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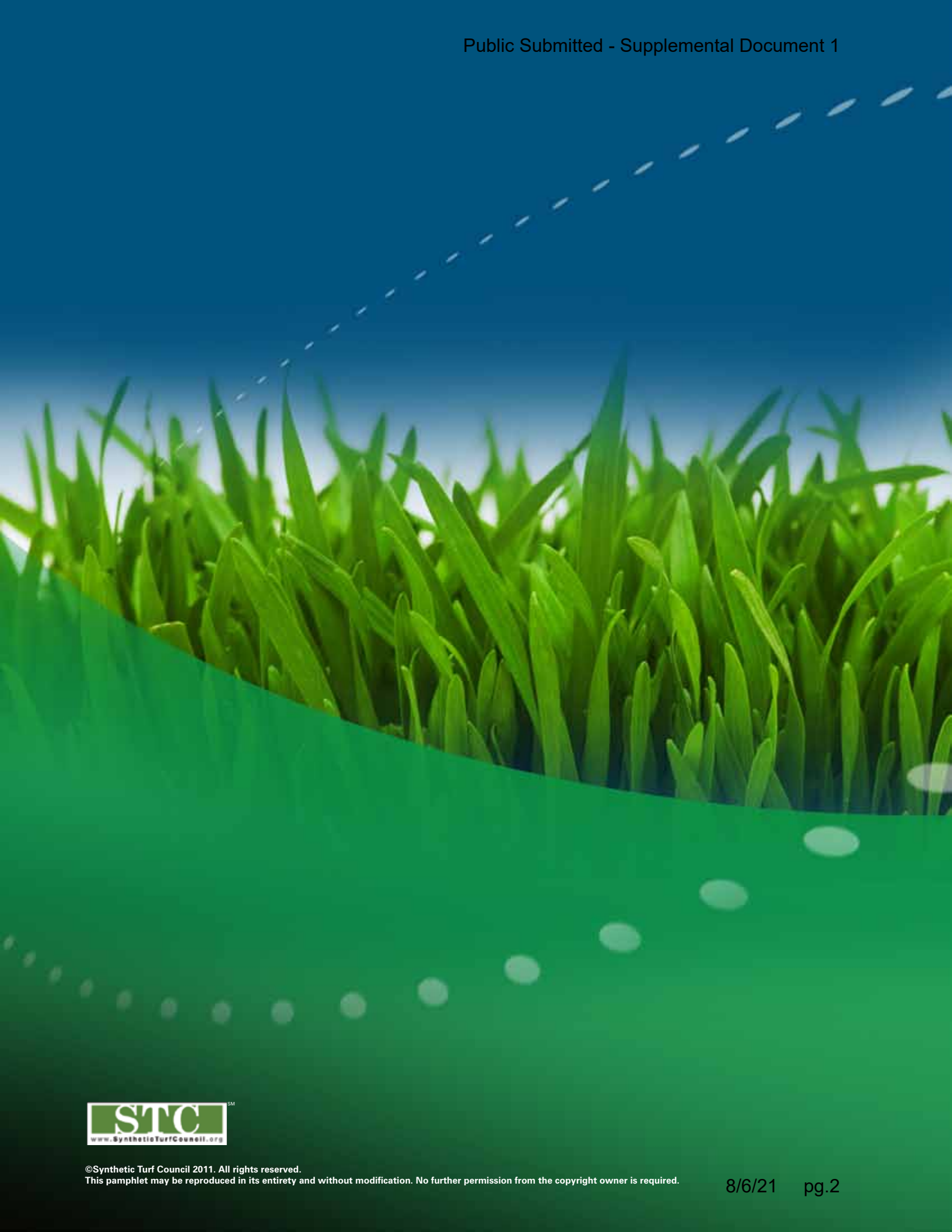
Synthetic Turf 360°

A Guide for Today's Synthetic Turf



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A Guide for Today's Synthetic Turf

2011

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Why Synthetic Turf?

There are many reasons why synthetic turf has become so popular.

A heightened sense of environmental awareness prompts interest in its ability to conserve billions of gallons of water each year. Increased user requirements and intense competition have given rise to a new generation of synthetic turf systems that replicate the look and playability of natural, lush grass.

Athletes enjoy significantly more playing time without the need for resource-intensive maintenance. Homeowners, businesses, parks, municipalities and government entities use synthetic grass as an attractive landscape solution that saves time, money and water.

The Synthetic Turf Council (STC) created this guide to showcase the numerous uses and benefits of synthetic turf. It features information about athletic fields and the growing landscape and recreation category, which includes parks, playgrounds, homes, businesses, golf courses and more.

If you would like to learn more, we invite you to visit www.syntheticturfcouncil.org.
Thanks for your interest in synthetic turf!

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Athletic Fields

Popular, versatile solution

At the beginning of 2011, more than 6,000 synthetic turf fields were being used in North America by a growing number of high school and collegiate athletes playing and practicing football, soccer, hockey, baseball, rugby, lacrosse and many other sports.

About half of all NFL teams currently play their games on synthetic turf and, since 2003, over 70 FIFA U-17 and U-20 World Cup matches have been played on synthetic turf soccer fields.

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Significant environmental benefits

Depending on the region of the country, one full-size synthetic turf sports field saves 500,000 to 1,000,000 gallons of water each year. During 2010, between 3 billion and 6 billion gallons of water were conserved through its use. According to the EPA, the average American family of four uses 400 gallons of water a day.[1] Therefore, a savings of 3 billion to 6 billion gallons of water equates to the annual water usage of over 20,000 to 40,000 average American families of four.

For a multi-use field in Texas, where there is little rain, the water savings is much greater. School officials with the El Paso Independent School District stated that their 10 new synthetic turf sports fields will save more than 80 million gallons of water every year, or 8 million gallons of water per field.

The estimated amount of synthetic turf currently installed has eliminated the need for nearly a billion pounds of harmful pesticides and fertilizers, which has significant health and environmental implications.

Example:

In a July 7, 2007, article entitled "Grass Warfare," the Wall Street Journal states, "The pesticides used in lawn-care products found on shelves nationwide are considered legal by government standards. But broader research on health risks from such chemicals has prompted general warnings. The EPA, which regulates pesticide use, notes on its own website that kids are at greater peril from pesticides because their internal organs and immune systems are developing." [2]

According to the North Carolina Department of Environment and Natural Resources polluted storm water run-off is the No. 1 cause of water pollution in their state, with common examples including over-fertilizing lawns and excessive pesticide use.[3]

The EPA has identified run-off of toxic pesticides and fertilizers as a principal cause of water pollution. According to that federal agency, approximately 375,000 acres of lakes, 1,900 miles of rivers and streams and 550 square miles of estuaries in Florida are known to be impaired by nutrient pollution, a primary source of which is excess fertilizer.[4]

[1] WaterSense, an EPA publication, www.epa.gov/watersense/pubs/indoor.html
[2] Gwendolyn Bounds, "Grass Warfare" (Wall Street Journal, July 7, 2007)
[3] Stormwater FAQs, (North Carolina Department of Environment and Natural Resources website)
[4] Public Q&A Index – Florida (EPA website)

Most of the 6,000-plus synthetic turf sports fields in use today use crumb rubber infill recycled from used tires, keeping more than 105 million tires out of landfills.

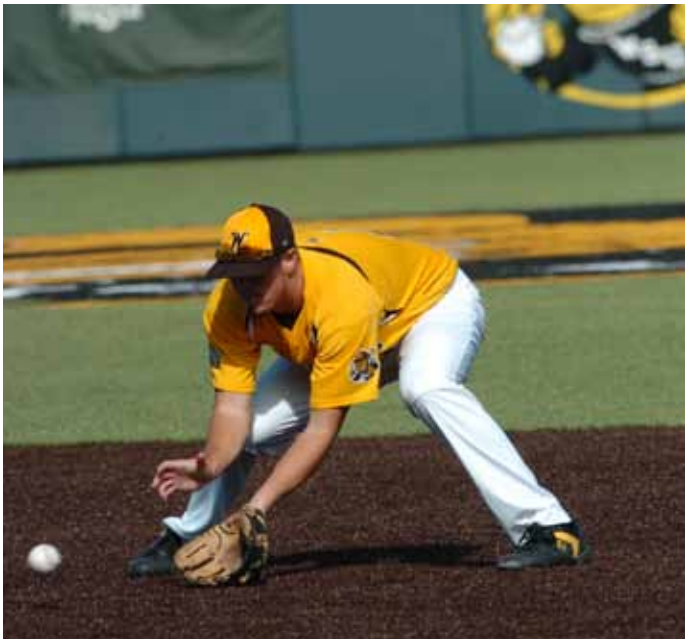
Synthetic turf helps reduce noxious emissions.

According to the EPA, "lawn mowers emit high levels of carbon monoxide, a poisonous gas, as well as hydrocarbons and nitrogen oxides that contribute to the formation of ground level ozone, a noxious pollutant that impairs lung function, inhibits plant growth and is a key ingredient of smog."[5] The EPA also reports that a push mower emits as much pollution in one hour as 11 cars and a riding mower emits as much as 34 cars.[6]

In 2010, a BASF Corporation Eco-Efficiency Analysis, which compared synthetic turf athletic fields with professionally installed and maintained grass alternatives, concluded that synthetic turf can lower consumption of energy and raw materials and generation of solid waste depending on field usage. BASF also found that the average life-cycle costs over 20 years of a natural grass field are 15 percent higher than the synthetic turf alternatives.

A synthetic turf company and STC member has forged a recycling partnership with Yellowstone National Park to divert nearly 300 million plastic bottles from landfills each year. The plastic bottles will be recycled into select synthetic turf products and backing for carpet.

Using synthetic turf can help environmentally conscious builders and specifiers with LEED® (Leadership in Energy and Environmental Design) project certification from the U.S. Green Building Council in the areas of Water Efficient Landscaping, Recycled Content, Rapidly Renewable Material and Innovation in Design.



"With synthetic turf, we use a lot less water. It used to be 3 million gallons of water each year with regular grass and now we probably use a tenth of that amount."

— Bob Sube, Director of Facilities and Construction, Fillmore Unified School District, California

[5] Your Yard and Clean Air, EPA Office of Mobile Sources, (Fact Sheet OMS-19, May 1996)
[6] Small Engine Rule to Bring Big Emissions Cuts, (EPA News Release, April 17, 2007)

Increased playing time and safety

Synthetic turf can be utilized around 3,000 hours per year with no "rest" required, more than three times that of natural grass. This creates increased practice and play time as well as the valuable flexibility to use your field for other events. The opportunity to be active and participate in sports is critical for the fitness, mental health, self-esteem and leadership development of youth.

It is a smart solution for playing fields that have become unsafe from overuse or severe climatic conditions. A grass field simply cannot remain lush and resilient if it is used more than three to four days a week, in the rain, or during months when grass doesn't grow. Rain-outs are eliminated since highly permeable synthetic turf quickly drains excess water off the field.

Made with resilient materials for safety, synthetic turf sports fields provide a uniform and consistent playing surface.

Traction, rotation and slip resistance, surface abrasion and stability meet the rigorous requirements of the most respected sports leagues and federations. Some of the published studies of the comparative safety of synthetic turf include:

- A 2004 NCAA study among schools nationwide comparing injury rates between natural and synthetic turf; the injury rate during practice was 4.4% on natural turf, and 3.5% on synthetic turf.

- An analysis by FIFA's Medical Assessment and Research Centre of the incidence and severity of injuries sustained on grass and synthetic turf during two FIFA U-17 World Championships. According to FIFA, "The research showed that there was very little difference in the incidence, nature and causes of injuries observed during games played on artificial turf compared with those played on grass."[7]

- Three 2010 long-term studies published by researchers from Norway and Sweden comparing acute injuries on synthetic turf and grass. The studies examined the type, location and severity of injuries sustained by hundreds of players during thousands of hours of matches and training over a four-to-five-year period. Many types of acute injuries to men and women soccer players, particularly knee injury, ankle sprain, muscle strains, concussions, MCL tears and fractures were evaluated. The researchers concluded that the injury risk of playing on artificial turf is no greater than playing on natural grass.[8]

These studies and many more, including the FIFA comparative results of its exhaustive research, are posted on the Synthetic Turf Council's website under Research & Latest Thinking.

[7] "Very Positive Medical Research on Artificial Turf" (Turf Roots Magazine 01, pp. 8-10, FIFA)

[8] Bjørneboe J, Bahr R, Andersen TE (2010) Risk of injury on third generation artificial turf in Norwegian professional football. British Journal of Sports Medicine, 44: 794-798.

Ekstrand J, Hägglund M, Fuler CW (2010) Comparison of injuries sustained on artificial turf and grass by male and female elite football players. Scandinavian Journal of Medicine and Science in Sports, DOI: 10.1111/j.1600-0838.2010.01118.x

Soligard T, Bahr R, Andersen TE (2010) Injury risk on artificial turf and grass in youth tournament football. Scandinavian Journal of Medicine and Science in Sports, DOI: 10.1111/j.1600-0838.2010.01174.x

Cost-effectiveness

According to Cory Jenner, a landscape architecture professional in Syracuse, N.Y., the cost of installing and maintaining a synthetic turf sports field over a 20-year period (including one replacement field) is over three times less expensive per event than the cost of a grass field over the same period of time. This is because many more events can be held on a synthetic turf sports field. This cost-per-event advantage is validated by other authorities and field owners.

Because synthetic turf can withstand so much wear and tear, many schools rent their fields to local sports teams and organizations to bring in extra funding. At Cincinnati's Turpin High School, the field is rented 80 percent of the evenings between January and October — raising $40,000/year for the last two years from rental fees.

"The synthetic field completely revolutionized our sports program. We now have a multi-dimensional facility with activities scheduled year-round, nearly around the clock. Along with football, Newman Field now hosts an incredible range of activities — intramural sports, lacrosse sports, lacrosse playoffs, soccer leagues, local high school events, such as sports camps, cheerleading competitions and much more."

— Rob Coleman, Athletic Director, Whittier College, California

Landscape and Recreation

Various applications

Beautifully landscaped synthetic turf can often be installed in places where grass can't grow or be effectively maintained.

Applications include:

- Airport grounds
- Businesses/commercial developments
- Golf courses
- Highway medians
- Homes/residential communities
- Municipalities
- Parklands
- Pet parks
- Playgrounds
- Rooftops
- Tennis courts
- Closed landfills

Closed Landfill

Eco-friendly solution

From Disneyland and the Wynn Hotel to the Twentynine Palms Marine Corps Base and your neighbor's yard, thousands of homes, businesses, golf courses and public spaces have turned to synthetic grass to provide a lush, attractive landscape solution that requires minimal resources and maintenance.

Water conservation is a necessity. In March 2011, Wharton published a report about the growing scarcity of water. It references a prediction by the 2030 Water Resources Group that by 2030 global water requirements will be "a full 40 percent above the current accessible, reliable supply." Further, less than 3 percent of all available water is fresh and drinkable. Underground aquifers hold almost all the potable water available in liquid form, and their rate of depletion more than doubled between 1960 and 2000.[9] Yet, the EPA states that nationwide landscape irrigation is estimated to account for almost one-third of all residential water use, totaling more than 7 billion gallons per day.[10]

Synthetic turf promotes greater utilization of land, as you can do more with the same space surfaced with synthetic turf than with natural grass. Rooftops once deemed unusable for high-rises and residential buildings can now feature inviting green areas. Hotels that had to restrict the use of the lawns for parties and events can now schedule as many functions as they can book.

The Southern Nevada Water Authority estimates that every square foot of natural grass replaced saves 55 gallons of water per year.[11] If an average lawn is 1,800 square feet, then Las Vegas homeowners with synthetic turf could save 99,000 gallons of water each year or about $400 annually. In Atlanta, homeowners could save $715 a year, not including much higher sewer charges.

In its report, "Municipal Solid Waste in the United States, 2009 Facts and Figures," the EPA estimates that 33.2 million tons of yard trimmings were generated in 2009, the third largest component of Municipal Solid Waste in landfills.[12] As yard trimmings decompose, they generate methane gas, an explosive greenhouse gas and acidic leachate.[13]

A June 2008 National Public Radio report called "Water-Thirsty Golf Courses Need to Go Green" reported "Audubon International estimates that the average American golf course uses 312,000 gallons of water per day. In a place like Palm Springs, where 57 golf courses challenge the desert, each course eats up a million gallons a day. That is, each course each day in Palm Springs consumes as much water as an American family of four uses in four years."[14]

Impermeable synthetic turf is being used as an economical and environmentally effective solution for the closure of landfills, mine spoils and hazardous sites. Among the many reasons: it provides a perennially green landscape cover; dramatically reduces construction and long-term maintenance costs; improves stability; prevents erosion; controls gas and odor; and reduces leachate.

"The inclusion of synthetic grass in our landscape has proven to be a smart choice for the resort and Mother Earth. Since the conversion, we are able to accommodate increased capacity and utilize a greater percentage of grassy areas, while providing an enhanced event experience, without damaging the grass. This year, there will be 8 million gallons of water conserved and our new synthetic lawn allows us to eliminate the use of fertilizers, pesticides and herbicides on ground in close proximity to the beach."

— Rodrigo A. Carrillo, Project Manager, Fontainebleau Hotel, Miami Beach, Fla.

[9] "Valuing Water: How Can Businesses Manage the Coming Scarcity?" (Wharton School of the University of Pennsylvania, March 2011)
[10] Outdoor Water Use in the United States, (EPA-832-F-06-005, August 2008)
[11] Water Smart Landscapes Rebate (Southern Nevada Water Authority website)
[12] "Municipal Solid Waste in the United States, 2009 Facts and Figures," (EPA Office of Solid Waste, EPA530-R-10-012, December 2010)
[13] Frequent Questions about Yard Trimmings, (EPA website, December 2010)
[14] Frank Deford, "Water-Thirsty Golf Courses Need to Go Green," (National Public Radio, June 11, 2008)

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Saves money

A growing number of tax credits and rebates are available since synthetic turf conserves water. For example, the Central Basin Municipal Water District in California reports that Golden State Water Company customers replacing their irrigated areas with synthetic turf can save $1 per square foot, up to a $1,000 rebate.

Many public spaces, from government grounds and highway medians to airport entrances, are turning to synthetic grass for appealing, water-saving landscape solutions that reduce operating and maintenance expenditures.

Rooftop Garden

Promotes accessibility

Play areas are among the public spaces covered by the Americans with Disabilities Act. The 2010 Standards for Accessible Design (Sections 240, 1008) addresses play areas designed, constructed and altered for children ages 2 and over in a variety of settings, including parks, schools, childcare facilities, shopping centers and public gathering areas. According to the standards, "the surfaces that are universally accessible and go beyond ADA to be actually usable for children with disabilities include artificial grass with rubber underneath. The benefit of these surfaces besides the accessibility is the maintenance. You do not need to do daily maintenance to ensure that safety is maintained."[15]

Making recreation for the disabled as inclusive as possible is a growing priority. "Inclusive recreation is one of the fastest growing needs in more and more parks and recreation agencies across the United States," said Elizabeth Kessler, 2009-2010 National Recreation and Park Association president, during the 11th annual National Institute on Recreation Inclusion conference in November 2010.

Synthetic turf creates more recreation opportunities for people with disabilities and physical challenges. Wheelchairs roll easily and crutches won't sink into park and landscape surfaces, like those used by the Miracle League nationwide to help youth with physical disabilities play baseball.

Many retirement communities use extensive amounts of synthetic turf for landscaping to assist residents with mobility challenges. People using wheelchairs, canes or walkers can easily move across the turf. Because they are easy to maintain, synthetic turf surfaces also offer seniors the beauty of a decorative lawn without the expense, labor and time of weekly yard work during much of the year.

"Our new artificial lawn helps keep the dogs and the facility clean and the yard will be better for people in wheelchairs to use when practicing with their dogs. We are so thankful to have this big improvement."

— Mo Maurer, founder and owner of Hawaii Canines for Independence

[15] Fact Sheet, Adoption of the 2010 Standards for Accessible Design (ADA website)

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Promotes safety and security

Local communities need accessible, versatile play surfaces for its youth and people of all ages. Parks and playgrounds that use synthetic turf allow kids to be active year-round on safe and resilient sports surfaces.

With synthetic turf, kids and parents don't have to worry about mildew and bacteria from wet mulch, allergies associated with natural grasses or other potential health irritants.

Owners of second homes that landscape with synthetic turf don't need a lawn maintenance crew that may be tempted by a vacant home.

"In 2009 the City of Lakeland opened Common Ground, our first inclusive playground featuring unique play experiences for children of varying physical and cognitive abilities. We utilized synthetic turf to cover over 25,000 square feet of play zones to connect our barrier free play elements. The surface creates the natural looking green environment so critical to our design, provides barrier free safety fall zones that protect our children, drains almost instantly even after a tropical torrential rain and it remains cooler than other safety surface options. Maximizing our children's outdoor play time, Common Ground is a community dream come true."

— Pam Page, Assistant Director of Parks & Recreation, City of Lakeland Parks & Recreation Department, Lakeland, Fla.

Common Ground Park, Lakeland, Florida

Community and lifestyle enhancement

By making continuous and safe play possible, synthetic turf promotes a healthy lifestyle, which enhances community well-being. It also helps increase childhood fitness, an important objective of the "Let's Move!" program championed by First Lady Michelle Obama, and the NFL's "Play 60" campaign.

Synthetic grass creates low-maintenance, pet-friendly lawns that keep man's best friend safe and healthy while controlling odors.

Homeowners remove the headaches of ongoing lawn care, adding more leisure time back into their already busy lives.

Synthetic turf can come in many colors, like the orange, blue and yellow grass at the Sunflower Preschool Playground at Barnett Family Park in Lakeland, Florida.

Pixie Hollow Fairy Garden, 2011 Epcot International Flower and Garden Festival, Disney World, Orlando, Florida

Ready to get started with synthetic turf?
Visit our Online Buyers Guide and Member Directory at www.syntheticturfcouncil.org.

The Washington Post Democracy Dies in Darkness

Five things to know about synthetic lawns

Listen to article 3 min

By Michele Lerner

July 20, 2021 at 5:30 a.m. EDT

8

While a few homeowners find their Zen moments mowing the lawn, plenty of others complain frequently about the monotony of feeding, watering and mowing their grass to keep it healthy and green.

A swath of grass in the front, side or back of a home is still desirable for many homeowners, but others worry about the impact of lawns on the environment. According to the Natural Resources Defense Council (NRDC), lawns consume nearly three trillion gallons of water a year, 200 million gallons of gas for gas-powered mowers and 70 million pounds of pesticides.

Artificial turf and synthetic lawns, used frequently for sports fields, are garnering interest as an alternative to grass. We asked Reed Libby, founder of Affordable Lawn Sprinklers and Lighting in Arlington, Va.

1. **Synthetic lawns are different from sports turf.** The artificial turf used on football, soccer and baseball fields is not the best option when installing synthetic grass in your backyard. For a field turf, safety is a predominant concern — especially shock absorbency for high-speed collisions. Because of this, athletic field turf is most often characterized by an extra-deep monofilament pile, because as a pile is taller the more shock-absorbent rubber infill can be installed. A residential turf, however, is geared more to aesthetics. The artificial grass for a residential backyard is designed to look and feel like natural grass. It is typically manufactured with subtler shades of green and more fiber with shorter blades. The result is a denser, plusher artificial turf that contains far less infill and a more pleasing texture on which to walk barefoot.

2. **Installing a synthetic lawn is complex.** A common misconception about synthetic turf is that it lays overtop native soil, similar to a rug on hardwood floors. The installation process is much more involved for turf. In general, most artificial lawns start with excavating three to five inches of topsoil, which is then compacted with a tamper. A sub-base of three to four inches of crushed rock is then used to form a solid, water-permeable layer for the top grass. This process can take two to four days, depending on the size of the lawn.

3. **Synthetic lawns are easy to maintain.** Unlike traditional grass lawns, artificial turf is virtually maintenance-free. Homeowners can save significantly on annual lawn care services such as fertilizer, mowing, chemical treatments, raking, edging, water, weeding, etc. To keep an artificial lawn in pristine and healthy condition, homeowners are encouraged to rake leaves and debris during the spring and fall months. Artificial grass also always looks lush, cool and inviting, no matter the weather.

4. **Fake grass can be better than the real thing for the planet.** Artificial grass has numerous environmental benefits. Water conservation, decreasing carbon emissions and eliminating the need for toxic pesticides and fertilizers, which are harmful to humans and animals as well as the environment, top the list. We've also seen an increase in

climate-driven megadroughts in many parts of the country in recent years. One thousand feet of synthetic grass can save homeowners tens of thousands of gallons of water each year. Artificial grass also greatly reduces landfill needs as grass clippings are the third largest component of landfills, according to the EPA.

5. **Synthetic grass has a long lifespan**. Most artificial grass comes with a 10-year manufacturer warranty and has a life expectancy of approximately 20 to 25 years, depending on use.

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Biofriendly PLANET

ECO-FRIENDLY

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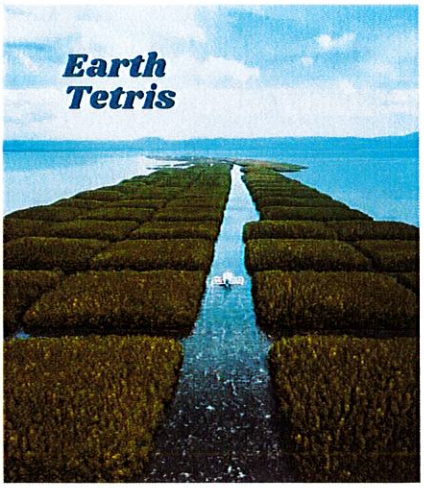
January 29, 2018 by Emma Metson One Comment

IMAGE OF THE DAY

Earth Tetris



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Grass image credit: Stas Ovsky

It's true artificial grass has come a long way. Its benefits are so apparent that a lot of people have started to use it in their lawns.

One of the biggest advantages of synthetic grass is its flexibility. While it's perfect for gardens and lawns, artificial grass can be used for a lot of other applications too. Balconies, patios and pathways, caravans, staircases, play area, etc. — these are just some of the places where you can use it.

Indeed, the possibilities are endless!

Despite all that, some people are still hesitant about doing the switch. The argument of real vs fake grass is ongoing. But perhaps, the biggest question of all is this: is it safe for the environment? Is it an eco-friendly option?

Read on to find out and judge for yourself if you think it is or isn't eco-friendly.

Water usage

Real grass needs water, that's a fact.

And it needs a lot of it, especially during the growing and summer seasons. On the other hand, artificial grass doesn't. It probably does need some, but it's rare. If anything, you only need to hose down your synthetic turf once in a while to remove dirt and dust or, perhaps, if your pets used it to do their 'thing'.

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What Is Eco-Friendly

because it's made of plastic and it can become pretty hot under the scorching heat of the sun.

Natural grass tends to remain cool though even in summer. But who knows, maybe a new kind of fake grass will be made in the future to address this issue.

Recycling is not an option

Another argument of those who are against artificial grass is that it's not recyclable. Artificial grass can last up to a good 25 years. But if it's not recyclable when it comes to its end of life, it'll end up in landfills — creating more waste.

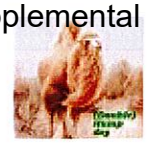
However, this is not entirely true since not all artificial grasses are created equal. In fact, some are made using materials that are recyclable. And although the backing/tuft bind is the only part that isn't, it can easily be melted down to create new products.

Reduces carbon emissions

Maintenance equipment is required to keep real grass healthy and beautiful. Lawn mowers, strimmers, scarifiers, etc. — all of them use fuels like petrol and diesel. You see, the use of fossil fuels in everyday living emits greenhouse gases.

And these greenhouse gases are not good for the environment.

This is where artificial grass comes in. You don't have to trim or do anything to it since it will look luscious and green from day one. This means you don't have to use any



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Another advantage of synthetic turf over the real one is it will never be toxic. That's because you don't need to use weedkillers, pesticides, fertilizers and herbicides to protect it. Real grass though, needs them to make sure it's protected from pests and diseases.

These chemicals are harmful to both humans and animals (especially if you have pets). Not only that, they can damage the environment in ways you probably didn't think were possible. The risk lies when the harsh chemicals find their way into local water sources like rivers, ponds and streams.

This can happen through surface water runoff.

Once these harsh chemicals reach local waters, they can potentially damage animal and marine wildlife. Excessive amounts of toxins can also cause algae to populate rivers and streams, killing fish and vegetation in the process. Just imagine how dangerous it is if these toxins also found their way into your drinking water.

It's not living vegetation

This one is true. Artificial grass doesn't absorb carbon dioxide and release oxygen. Natural grass also provides habitats for living creatures like insects, plants, and other organisms which are essential to break down and recycle organic and inorganic products that fall into the grass.

But it's also for this very reason why you will never have any problem with pests and insects in your artificial grass since they wouldn't be able to survive under these conditions. Then again, you don't have to just settle for synthetic turf all the way. After all, you can still choose your favourite plants,

It's still worth noting artificial grass is not 100% carbon emission free. Here's why:

During manufacturing, it still contributes to carbon emissions, and natural resources are also used. Most fake grass is made overseas which means it has to travel long distances using fossil fuels emitting harmful gases.

And that's not the end of it. Artificial grass needs a flat surface where it can be laid out. Otherwise, machinery is needed to level the ground before installation. These machines also use fuels to run and operate.

Soil regeneration

It takes thousands of years for topsoil to develop but it can easily be lost through erosion, either by wind or water. Natural grass helps significantly in preventing this from happening. That's because real grass sends many fine rootlets into crevices of the soil where they grow and, as they decay, add organic matter to the soil.

Unfortunately, it is recommended the soil be heavily compacted and leveled before any synthetic grass is installed. This process damages the structure of the soil and kills soil microbes. It can also potentially damage the roots of trees within the area.

Capturing rainwater

Synthetic grass doesn't absorb water, unlike its counterpart. What it does is it simply drain it through the surface or along the ground into storm sewers. What's nice about this

significant amount of money to create, it's worth considering it as an eco-friendly possibility.

Conclusion

As you can see, artificial grass has its pros and cons as to how eco-friendly it is. The same thing goes for real grass, too. If anything, synthetic grass is far from being perfect, but who knows? As manufacturers continue to improve the way it's being made, there might come a time when artificial grass will become 100% safe and friendly to the environment.

Author Bio

Emma is a part-time property developer who loves sharing how others can make their homes amazing both inside and out on her blog Fixtures and Flowers. *You can chat with Emma on* Twitter.

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Environmental and health impacts of artificial turf: a review

Hefa Cheng [1], Yuanan Hu, Martin Reinhard

Affiliations

PMID: 24467230 DOI: 10.1021/es4044193

Free article

Abstract

With significant water savings and low maintenance requirements, artificial turf is increasingly promoted as a replacement for natural grass on athletic fields and lawns. However, there remains the question of whether it is an environmentally friendly alternative to natural grass. The major concerns stem from the infill material that is typically derived from scrap tires. Tire rubber crumb contains a range of organic contaminants and heavy metals that can volatilize into the air and/or leach into the percolating rainwater, thereby posing a potential risk to the environment and human health. A limited number of studies have shown that the concentrations of volatile and semivolatile organic compounds in the air above artificial turf fields were typically not higher than the local background, while the concentrations of heavy metals and organic contaminants in the field drainages were generally below the respective regulatory limits. Health risk assessment studies suggested that users of artificial turf fields, even professional athletes, were not exposed to elevated risks. Preliminary life cycle assessment suggested that the environmental impacts of artificial turf fields were lower than equivalent grass fields. Areas that need further research to better understand and mitigate the potential negative environmental impacts of artificial turf are identified.

Yes, definitely! Crumb rubber made from the ground up recycled tires are the culprits that make artificial grass unsafe*. These are the properties that give artificial grass such a bad reputation. The good news is: infill is optional. Also, there are natural alternatives to it, like crushed rocks. Artificial turf with toxic amounts of lead have usually been discontinued by turf manufacturers in recent times. We'll discuss these more in-depth in the later paragraphs.*

What's important now is that you know that generally, the artificial grass blades are safe for your kids. You can definitely have artificial turf at home without crumb rubber endangering your lives. However, there is some low-quality turf grass out there. We don't know what they're made of, and we can't vouch for them either. If you want to be sure that your kids are safe, go for manufacturers that pride themselves for being non-toxic and lead- free. If you're unsure, you can always ask them for the testing certificates!

Crumb rubber has never been used (to my knowledge) in landscape turf and see above – we have a substantially credible 3rd party testing.

Is Artificial Turf Safe for Children and Pets?

06/21/2019

Is Artificial Turf Safe for Your Kids and Pets?

Whether you're a parent or pet owner, safety is almost always a top priority. At MegaGrass, we value your safety as well as the safety of those around you. After all, our mission is to provide the best landscape solutions, which wouldn't be possible without factoring in safety precautions!

The first thing most people ask themselves when they see artificial grass is… "*Is artificial turf safe for my children and pets?*"

The simple answer is yes. However, a lot of people want to know just *how* safe it is. To understand this, we must first dig into the composition of artificial turf.

What is artificial grass made of?

Most artificial turfs are made of polyethylene. It’s the kind of plastic used to make children’s toys, grocery bags, and most common plastic household products. Polypropylene is also in the mix. This is commonly used for plastic utensils and microwavable containers. Nylon is also used for heat resistance.

Are the typical composition materials of artificial grass dangerous?

No. Artificial grass is made from the same type of plastic that is used in common household products. We come into contact with these materials on a daily basis and there have been no proven harmful effects. If you think about it, turf is really just plastic. There's no extra harmful ingredients used to make it that would put your safety at risk.

What is artificial turf made up of?

Artificial turf is made up of three major parts:

1. Backing material that will serve to hold the individual blades of artificial grass

2. The plastic blades themselves.

3. The infill, those tiny black crumbs, that helps support the blades.”.

What makes them harmful?

In his article on the Washington Post, Shalat points out, “Various pigments are used to provide the green color of the blades. These can include lead or titanium for the white lines and still other metals for school logos on the field.

Those little black crumbs are the problems. Tires can be toxic.”

At MegaGrass, we professionally test all of our products to make sure they are 100% lead and latex free. We have all the testing certificates on our website to prove it as well. This is why even when customers choose not to purchase from us, we always tell them to make sure that whoever they are buying from has the appropriate testing completed to make sure they are buying safe turf products.

Is artificial turf safe for kids?

Yes, definitely! Crumb rubber made from the ground up recycled tires are the culprits that make artificial grass *unsafe*. These are the properties that give artificial grass such a bad reputation. The good news is: infill is optional. Also, there are natural alternatives to it, like crushed rocks. Artificial turf with toxic amounts of lead have usually been discontinued by turf manufacturers in recent times. We’ll discuss these more in-depth in the later paragraphs.

What’s important now is that you know that generally, the artificial grass blades are safe for your kids. You can definitely have artificial turf at home without crumb rubber endangering your lives. However, there is some low-quality turf grass out there. We don’t know what they’re made of, and we can’t vouch for them either. If you want to be sure that your kids are safe, go for manufacturers that pride themselves for being non-toxic and lead- free. If you're unsure, you can always ask them for the testing certificates!

Fortunately, there are brands that go above and beyond the general rule. By offering non-toxic, lead-free, toxin-free artificial grass, MegaGrass ensures not only your kids’ and pet's safety, but yours as well. We hired a non biased professional testing company to perform various tests on our turf, ranging from lead, UV, permeability, etc. to make sure our customers know they are getting the best products out there. Full transparency is key, which is why you can find all of our testing certificates on our website. At MegaGrass, we stand behind our products, which is why we offer free samples and offer a full 15 year warranty.

Is Artificial Turf Safe for Pets?

Our furbabies aren’t so different from our babies, are they? They’re all whiney poop machines who are constantly hungry for food and attention. But we love them all the same. If we could give them everything, we would. We want to

know that an investment as big as artificial turf won't be any harm to them. And hopefully, they'll benefit from it as much as we will.

The key concern when it comes to pet safety for turf is lead. Nowadays, with so many options to choose from, many customers fall into the trap of choosing cheap turf suppliers with shady materials. Some turf suppliers use harmful materials in their turf in order to keep their prices lower, which can be terrible for the safety of your pets.

Does artificial turf cause cancer?

Studies show no conclusive evidence linking fake grass to cancer. However, there is a correlation between tire rubber crumbs and cancer risk. This is why we never recommend using rubber infill for artificial turf. A natural infill such as sand and stones is not only more aesthetic, but also safer.

Stay away from crumb rubber infills!

Hypothetically, these tiny pieces of rubber float in the air when the playing field is used by athletes. Much like dust resting on a book when you tap its cover, the dust spews into the air and into your lungs. Imagine a goalie diving to block a shot, rubber infill from underneath goes up in the air and into his face. He ingests them, or they stick to his skin. Since the rubbers are made from toxic materials, they negatively affect students and players on the field

Is synthetic grass a cancer risk?

It's not! If anything, the recycled tire rubbers being used for infill are the main suspects. Tires come from a mix of synthetic and natural rubber, carbon black (a petroleum-based material) and 4-10 gallons of petroleum products. Metals like cadmium, lead (neurotoxic! It's harmful to your brain!) and zinc are also present. Some chemicals like dibenzopyrenes are also known carcinogens.

Even the chemicals the tires are exposed to during its life can also have a hand in its toxicity. 11 out of 92 chemicals found within crumb rubber have been identified as known or suspected carcinogens. Having this in your yard is a sure fire way to poison yourself. **THE GOOD NEWS IS: RUBBER INFILLS ARE OPTIONAL AND THERE ARE BETTER ALTERNATIVES. AT MEGAGRASS, WE OFFER SAND AND BROKEN DOWN ROCKS INSTEAD, WHICH COMPLETELY ELIMINATE ANY SAFETY HAZARDS WHEN IT COMES TO TURF.**

So, is artificial grass toxic?

Generally, no. But of course, there is subpar quality synthetic grass in the market. These are dangerous! These can have unhealthy amounts of toxins and lead. And since they're made with cheap materials, you have no guarantee that they weren't made out of poisonous substances.

From: JULIE ARASKOG
To: Antonette Fabrizi
Subject: [BULK] Fwd: Turf articles
Date: Friday, August 06, 2021 4:50:54 PM

Sent from my iPhone

Begin forwarded message:

From: Susan Lerner <slerner@palmbeachpreservation.org>
Date: August 5, 2021 at 2:32:03 PM EDT
To: Julie Araskog <juliearaskog@aol.com>
Cc: afabrizi@townofpalmbeach.com
Subject: Turf articles

Julie -

Here are some of the articles I compiled. Some are initiated by turf grass for playing fields, but I believe the issues are the same.

Sorry I didn't get them to you sooner… It's been quite hectic in my world too…

https://www.fairwarning.org/2019/12/fields-of-waste-artificial-turf-mess/ 2019

https://www.ewg.org/news-insights/news/new-studies-show-pfas-artificial-grass-blades-and-backing 2019

https://www.drweil.com/health-wellness/balanced-living/gardening/is-artificial-grass-toxic/ 2019

https://www.jackwallington.com/17-reasons-to-avoid-fake-lawns-how-bad-is-artificial-grass-for-the-environment/ 2020

https://sustainablerossmoor.org/artificial-grass/ 2015

https://planetprinceton.com/2021/03/22/letters-say-no-to-artificial-turf-at-hilltop-park-and-in-princeton/. 2021

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