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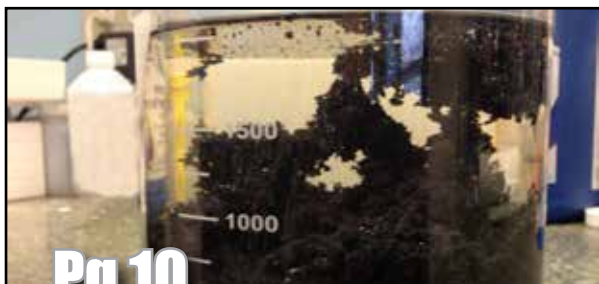
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For more information, please visit our website at ColumbiaSouthern.edu/SafetyCEU, contact ContinuingEd@ColumbiaSouthern.edu or call 800.313.1992.



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1-1/2" Diamond mesh 10 gauge wire partition system are engineered for easy installation allowing unrestricted visibility and total air circulation. Inventory of standard height panels of 7, 8 or 10 high are available; but don't stop there because many industries require partitions to reach the trusses or building joists and that certainly can be accomplished. If you are installing partition on a raised platform (mezzanine) remember this requires zero or "no" sweep to keep everyone safe walking below. This is to prevent tools from dropping from the edge of the platform. (OSHA 1910.23(e)(4) Either partition system will work well but the more project information you are able to supply, the more knowledgeable we all become and it is truly amazing how that works!

The JESCOGARD® industrial guard rail 3-rib corrugation system will act as both a visual and physical barrier around your facility. The Economy Rail System is a 2-rib system and has been tested to withstand an impact of 10,000# traveling 4-mph. Should the need arise you can count on its strength without compromising quality at a price you can afford. Each system has available a self-closing single hinge gate with a sound dampening gasket on the gate.

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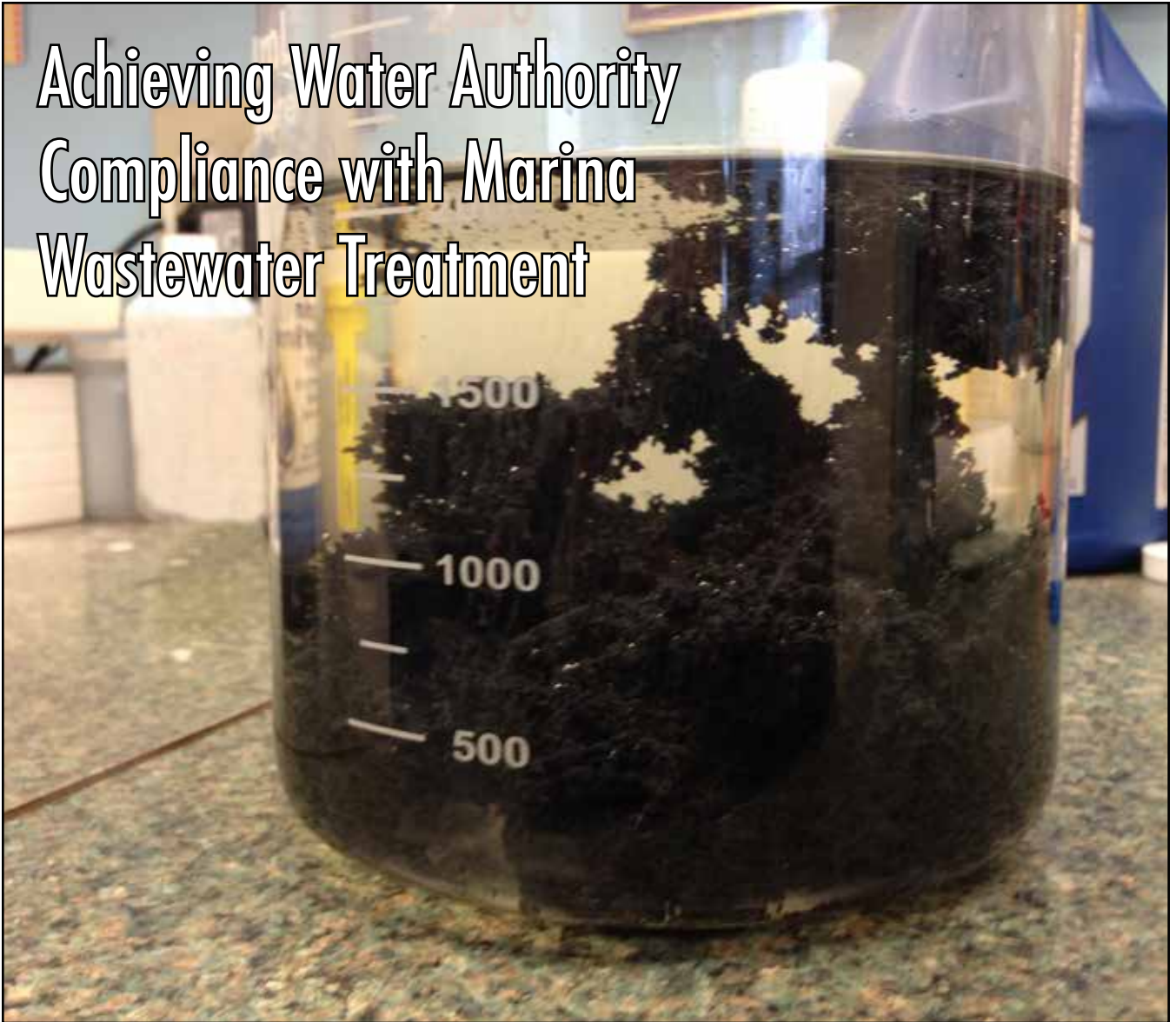
JESCOHUSKYDUMPERS®, wire partition systems, industrial guard rail systems, wire tenant storage lockers, industrial shelf carts, LP cylinder cabinets, machine guarding just to name a small portion of the products we offer to our customers. Our products are built to be the best in the industry and it is the reason customers keep coming back. Your satisfaction for a project well done is what really counts when the day comes to a close. We look forward for an opportunity to be able to assist your next industrial guarding or material handling requirements. Check out the full product line shown on the website at www.jescoOnline.com

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Achieving Water Authority Compliance with Marina Wastewater Treatment



Wastewater treatment systems help marinas remain in compliance with EPA and local standards, while significantly reducing the cost of treatment, labor and disposal

Recreational and military marinas must meet EPA and local wastewater requirements for effluent, including those under the Clean Water Act. Failing to do so can result in severe fines that quickly escalate.

Whether for yachts or cutters, one source of considerable wastewater involves the use of anti-fouling paint on the underwater part of ships' hulls. Anti-fouling paint is applied to slow the growth and/or facilitate detachment of subaquatic organisms, such as barnacles, from the hull that can affect a vessel's performance and durability. It can also act as a barrier against corrosion on metal hulls.

However, because anti-fouling paint typically consists of lead, zinc, and copper, when ships are drydocked and pressure washed in a marina, this results in a wastewater stream that must be dealt with to stay in compliance with regulatory standards. Bilge water, which can contain oil and other contaminants, is another common source of wastewater.

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Under the Clean Water Act alone, the EPA has identified 65 pollutants and classes of pollutants as “toxic pollutants”, of which 126 specific substances have been designated “priority” toxic pollutants.

For many marinas, this means installing a wastewater treatment system that effectively separate the contaminants from the water so it can be legally discharged.

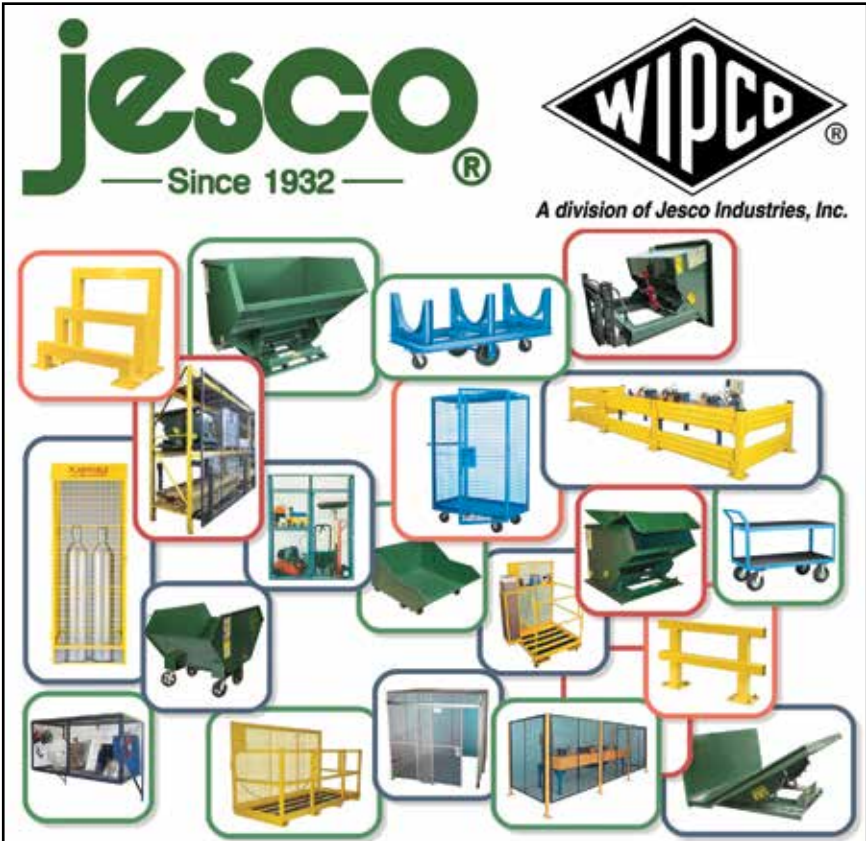
However, traditional wastewater treatment systems can be complex, often requiring multiple steps, a variety of chemicals and a considerable amount of labor. Even when the process is supposedly automated, too often technicians must still monitor the equipment in person. This usually requires oversight of mixing and separation, adding of chemicals, and other tasks required to keep the process moving. Even then, the water produced can still fall below mandated requirements.

Although paying to have such wastewater hauled

away is also an option, it is expensive. In contrast, it is much more cost effective to treat the wastewater at its source, so treated effluent can be legally discharged and treated sludge passes a TCLP (Toxicity Characteristics Leaching Procedure) test and can be disposed of as non-hazardous waste in a local landfill.

Fortunately, complying with EPA and local wastewater regulation has become much easier with a variety of more fully automated wastewater treatment systems. Such systems not only reliably meet regulatory wastewater requirements, but also significantly reduce the cost of treatment, labor and disposal when the proper Cleartreat® separating agents are also used.

Cost-Effective, Automated Wastewater Treatment
In contrast to labor-intensive multiple step processes, automated wastewater treatment can help to streamline production, usually with a one-step process, while lowering costs at marinas.



The advertisement features the Jesco logo (green text, 'Since 1932') and the WIPCO logo (black diamond with white text). Below the logos is a collage of various industrial equipment, including material handling systems, storage racks, and processing units, each enclosed in a colored border. At the bottom, contact information is provided: 'Call 800-529-6697 Visit www.JescoOnline.com' and 'Jesco Industries, Inc. 950 Anderson Rd PO Box 388 Litchfield, MI 49252-0388'.

An automated wastewater treatment system can eliminate the need to monitor equipment in person while complying with EPA and locally mandated requirements. Such automated systems separate suspended solids, emulsified oil and heavy metals, and encapsulate the contaminants, producing an easily de-waterable sludge in minutes. The water is typically separated using a de-watering table or bag filters before it is legally discharged. Other options for de-watering include using a filter press or rotary drum vacuum. The resulting solids are non-leachable and are considered non-hazardous, so will pass all required testing.

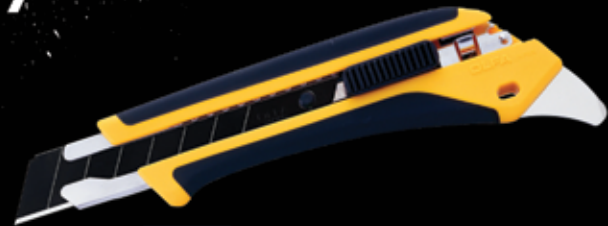
These systems are available as manual batch processors,

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semi-automatic, automatic and can provide a legally dischargeable effluent. A new, fully customized system is not always required. In many cases, it can be faster and more cost effective to add to or modify a marina's current wastewater treatment systems when this is feasible.

However, because every wastewater stream is unique to its application, each wastewater treatment solution must be suited to or specifically tailored to the application. The first step in evaluating the potential cost savings and effectiveness of a new system is to sample the wastewater to determine its chemical make-up followed by a full review of local water authority requirements. The volume of wastewater that will be treated is also analyzed, to determine if a batch unit or flow-through system is required. Other considerations include the size restrictions so the system fits within the marina's available footprint.

An example of successful semi-automated wastewa-

ter treatment involves Mystic Shipyard, a marina in Mystic, Connecticut.

When boats are removed from the water at the marina to remove bottom growth such as barnacles and algae, the pressure washing process also removes anti-fouling paint. Most anti-fouling paints contain metals and biocides that are released into the wash water, creating a waste stream that may contain lead, zinc, and copper and suspended solids.

To treat this waste stream, Mystic Shipyard turned to a 250-gallon batch tank, bag filter tank, and Cleartreat separating agent from Sabo Industrial Corp., a New York-based manufacturer, distributor and integrator of industrial waste treatment equipment and solutions, including batch and fully automated systems, separating agents, bag filters, and accessories.

The wastewater is pumped to the 250-gallon mix tank, where a float disengages the catch basin sump



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pump to prevent overflow. 10 lbs. of the separating agent are added at a 0.5% introduction rate to create large sturdy floc. The treated effluent is then transferred to the bag filter tank for sludge filtering. The tank's four independently operated bag manifolds enable continuous use and maximum dewatering.

The sludge produced is captured in the bag filters and is easily disposed of in a local municipal landfill. The sludge will not break down and will not return the contaminants to the water supply. The treated effluent is collected in the tank for legal discharge to the sewer system or is suitable for reuse.

According to Jeff Marshall, President of Mystic Shipyard, the SABO RT250 Cleartreat clay system was the right choice for many reasons including reliability and ease of operation. Most important, he says that it produces an end result which is well below the DEP's and sewer authority requirement for discharge to the sewer. By not having to haul

the wastewater away, he adds that this year we were able to pay for over half of the initial investment.

Separating Agents

Despite all the advances in automating wastewater treatment equipment any such system requires effective separating agents which agglomerate with the solids in the wastewater so the solids can be safely and effectively separated out.

Because of the importance of separating agents for wastewater treatment, Sabo Industrial uses a special type of bentonite clay in a line of wastewater treatment chemicals called ClearTreat. This line of wastewater treatment chemicals is formulated to break oil and water emulsion, provide heavy metals removal, and promote flocculation, agglomeration and suspended solids removal.

Bentonite has a large specific surface area with a net negative charge that makes it a particularly effective adsorbent and ion exchange for wastewater treat-

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ment applications to remove heavy metals, organic pollutants, nutrients, etc. It has the ability to swell 16 times its normal weight when introduced and mixed with wastewater. As such, bentonite is essential to effectively encapsulate the materials. This can usually be achieved in one-step treatment, which lowers process and disposal costs.

In contrast, polymer-based products do not encapsulate the toxins, so systems that use that type of separating agent are more prone to having waste products leach back out over time or upon further agitation, which can result in compliance violations.

As a point of comparison, if treated polymer floc is shaken in a container, it will go right back into a wastewater solution. However, Cleartreat floc, if shaken in a container will remain separated as floc and crystal-clear water.

After using separating agents, typically a valve is opened and the treated effluent or floc-ed waste stream is pumped through a bag filter, de-watering table, rotary drum vacuum, or other type of filtration. The floc or sludge stays in the bag and the

clear water passes through.

When the bag finishes de-watering, the pumps are usually left on because bentonite is hydrophobic, which means that it continues to shed water when removed from water. So, over time it will become extremely hard and pass any TCLP test. In fact, copper, lead, and zinc become virtually undetectable in the treated wastewater and encapsulated sludge.

A maritime fleet is now utilizing such an approach to treat wastewater stemming from its use of anti-fouling paint, when its vessels are drydocked and pressure washed semi-annually for maintenance.

A similar wastewater treatment approach is also being considered to treat bilge water. Traditionally bilge water is vacuumed from boats and stored in barrels, which are hauled away at a cost of nearly \$2.00 a gallon. Instead, wastewater treatment can be utilized in a marina at an estimated cost of about \$0.30 a gallon.

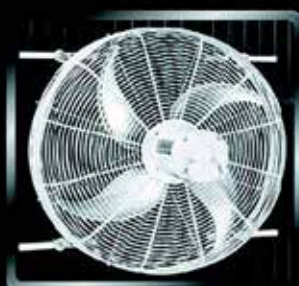
Today's advanced more automated wastewater treatment systems, along with the most effective Cleartreat separating agents, can provide marinas with an easy, economical alternative so they remain compliant with local ordinances and the EPA. Although there is a cost to these systems, they do not require much attention and can easily be more affordable than paying fines or hauling.

For more information, call 845-562-5751; Fax: 845-562-5909; email: info@saboindustrial.com; visit <http://saboindustrial.com>; or write to Sabo Industrial at 2 Little Britain Road Newburgh, NY 12550.

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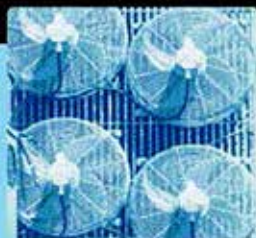
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Introducing ProClean® FLOOR DEFENSE Floor Treatment and Detergent

Unique Product Helps Prevent Slippery Floors & Assists in Cleaning, Controlling Odors

Madison Chemical introduces ProClean® FLOOR DEFENSE, a unique dual-purpose, quat-containing floor treatment, and detergent which helps to prevent slippery floors and assist in cleaning. Available in a convenient-to-use powder form, this unique dual-purpose product also helps to control odors in situations where food product falls onto the floor during production. It is ideal in food and beverage processing facilities of all sizes and volumes.

ProClean® FLOOR DEFENSE is acceptable for use in food and beverage plants as a J1 absorbent or anti-slip agent for spot floor applications. It may be used in all areas provided that use is limited to the portion of the floor area where the hazard exists and that such use does not result in dusting, tracking, or other objectionable conditions. ProClean® FLOOR DEFENSE is not a substitute for good sanitation and must be removed as part of routine floor cleaning.

When using as a floor treatment, clean the floor first and sanitize as required. Allow the floor to dry or at least partially dry before applying ProClean® FLOOR DEFENSE at a rate of 2-4 pounds per 1000

square feet of floor space.

ProClean® FLOOR DEFENSE is acceptable for use in food and beverage plants as an A4 floor and wall cleaner for use in all departments. Before use, food products and packaging materials must be removed from the room or carefully protected. After use, all surfaces in the area must be thoroughly rinsed with potable water.

For best results, use at a concentration of ½ to 2 oz per gallon. For heavy deposits on floors, wet floor, and broadcast product, scrub and allow to remain 15-30 minutes before thoroughly rinsing. Exact dilutions and temperatures are dependent upon the specific nature of the application. Standard Operating Procedures may need to be developed for specific concentrations and temperatures. Madison Chemical Representatives are available to assist.

Madison Chemical is a chemical formulator providing cleaning, sanitation, and maintenance products for the food and beverage processing industries. They also produce products for surface preparation, metalworking, industrial maintenance, transportation, wastewater treatment, winery, pulp and paper, and other industries. Since 1947 they have served customers from their Madison, Indiana headquarters and through a nationwide network of direct Technical Sales Representatives. For additional information visit www.MadChem.com, write to them at Madison Chemical, 3141 Clifty Drive, Madison, IN, 47250, call (812) 273-6000, or email ken.dreyer@madchem.com.

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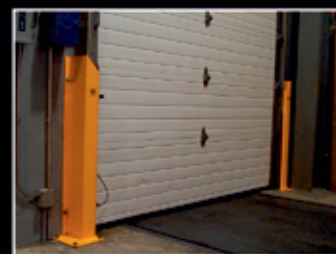
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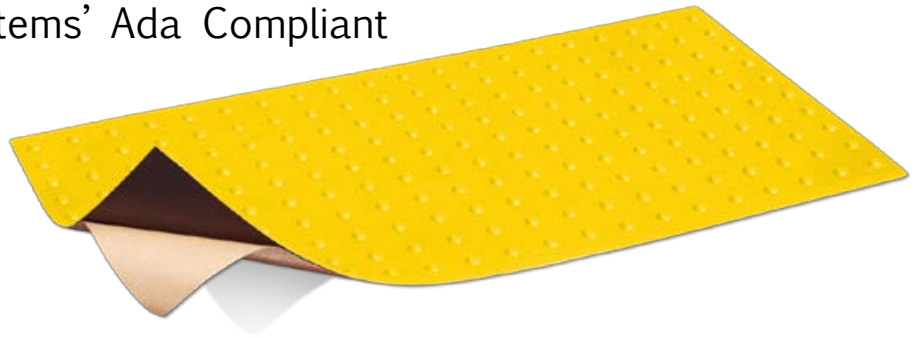
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Surface Applied Tactile Solution Paves The Way: Detectable Warning Systems' Ada Compliant Redimat™ Delivers Concrete/Asphalt Advancements For Safety, Construction, & Ease-Of-Installation.



The forebearer of Detectable Warning Systems™ (DWS) complete line of ADA compliant tactile warning products for visually impaired or handicapped pedestrians, the original RediMat™, is constructed of extremely durable, UV protected, glass-filled polyurethane and is surface applied on both asphalt and concrete.

Now a part of the proprietary product family of Mar-Bal, Inc. (Mar-Bal: Chagrin Falls, OH), DWS has advanced the innovative, flexible RediMat's proprietary pre-applied adhesive system, that delivers some of the industries' quickest installation (less than 10 minutes) and drastically reduces labor time and expense—but not at the expense of durability.

Paving-focused contractors, distributors, states, and municipalities will benefit from the multi-surface adhesive system across a myriad of markets and applications including: Parking Structures, Health Care-Disability, Rail-Transport, Retail, Universities/Education, etc.

RediMat™ Advanced Property / Installation Profile:

Complimenting Detectable Warning Systems™ (DWS) complete construction and safety portfolio, RediMat's proprietary formula is a flexible, UV treated composite comprised of the following specifications:

- *Dome Spacing:* 2.35"
- *Inline Slip Resistance:* .90
- *Compressive Strength:* 30,000 psi
- *Sizes From:* 2' x 3' to 3' x 5' and 10' radius wedge
- *Taber Abrasion:* (1000gms/1000 cycles) 150mgs
- *Hardness:* 90 (Shore A)

Notably, RediMat's flexible polyurethane material conforms to uneven surfaces, and is unbreakable—it will not chip, crack, or splinter. Engineered construction also features a beveled edge for easy pedestrian access. Radius tile is available in a "wedge" shape ideal for rounded intersections requiring a radius system. Directional mats are also available and popular for applications along bike paths and train stations—directing pedestrians to the train itself. Available colors (integral throughout) include: Safety Yellow, Brick Red, Black, and Gray.

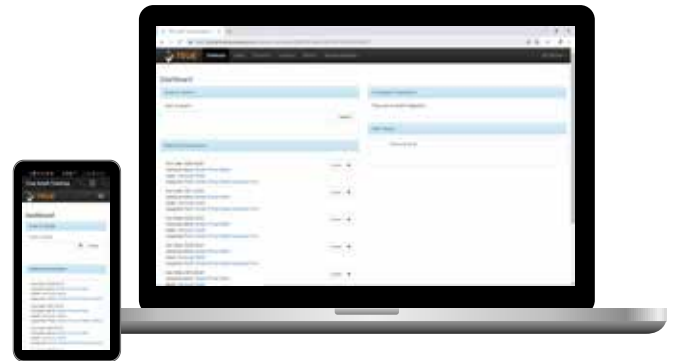
Engineered for both concrete and asphalt, RediMat offers the easiest installation of any surface applied detectable warning in the industry via their proprietary pre-applied "peel-and-stick" adhesive system. Simply

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remove the protective backing, peel-and-stick, then roll the mat to ensure a secure bond.

From start-to-finish, this installation typically takes less than 10 minutes—saving costly man hours.

RediMat™ Advancements / Conclusion:

In early 2020, Mar-Bal, Inc. will introduce an enhanced RediMat product to the market. The new RediMat will incorporate a mesh reinforcement providing even more durability. Combining its' current flexibility with the improved durability make RediMat an excellent choice for use in high pedestrian traffic applications, harsh climates, and challenging installations.

Anthony Lignetta, Mar-Bal's Director, Propriety Products, also referenced some of RediMat's more prominent clients stating, "We've done essential installations for key clients including Disney, Apple and numerous transit operations including the New York City Transit and Amtrak locations".

Known as 'The One-Source Solutions Provider', privately held Mar-Bal has three state-of-the-art U.S. manufacturing plants in Ohio, Virginia, and Missouri—producing everything entirely turn-key. The economical DWS products also feature ease-of-installation, consistent delivery, and unparalleled customer service.

Providers of one of the most complete lines of ADA compliant and cost-effective detectable warning surface products on the market, DWS offers both composite and flexible materials for either cast-in-place or surface applied applications including the following brands:

RediMat™ / AlertCast® / AlertTile® / Cast Iron™

For more information on Mar-Bal's line of DWS products please visit: www.detectable-warning.com
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