process can seem intimidating, but does not need to be.

"You don't have to get the 5S process perfect right away," says Tina Huff, Group Product Manager at Avery Products Corporation, a commercial and industrial label manufacturer. "Just get started and keep improving over time." Because nothing is set in stone, using industrial labels for organization and identification that are designed to be applied and

removed, as well as customized, can help to optimize each stage of the process.

Sort

The first 5S stage, Sort, removes clutter and unneeded items from the work area. This leaves just the parts, tools, machines, and supplies necessary for daily use on the manufacturing or warehouse floor. In this stage, temporary labels can be put on items as the facility's staff sorts through them.

According to Huff, designated areas for sorting could include: Leave, Relocate, Dispose/Recycle or TBD (to be determined). "Leave" is for items that can stay where they are with no changes

needed. "Relocate" is for any item that needs a new home because it is more logical or efficient. "Dispose/Recycle" applies to unneeded items that can be discarded or recycled. "TBD" is for items that you are not sure of yet.

"One method is to mark items as TBD, and then wait a month or so," says Huff. "When you use an item, consider how it's used or who uses it to determine its permanent home. If you haven't used it in that time, consider discarding it."

For best results, be sure to use labels that are won't fall off during the Sort stage, yet don't cause damage or leave behind residue when you need to remove them.



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Set in order

The second stage, Set in order, locates parts, people, tools and equipment in the most efficient, ergonomic positions, so operators do not waste time or effort searching for needed items.

To improve workplace efficiency, identification labels can be integrated to identify and classify parts, tools and equipment, so items are easy to find and everything has a home. Racks, shelves and cabinets also make sense to label, as do smaller portable items like bins, totes and toolboxes, which help with organization.

Color coding labels can add another level of organization to items. With labels that are printed on a laser or inkjet printer, it's easy to include color, icons or even photos on labels. This makes it easier to quickly identify items and determine where they belong.

"For larger facilities, adding barcodes to labels can further improve efficiency because scanning a barcode is much faster and more accurate than manual entry," says Huff. "This is vital for activities like inventory counts or pulling orders for shipment."

According to Huff, this approach works with traditional one-dimensional (1D or linear) barcodes, and for two-dimensional (2D) barcodes, which hold far more data in less space. While 1D barcodes typically encode data such as location and department, 2D barcodes can contain not only website addresses but also images and voice.

Shine

The third stage, Shine, ensures the workplace stays free of clutter, grime and malfunction. This helps to prevent serious work breakdowns or slowdowns. In this process, cleaning and inspect-

ing through cleaning is critical. However, labels that are not durable can become torn or otherwise unreadable, which is a particular problem with barcode labels.

"During inspection, it's good to replace any damaged or inaccurate labels," says Huff. Also, keep track of machine maintenance with inspection labels so routine maintenance isn't forgotten. This helps to prevent costly downtime and improve safety by reducing malfunction related accidents. Make sure there is a process in place so whoever is responsible knows which machines they need to inspect, and how often. A good inspection label will include areas for marking the date and person who conducted the inspection.

To reliably perform through the Shine stage, however, it is important to use ID labels that are designed to withstand daily wear and tear, dirt, grease, oil, chemicals and wash downs while providing good barcode readability.

Standardize

The fourth stage, Standardize, systematizes the most efficient work methods with clear standards. Utilizing schedules, checklists and standard operating procedures are a key part of this process.

Without standard operating procedures and clear processes, a facility will not run consistently and smoothly, even if everything is labeled accurately. Wherever possible, it is helpful to put procedures and checklists on labels posted near work areas.

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"Placing labels on work area equipment provides employees with a recurrent reminder of standard operating procedures, so no one can say 'I didn't know,'" says Huff. This is especially critical for reminders or instructions, since labels are less likely than sheets of paper to get lost or damaged.

Sustain

The fifth stage, Sustain, trains and maintains company standards and procedures until they become a habit and are consistently followed. Because 5S is a continuous process, however, organizations will reorganize or improve processes throughout the year, as well as accommodate changes in data, format and regulation.

As such, easily removing old labels and printing custom,

updated ones can be important. Otherwise, employees can waste time scraping old labels off, using heat guns or even razor blades. They may be reluctant to update labels if it is difficult to get the old ones off, so may make do with sub-standard situations.

The ideal solution would be to use industrial labels for organization and identification that are easy to adhere, durable enough to endure harsh conditions, yet come off cleanly when necessary, leaving no trace.

"Industrial labels used for signage and identification must be more durable than those used in an office, but should remove cleanly when they need to come down," says Huff. "The key to accomplishing this was developing an

adhesive that holds well but can be removed when needed. Achieving that balance is harder than it sounds."

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Dual Technology Exit Signs: Increased Reliability, Whether Power is On or Off

By Del Williams



By combining two established technologies – LED and photoluminescence – in one unit, exit signs deliver reliable, maintenance-free operation for decades

For building and facility owners or managers striving to meet fire and safety codes, new “dual technology” exit signs are combining the efficiency of LED lighting with revolutionary new photoluminescent materials to increase reliability and performance over decades of use.

This hybrid approach combines two established exit sign technologies in a single unit – LED and photoluminescence. During normal power conditions, the sign is illuminated with highly efficient LEDs. When the power goes out, a translucent exit stencil diffuser made of photoluminescent material provides the illumination. This is charged by the LEDs while electric power is provided to the sign.

Egress marking requirements often dictate the installation of exit signs in locations of low light conditions.



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This problem, coupled with energy conservation strategies such as occupancy sensors, can make it impossible to use photoluminescent signs and achieve code compliance. Recognizing this problem, leading emergency lighting manufacturers now offer advanced, dual technology options that utilize internal LEDs to “charge” the photoluminescent material, rather than relying on an external charging source.

This ensures the exit sign will be visible, no matter the power conditions. The increased reliability of this dual technology also has a significant side benefit – it eliminates the need for battery backup, reducing some of the costs related to testing, maintaining or replacing exit signs over time.

“The dual technology approach eliminates the need for backup power for the exit sign, whether through an internal battery or an external inverter or generator,” says Bill Lynch, president of Isolite, a manufacturer of specification-grade emergency lighting products. “This significantly increases reliability, simplifies maintenance and reduces total costs.”

The Battery Problem

Traditionally, exit signs include internal batteries to power the sign in case of power outage, yet batteries remain the single highest potential point of failure in these systems. Batteries typically have a lifespan of 5-7 years before they must be replaced; less if damaged by corrosion, overheating, and other issues.

Because it is a safety issue, exit signs must meet a number of standards from regulatory agencies. This includes, most notably, the NFPA 101 Life Safety Code (which requires a reliable source of light and at least 90 minutes of emergency light if the building’s power goes out) and UL 924, UL’s Standard for Safety of Emergency Lighting and Power Equipment.

To meet the requirements of these codes, exit signs with backup batteries must be tested every thirty days, a practice that typically involves sending a maintenance worker to climb a ladder and push a small button that confirms the batteries are still in good working order.

In reality, these guidelines are not always followed, so if the battery fails, it is often not known until an actual power outage. If the sign fails to illuminate

fully, or at all, when it is most needed, it could constitute a major life safety issue and even potential liability.

Photoluminescent Signs

Standard photoluminescent exit signs have been in use for more than a decade. However, as a stand-alone technology, this technology has limitations.

For example, such signs require an activating light source to shine on them during all times of building occupancy. Often the available light is not sufficient to charge the photoluminescent material, particularly as energy efficient building standards such as California’s Title 24 lead to lights being dimmed or switched off more frequently when not in use.

When insufficient light is available, photoluminescent signs will fail to illuminate to the required standards and could pose a serious safety hazard.

Better in Combination

The hybrid approach combines technologies to provide even more reliable illumination, whether the power is on or off. However, designing such units turned out to be far more complex than simply putting both in a single architectural fixture.

One system that takes this unique design approach is Isolite’s hybrid LED photoluminescent exit sign, the Dual Tech 2.0. The sign utilizes internal LEDs to charge the photoluminescent material to ensure it is visible at all times at a 100 foot viewing distance for a minimum of 90 minutes – the normal standard for electric signs.

Since there is no battery to check on a monthly basis, the unit costs less to maintain and is expected to perform for 20 or more years. The Dual Tech 2.0 comes with OSHA, NFPA 101 Life Safety Code, NFPA 70-NEC, and UL 924 approvals.

According to Lynch, special LEDs had to be manufactured to emit the specific wavelength of light required to optimally charge the photoluminescent material so that it would provide the proper illumination to meet code requirements.

Cost Savings

According to Lynch, there are other benefits to this



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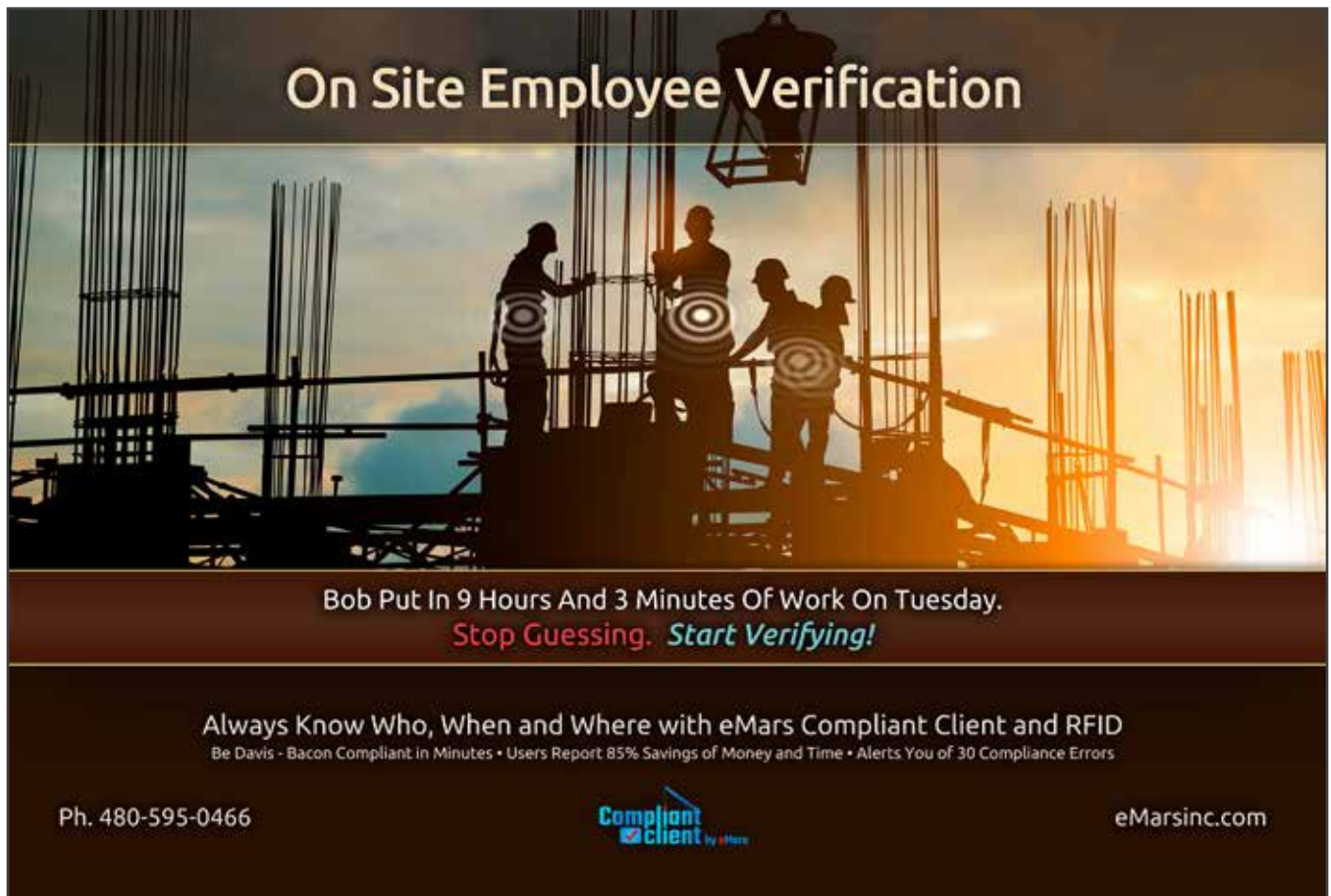
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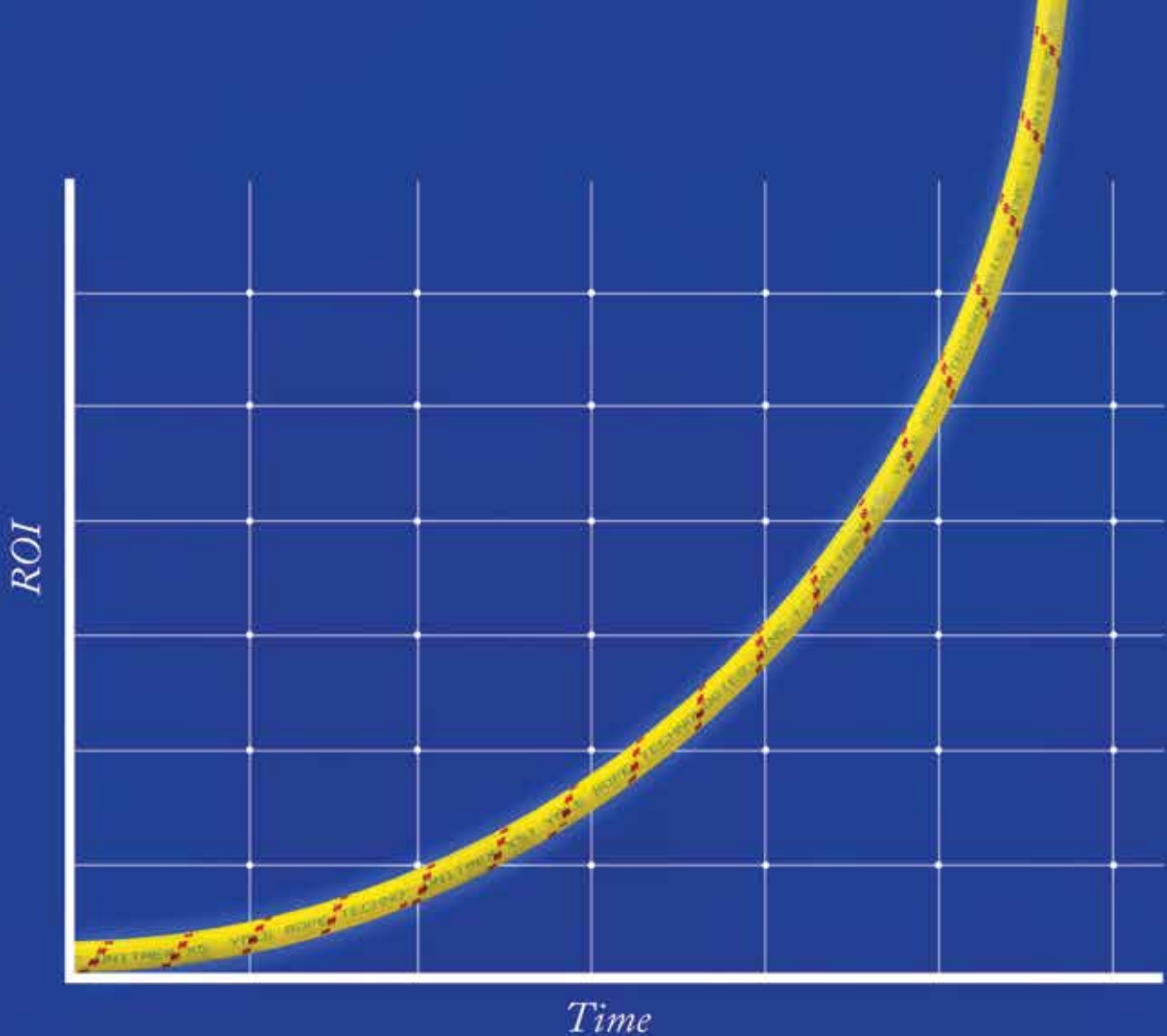
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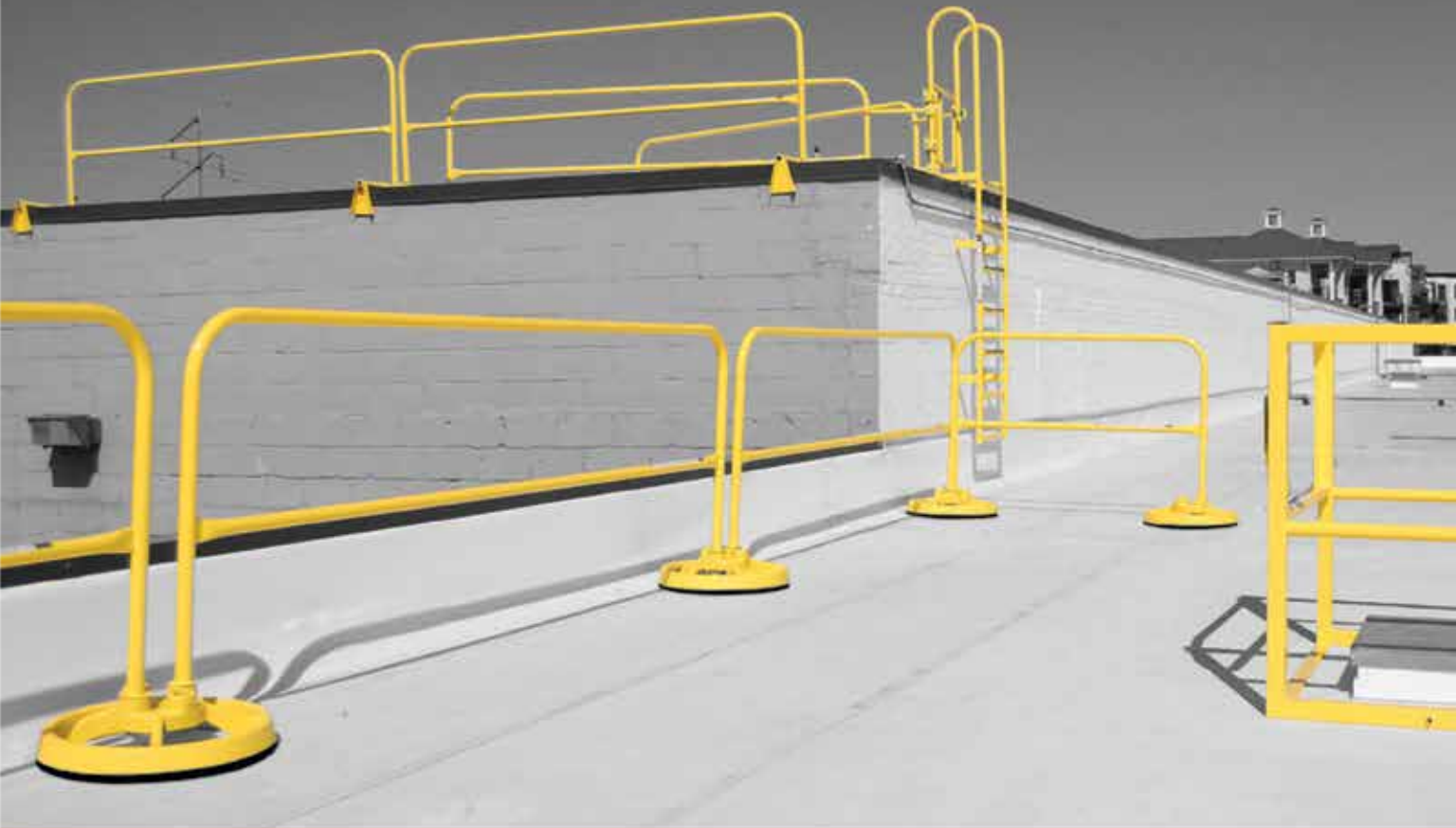
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