

Exhibit B

Pros and Cons of Artificial Sod Use (Summary of Online Exhibits)

Pros:

Water conservation

Eliminates the use of power equipment

- 1) Noise
- 2) Pollution

Eliminates Contaminants

- 1) Fertilizers
- 2) Pesticides

Creates a more uniform look

Has a 15 – 20 year life span

Non-Toxic, allergen relief

Cons:

Expensive to install

Hot to touch in the summer

No water seeping to compacted soil under installation

No oxygen production due to lack of living matter

Contaminants are not cleanable from artificial material

Components comprised of recycled rubber, difficult to dispose of

Carcinogens existing in the material

Softening fillers under turf require periodic replacement

Drainage patterns interrupted due to required swales and berms that direct flow are removed, creating possible damage to structures on same property as well as adjacent properties



Pros and Cons of Synthetic Grass

Pro Referral > Home Guides > Landscaping > Pros and Cons of Synthetic Grass



Home Improvement

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A lawn can be a lovely thing, pleasing to the eye and a place to chill out and unwind. But as with all things, the beauty and pleasure comes at a cost. The cost is one of time and effort as well as money. The alternative to natural grass is the synthetic option. First created in the 1960s, synthetic grass was initially intended for use in sporting arenas like football stadiums where the maintenance of natural grass was costly and required investment in manpower and special equipment. Over time, its use has spread to homes

because of the many advantages it offers. However, there are also downsides to synthetic grass.

1. The Need for Synthetic Grass

As a homeowner you are proud of the home in which you live and want it to both look its best as well as offer you and your family the comforts you need. The lawn is an integral part of both the look and the comfort. If you are one of those who has a green thumb and enjoys spending time caring for your lawn, watering it, cutting the grass and pulling out weeds, then natural grass is right for you. However, if your aim is to enjoy your lawn without having to put in any effort, then synthetic grass is the way to go. Do not think that pulling up your lawn and replacing it with synthetic grass will solve all your problems. For all the convenience you gain, you lose some of the advantages of natural grass.

While synthetic grass is the best option for sporting applications and events, the case for its use on your property is not quite as clear cut.

An article titled "Natural Versus Artificial Turf- an Economical Alternative" by William B. Davis in California Turfgrass Culture, published by the University of California, found that while synthetic grass is the best option for sporting applications, the case for its use on personal properties is not quite as clear cut.

You can find details of synthetic grass manufacturers and suppliers as well as landscapers in your area so you can contact them to discuss your lawn needs and the benefits and negative points of synthetic grass.

2. The Advantages of Synthetic Grass

1. Synthetic grass, once installed requires little in the way of maintenance – no watering or mowing is required.
2. You save on the cost of water and buying and operating a lawn mower.
3. No expensive fertilizers and weed killers need be bought.
4. Because you do not need to use chemicals to grow or protect the grass, you are not adding to pollution levels and affecting the environment on an ongoing basis.
5. You will not have to spend time pulling out weeds.
6. Synthetic grass is long lasting and you will not have to incur the expense or hassles of period replanting that natural grass will require.
7. Synthetic grass offers excellent drainage so after rain or the use of water to wash it, the grass it will dry quickly.
8. The good drainage also means that you don't have to worry about puddles of water collecting and lasting for days and then leaving patches of mud for the unwary to step in.
9. Play sports on the lawn will not damage the grass.
10. Synthetic grass always looks perfectly manicured so you will never be embarrassed by an unkempt lawn.

3. Disadvantage of Synthetic Grass

If all these solid reasons sound like they make an airtight case for the use of synthetic grass, the following list of disadvantages will help you balance the picture. After all, nothing is really perfect.

1. The upfront cost of installing synthetic grass can be very high, making it financially impractical.

2. There is normally a rubber cushion below the surface to provide softness and bounce. This may require occasional re-filling.
3. Synthetic grass can become unpleasantly hot in summer.
4. There are fears that the chemicals used in the manufacture of synthetic grass can be harmful to the health. Although manufacturers say that they meet health and safety standards, the debate remains inconclusive.
5. Synthetic grass is not natural grass – it cannot offer the special scent of wet earth and grass or the sweet smell of freshly cut grass.

4. The Choice is Yours

There are arguments for and against synthetic grass. You should weigh the pros and cons carefully, with your objectives and needs in mind before making a final decision.

What Are the Disadvantages of Using Synthetic Grass?

The idea of putting away the mower forever sounds appealing, but synthetic grass comes with its own set of problems. Artificial grass is often touted for hot climates with low rainfall where grass struggles to grow without lots of watering. Before you tear up your existing lawn, understand the potential drawbacks of the synthetic grass.



Ad



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Turf & Putting greens

syntheticgrassstore.com

Cost

A synthetic lawn is expensive to install. Costs include grass removal, ground preparation and materials. Artificial turf systems come with the option of drainage systems and irrigation to control the temperature of the grass, which increase the cost. The artificial grass costs from \$8 to \$14 per square foot, noted Mark Radeke of Easy Turf in a 2010 article featured on KPBS, a public radio station in San Diego, California. If you have a large yard, the overall cost of the project adds up quickly.

Temperature

Real grass has a cooling effect when the air temperature is high. Artificial grass lacks this cooling quality. The grass itself may become hotter than the air and can make the surrounding air feel hotter. A hidden water system can keep the synthetic grass cooler to the touch so it feels more comfortable on your feet. The material used as padding beneath the synthetic grass affects the temperature. Special products in the padding keep grass temperatures lower. A light color in the artificial grass blades is another way to cool the lawn.

Runoff

Real grass and natural landscaping materials allow rainwater to seep down into the soil. Synthetic turf is typically designed to allow water to soak through, but it may not allow all rainwater to seep down into the soil, especially if the soil underneath becomes compacted. The storm water runoff carries debris into the storm sewers, where water sources can become polluted.

Materials

You may have concerns about the material used to make synthetic grass. Real grass is a living ground cover that produces oxygen as it grows. The environmental impact of artificial grass varies. The padding is often made of recycled tires, which keeps them out of the landfill, but the petroleum-based artificial grass materials are far from natural. Research about the safety of using this artificial materials on the lawn is limited, so it's up to you to decide for yourself if the grass is a healthy option for covering the yard. Padding material not made from rubber is available if you have concerns about covering your lawn in the material.

Upkeep

You won't have to mow anymore, but your synthetic grass still requires care to keep it looking attractive. You need to sweep or spray the grass to remove debris that falls onto the surface. Sanitation of the lawn is also a concern. Everything from blood to your dog's poop contaminate the artificial grass. While contaminants rinse off real grass, synthetic grass doesn't have the same trait. You will need to clean up any messes that could potentially be a health hazard.

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About
ArtificialGreens.org

This is a project to help you learn and gain a better understanding of the rising trend of artificial grasses. You will find comparisons, reviews, answers to your burning questions and more than you ever wanted to know about artificial turfs and grasses!

Artificial Grass
Reviews

[EverGreen TuffTurf](#)
[Kloud City](#)
[Pet Zen Garden](#)
[PreGra](#)
[SynLawn](#)

Pros & Cons of Artificial Grass

... and the day has come when a synthetic product is greener than its natural equivalent. While the question of whether artificial grass is *actually* as environmentally friendly as its manufacturers claim, there *are* some tried and true reasons lawns everywhere are sporting the lush, year-round gorgeousness of

Our Recommendations

[Best Artificial Grass for Dogs](#)
[Artificial Grass vs Real Grass](#)
[Best Artificial Grass Rugs](#)
[Best Artificial Grass for Cats](#)
[Artificial Grass for Putting Greens](#)
[Best Types of Artificial Grass Sprays](#)
[Best Artificial Grass at Home Depot](#)

Frequently Asked Questions

[How Much Does Artificial Grass Cost?](#)
[How to Install Artificial Grass?](#)
[How to Maintain Artificial Grass?](#)
[Can Artificial Grass Cause Cancer?](#)
[Pros & Cons of Artificial Grass](#)
[Can Artificial Grass be Recycled?](#)
[Types of Artificial Grass Infills](#)
[Installing Plants into Artificial Grass](#)
[Where can I Lay Artificial Grass?](#)
[Can I Wear Shoes/Cleats on Artificial Grass?](#)
[Types of Artificial Grass/Turf?](#)
[How to Lay Artificial Grass on Soil?](#)

Synthetic
GreenScapes

Search

Search

fake turf, only *one*
of which is the
fact that it looks
natural enough to
fool even the
most intrusive
neighbor.

One of the
disadvantages of
replacing your
lawn with artificial
grass however, is
the initial cost of
installation, which
can be seen as
an investment
once you make a
quick pros and
cons list- better
yet, check out
ours!

The Pros: Advantage s of a Synthetic Lawn

1. *Save
Time,
Money
& Water*

Saving water and time (also money, if you outsource labor) on lawn maintenance are two of the top advantages home and business owners cite as the reason for replacing their lawns. These reasons are not unfounded, since statistics show that synthetic turf saves up to 55 gallons of water (*per square foot*) a year and that the average natural lawn owner will spend 2.8 hours a *week* on lawn maintenance. This is more than farmers spend on growing crops like sugarcane, corn, or even rice. This is some serious lawn labor.

While synthetic lawns are not one-hundred percent maintenance free, keeping them clean is a simple matter of raking or rinsing with water (if you have pets) occasionally.

2. Permanent Perfection

In some places, the maintenance of a lawn includes much more than time & money- there's also the frustration of a patchy, discolored lawn that hardly ever *shows* the maintenance cost.

Poor soil, pests, an uneven terrain and irregular

shade can create
a lawn that is
most definitely
not greener and
since lawns serve
an almost
exclusively
aesthetic
purpose, why not
opt for a really
good-looking
lawn and save
some time,
money, and water
while you're at it?

The main reason
most people are
completely
flabbergasted
when they find
out a lawn they've
been admiring is
actually fake is
the bright green
legacy of
AstroTurf. The
first generation of
the stuff *clearly*
looked (also
smelled and felt)
like plastic, but
the advances
made since then

not only make
artificial grass
look uncannily
real, but also
function like
natural grass.

Available in a
variety of styles
(bluegrass, bent
grass, pet grass,
winter-rye and
fresh-cut, etc.)
lengths, weights,
thicknesses, color
combinations and
even thatch or
moss additions
(to amp up the
realness), you
can have a truly
beautiful lawn
year-round.

3. *Synthetic Turf is Water Permeable*

Artificial grass
functions like real
grass in that it is
permeable to
water (and other

liquids such as dog urine), but in a convenient way whereby mud is never an issue.

Synthetic turf is made with a lining material with thousands of tiny little holes that allow the grass to drain, preventing runoff and nasty puddles, so I guess we can add "clean floors & carpet" here. Another great thing about the water permeable feature is that grass dries quicker.

4. *Immunity to Pests & Bacteria*

Artificial grass is not natural, which means that ticks, fleas, bacteria, and other

crawling critters
find it to be an
unattractive host-
which is an
amazing relief if
you have children
and/or pets.

5. Artificial Turf Is a Friend to the Environ ment

An artificial lawn
can coexist with
natural plants and
trees; it creates
no fumes or spills
from gas-
powered
lawnmowers;
produces no
environmental
damage or safety
hazard from
fertilizers and
pesticides, and
saves 55 gallons
of annual
household water
consumption.

A tell-tale sign of something environmentally *unfriendly* is its inability to coexist with something organic. Studies have found that artificial turf is non-toxic to humans, pets, and organic plants. It is entirely possible (by installing drip systems) to have a synthetic lawn and real trees and plants living side by side.

Another huge red flag waved by sprawling real-grass lawns are the lawn-mowers. These machines consume 17 million gallons of fuel annually and lawn mowers create a *lot* of pollution; the push-kind can

rack up in one hour, the pollution of 11 cars combined, while a riding mower emits the equivalent of 34 cars, also within one hour.

Pesticides, weed killers, and fertilizers are yet another area of concern. Home-owners alone (we're not talking about farmers) are using 70 million pounds of herbicides and insecticides and an additional 3 million tons of synthetic fertilizers annually. While the safety concerns from pure contact with treated natural grass are as inconclusive as concerns for

synthetic fillers in artificial grass, the *real* concern is coming from what these chemicals do when they make their way into water systems- and between 40 and 60 percent are currently doing so.

While water consumption is a popular reason people are making the switch to artificial grass, it is actually one of the smallest contributors to the environmental impact of growing and maintaining a natural lawn. The others have been listed- an artificial turf creates zero of these concerns.

The Cons: Disadvantages of a Synthetic Lawn

1. *The Cost of Installation*

Installing artificial grass involves a lot of expenses; from delivery, the cost of labor, dumping fees and then the cost of a good-quality turf, you're looking to spend between \$7 and \$25 per square foot.

While the average homeowner will plunk down a few thousand dollars for a full lawn, keep in mind that this is a long-lasting investment (most artificial

turfs last between 15-20 years, and higher qualities up to 30 years). Also, given that you are saving on a lawn-mower (or lawn service), a sprinkler system (plus water costs), and fertilizers, weed-killers, and pesticides, you will make up that cost within 3-5 years.

2. *Anti-shock Layer and Infill Must be Replaced*

Artificial grass requires very little maintenance after installation, but if you installed an anti-shock layer (which is what

makes it cushiony to the touch) and/or infill (for stability), those features will need to be replaced every few years.

Residential lawns usually require an anti-shock layer, which is a material that is placed right underneath the turf. This layer gives the lawn a natural feel and is recommended for people with children and/or pets. Infill is also an extra, used to stabilize the turf and increase the efficiency of its draining capabilities. Infill also helps keep artificial grass looking lush and perky.

Since these materials lay near

the surface of the turf and serve a comfort function, they must be replaced/ refilled a few times throughout the turf's lifetime.

3. *Should
You be
Concern
ed
About
Chemica
/
Fumes?*

Scandalous and terrifying reports have been published claiming that artificial grass, since it is synthetic, contains harmful chemicals that may cause cancer or other illnesses. These claims are not backed by scientific

evidence and studies have shown synthetic turf to be less harmful to the human body than what we encounter on a regular, day-to-day basis in our normal environment.

4. *It Can Get Hot in Direct Sunlight*

Artificial grass is notorious for hotness- not in a good way, but it's getting better than its pioneer days as a blazing green carpet made of molten plastic. This is precisely where this the ambiguity arises from this argument- the newer stuff is

accounting for
this defect.

In direct sunlight,
the surface of
artificial grass can
range between
120 and 165
degrees, which is
significantly hotter
than asphalt. That
being said,
synthetic turf
does cool really
fast and is not
affected when it is
laid in areas with
ample shade.
Also, since this
has been one of
the most criticized
features of the
product
(especially since
it is used widely
in professional
sports),
manufacturers
are now making
artificial grass
with cooling
technology.

5. *Artificial Grass is*

Not Natural

The last disadvantage of replacing your natural lawn with artificial grass is that you're replacing something natural with something that is in all simplicity, *fake*.

This means that if you were fond of the smell of freshly mowed grass or watching your cat (or dog) chew on the crunchy green blades, these experiences are not an option for someone with a synthetic lawn.

There's also the question of organic material. This can be both an advantage: no fleas, ticks, ants,

snakes, etc., or a
disadvantage: the
guilt you feel
when you think
about all the
earthworms you
dislocated.

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