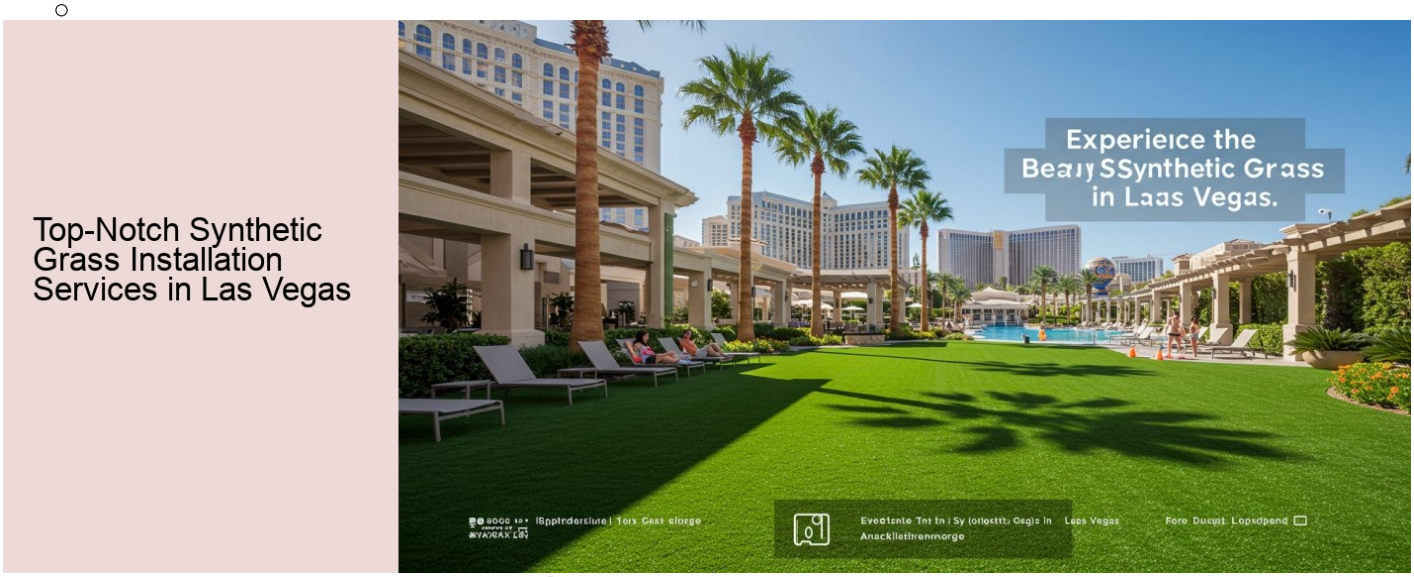


Lowered Maintenance with Artificial Turf

Artificial turf has been acquiring popularity among home owners in Las Las vega for its numerous advantages. Embrace the Next Gen Landscaping: Synthetic Grass in Las Vegas . Among the most significant benefits is the minimized maintenance need, that makes artificial turf an easier and cost-efficient option compared to all-natural lawn.

Preserving a natural turf lawn is often a lengthy and labor-intensive procedure. In the scorching warmth of Las Vegas, it comes to be even more challenging. The yard calls for regular watering, mowing, feeding, and weeding to remain healthy and visually pleasing. If disregarded, the yard starts to transform yellow or brownish and may also die, which would call for reseeding and even total replacement of the lawn.

On the various other hand, synthetic grass practically gets rid of these issues.

Top-Notch Synthetic Grass Installation Services in Las Vegas -

1. Las Vegas event turf rentals

3. Las Vegas artificial lawn for offices brings peace to your nine-to-five space.
4. A water-saving lawn in Las Vegas is how you impress the neighbors and the planet.
5. Artificial grass sidewalk strips in Las Vegas keep the edges sharp and green.
6. Las Vegas custom lawn turf: tailored, textured, totally terrific.

It remains completely eco-friendly and rich all year round, irrespective of the weather. There is no requirement for regular watering, which not just saves effort and time however also adds to water conservation - a considerable concern in areas like Las Las vega. The only water requirement would certainly be periodic rinsing to maintain it tidy and dust-free.

Moreover, with synthetic grass, there is no requirement for mowing or feeding. It remains at the perfect elevation forever, and theres no danger of it overgrowing or nurturing weeds. This not just minimizes the time spent on lawn maintenance yet also eliminates the expense of buying and preserving a lawnmower or getting fertilizers.

Synthetic grass is likewise more resilient and hard-wearing than natural grass. It can withstand heavy foot website traffic and extensive play activities without getting broken or damaged. This implies you wont need to fret about replacing or repairing certain sections of your yard, which is another typical upkeep task with all-natural lawn.

The minimized upkeep need with synthetic grass offers homeowners in Las Las vega with more time to enjoy their outdoor rooms, rather than spending quality time keeping them. It likewise suggests considerable price financial savings over time. In a city like Las Vegas, where the environment is harsh, synthetic grass verifies to be a wise and valuable choice for house owners, providing an evergreen, low-maintenance grass that looks and feels much like all-natural lawn.

Ecological Advantages of Switching to Synthetic Grass

As Las Las vega remains to experience the impacts of an altering environment and enhancing water shortage, it is coming to be important for residents and businesses to find cutting-edge ways to conserve water. One such means is through the adoption of synthetic grass or synthetic grass. This alternative not only uses visual allure and reduced upkeep but also carries considerable ecological benefits.

One of one of the most noticeable ecological advantages of changing to synthetic grass is water conservation. Typical grass yards require a substantial quantity of water to remain eco-friendly and healthy and balanced, especially in the desert environment of Las Las vega. According to the Southern Nevada Water Authority, each square foot of natural turf changed by synthetic grass conserves 55 gallons of water per year. Consequently, by changing to artificial turf, Las Las vega homeowners can considerably minimize their water intake, which is crucial in a city where water is a precious source.

Artificial turf likewise gets rid of the demand for unsafe chemicals and plant foods. Many all-natural lawns require pesticides, fertilizers, and herbicides to maintain their look and health. These substances typically permeate into the ground, infecting the groundwater and impacting the local flora and fauna detrimentally. With artificial turf, these chemicals are unneeded, making it a more secure option for the atmosphere.

Another significant environmental benefit of synthetic grass is its durability and longevity. Unlike natural grass, artificial turf does not need reseeding or replacement because of weather adjustments. This long life lowers the sources utilized for the constant upkeep and substitute of natural yard.

Top-Notch Synthetic Grass Installation Services in Las Vegas - Las Vegas event flooring turf: more glam, less grime, and zero cleanup.

1. Las Vegas event flooring turf: more glam, less grime, and zero cleanup.
2. water saving lawn Las Vegas

In terms of air quality, synthetic lawn offers clear advantages as well. Standard grass need routine mowing, which releases toxins right into the atmosphere. The U.S Environmental Protection Agency notes that gas-powered mower contribute dramatically to air contamination.

Top-Notch Synthetic Grass Installation Services in Las Vegas -

1. Las Vegas apartment pet turf: turning patios into puppy playgrounds.
2. Your dog won't know the difference, but your nose might—pet friendly turf in Las Vegas is a win-win.
3. synthetic pet turf Las Vegas
4. Las Vegas patio grass turf
5. Poolside artificial grass in Las Vegas gives you tropical vibes without the plane ticket.

With synthetic grass, no mowing is needed, getting rid of these exhausts totally.

Finally, artificial turf aids combat dirt disintegration. In locations where the dirt is susceptible to erosion, specifically in desert environments like Las Las vega, synthetic grass can give much-needed stability. The support material on artificial turf aids keep soil in position, stopping disintegration and advertising far better ecological wellness.

Finally, the switch to artificial turf in Las Las vega offers several ecological advantages. From water preservation to air high quality improvement, synthetic grass proves to be a feasible, environmentally friendly service, specifically in locations facing water deficiency and climate adjustment. As Las Vegas locals continue to seek ways to reduce their ecological footprint, the fostering of synthetic grass will likely come to be a significantly popular selection.

Adaptability and Aesthetic Allure of Artificial Turf in Las Las Vega

Artificial turf, typically referred to as artificial turf, has acquired tremendous popularity in the arid, desert city of Las Vegas. In a city where all-natural lawn is testing to grow and keep because of water scarcity and severe warmth, synthetic grass provides an eye-catching and functional option. The versatility and visual appeal of artificial turf are amongst the leading 10 benefits of using this synthetic surface in Las Las vega.

Lets beginning by reviewing the convenience of synthetic grass. Among the key advantages of synthetic grass is that it can be set up anywhere, regardless of the climate or surface. This is particularly helpful in Las Vegas, where the atmosphere is not conducive to the growth of all-natural grass. Artificial turf can be set up on rooftops, patio areas, around pool locations, pet runs, sporting activities areas, and play areas, to name a few. It is additionally a preferred choice for golf courses and bowling environment-friendlies due to its even, smooth surface area.

Top-Notch Synthetic Grass Installation Services in Las Vegas –

1. Las Vegas synthetic grass for weddings
2. synthetic grass playgrounds Las Vegas
3. Las Vegas commercial turf solutions
4. Las Vegas fake turf for rooftops—your new favorite hangout is 20 stories high.
5. desert climate turf Las Vegas

This versatility suggests you can have a rich, environment-friendly yard all year round, irrespective of the climate or water limitations.

An additional significant advantage of synthetic grass is its visual allure. Unlike all-natural yard, synthetic grass continues to be lively and eco-friendly throughout the year, enhancing the look of your home or service. It supplies a tidy, nicely manicured appearance that is difficult to accomplish with natural yard, especially in a desert climate. The synthetic grass offered today is made to look and feel like real turf, making it almost tantamount from the actual point. In addition, it does not fade under sunshine or turn brown during dry spells, ensuring your yard

looks attractive and welcoming whatsoever times.

Furthermore, synthetic grass can be personalized to fit your specific demands.

Top-Notch Synthetic Grass Installation Services in Las Vegas -

1.

It is readily available in various shades, sizes, and structures, enabling you to produce an one-of-a-kind and customized outdoor room. Whether you desire a soft, luxurious lawn for your youngsters to play on or a sturdy, hard-wearing surface area for high-traffic areas, there is an artificial turf product to meet your requirements.

Finally, the convenience and visual charm of artificial turf make it an exceptional choice for homes and services in Las Las vega. Not only does it offer a functional, low-maintenance choice to natural turf, however it additionally enhances the appearance of your home, making it a lot more enticing and welcoming. So, if youre thinking about upgrading your outside space, artificial turf can be the best remedy.

Long life and Sturdiness: Exactly How Artificial Turf Outlives All-natural Turf

When it comes to the long life and sturdiness of lawn, synthetic grass plainly outshines its all-natural counterpart. This is specifically obvious in a city like Las Las vega, where the severe desert environment can damage natural lawns. In comparison, synthetic grass continues to be dynamic and lavish all the time, irrespective of weather. This essay looks for to highlight how artificial turf outlives natural lawn, thus making it among the top advantages of utilizing artificial turf in Las Las vega.

Top-Notch Synthetic Grass Installation Services in Las Vegas - Las Vegas event flooring turf: more glam, less grime, and zero cleanup.

1. Las Vegas zero maintenance grass: because weekends are for fun, not fertilizer.
3. Las Vegas lawn alternatives
4. durable turf for kids Las Vegas
5. synthetic grass landscaping Las Vegas

All-natural grass calls for a great deal of upkeep to keep it looking fresh and green. It requires normal watering, mowing, feeding, and re-seeding. Despite having all this care, it can still succumb illness, pests, and the scorching Las Las vega warmth. The long life of all-natural grass is often endangered by these elements, bring about a worn-out and uneven yard that is neither attractive neither sensible.

On the various other hand, synthetic grass, likewise called artificial turf, provides remarkable durability and long life. It is made from high-grade, durable materials that can stand up to hefty foot traffic, extreme warm, and other harsh conditions. This suggests that it continues to be intact and vivid for years, needing little to no upkeep. In fact, most synthetic grass is designed to last for over a decade, which is substantially longer than what can be gotten out of all-natural turf.

An additional essential element that adds to the durability of synthetic grass is its resistance to pests and conditions. Unlike all-natural yard, artificial turf does not supply a habitat for insects, neither does it suffer from common lawn conditions. This gets rid of the need for pesticides and fungicides, reducing both maintenance costs and environmental effect.

Additionally, artificial turf does not require sprinkling to remain green. This is a considerable benefit in a desert city like Las Vegas, where water is a priceless source. By choosing synthetic grass, house owners can save money on their water bills and contribute to water conservation initiatives.

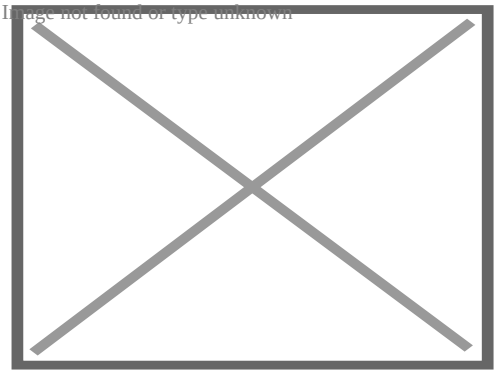
Lastly, synthetic grass can hold up against the wear and tear of sports and other leisure tasks much better than natural lawn. It uses a regular having fun surface that doesn't obtain muddy or develop divots, making it optimal for sporting activities areas and playgrounds.

To conclude, the longevity and longevity of artificial turf much surpass that of natural grass, making it a practical and cost-efficient option for Las Las vega residents. Its resistant to extreme climate, bugs, and diseases, and it does not call for watering or regular upkeep. Whether for a yard, a sports field, or a public park, synthetic grass assures an environment-friendly and lavish surface area

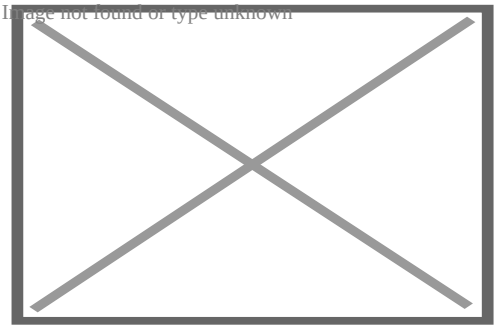
About Artificial turf

This article **needs additional citations for verification**. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.

Find sources: "Artificial turf" – news · newspapers · books · scholar · JSTOR *(May 2024) (Learn how and when to remove this message)*



Artificial turf with rubber crumb infill



Side view of artificial turf

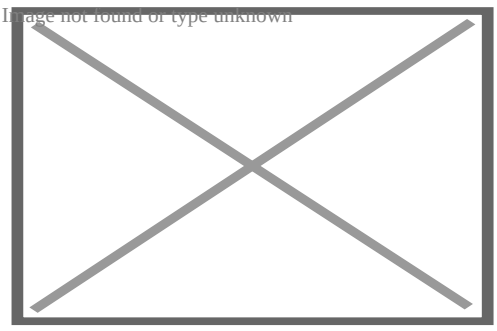
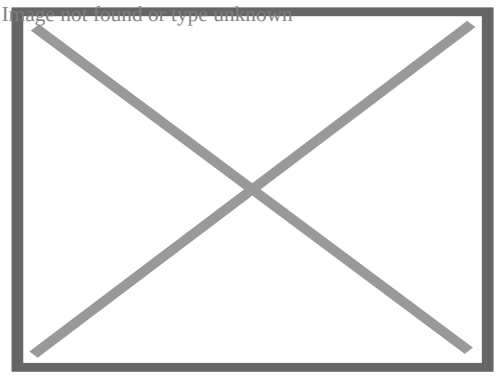


Diagram of the structure of modern artificial turf



Artificial turf square mats

Artificial turf is a surface of synthetic fibers made to look like natural grass, used in sports arenas, residential lawns and commercial applications that traditionally use grass. It is much more durable than grass and easily maintained without irrigation or trimming, although periodic cleaning is required. Stadiums that are substantially covered and/or at high latitudes often use artificial turf, as they typically lack enough sunlight for photosynthesis and substitutes for solar radiation are prohibitively expensive and energy-intensive. Disadvantages include increased risk of injury especially when used in athletic competition, as well as health and environmental concerns about the petroleum and toxic chemicals used in its manufacture.

Artificial turf first gained substantial attention in 1966, when ChemGrass was installed in the year-old Astrodome, developed by Monsanto and rebranded as AstroTurf, now a generic trademark (registered to a new owner) for any artificial turf.

The first-generation system of shortpile fibers without infill of the 1960s has largely been replaced by two more. The second features longer fibers and sand infill and the third adds recycled crumb rubber to the sand. Compared to earlier systems, modern artificial turf more closely resembles grass in appearance and is also considered safer for athletic competition. However, it is still not widely considered to be equal to grass. Sports clubs, leagues, unions and individual athletes have frequently spoken out and campaigned against it, while local governments have enacted and enforced laws restricting and/or banning its use.

History

[edit]

David Chaney, who moved to Raleigh, North Carolina, in 1960 and later served as Dean of the North Carolina State University College of Textiles, headed the team of Research Triangle Park researchers who created the first notable artificial turf. That accomplishment led *Sports Illustrated* to declare Chaney as the man "responsible for indoor major league baseball and millions of welcome mats."

Artificial turf was first installed in 1964 on a recreation area at the Moses Brown School in Providence, Rhode Island.[1] The material came to public prominence in 1966, when AstroTurf was installed in the Astrodome in Houston, Texas.[1] The state-of-the-art indoor stadium had attempted to use natural grass during its initial season in 1965, but this failed miserably and the field conditions were grossly inadequate during the second half of the season, with the dead grass painted green. Due to a limited supply of the new artificial grass, only the infield was installed before the Houston Astros' home opener in April 1966; the outfield was installed in early summer during an extended Astros road trip and first used after the All-Star Break in July.

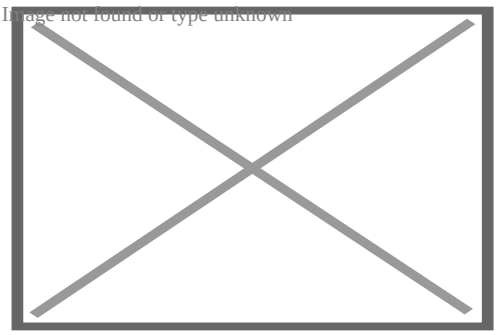
The use of AstroTurf and similar surfaces became widespread in the U.S. and Canada in the early 1970s, installed in both indoor and outdoor stadiums used for baseball and football. More than 11,000 artificial turf playing fields have been installed nationally.[2] More than 1,200 were installed in the U.S. in 2013 alone, according to the industry group the Synthetic Turf Council.[2]

Sports applications

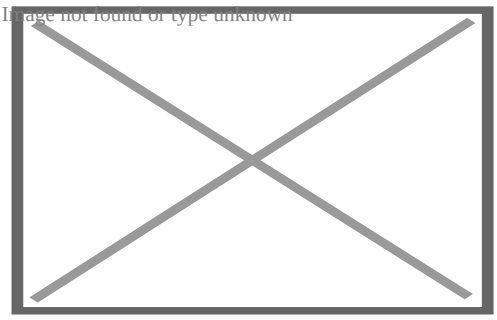
[edit]

Baseball

[edit]



Tropicana Field with its artificial turf field.

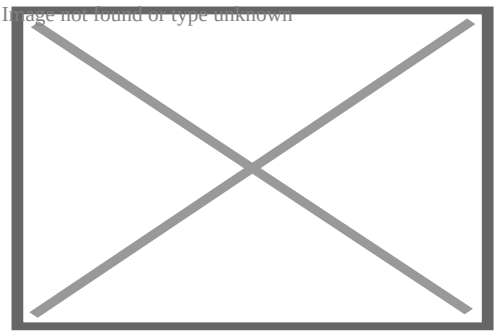


An artificial-turf field at a high school in Oregon.

Artificial turf was first used in Major League Baseball in the Houston Astrodome in 1966, replacing the grass field used when the stadium opened a year earlier. Even though the grass was specifically bred for indoor use, the dome's semi-transparent Lucite ceiling panels, which had been painted white to cut down on glare that bothered the players, did not pass enough sunlight to support the grass. For most of the 1965 season, the Astros played on green-painted dirt and dead grass.

The solution was to install a new type of artificial grass on the field, ChemGrass, which became known as AstroTurf. Given its early use, the term *astroturf* has since been genericized as a term for any artificial turf.[3] Because the supply of AstroTurf was still low, only a limited amount was available for the first home game. There was not enough for the entire outfield, but there was enough to cover the traditional grass portion of the infield. The outfield remained painted dirt until after the All-Star Break. The team was sent on an extended road trip before the break, and on July 19, 1966, the installation of the outfield portion of AstroTurf was completed.

The Chicago White Sox became the first team to install artificial turf in an outdoor stadium, as they used it only in the infield and adjacent foul territory at Comiskey Park from 1969 through 1975.[4] Artificial turf was later installed in other new multi-purpose stadiums such as Pittsburgh's Three Rivers Stadium, Philadelphia's Veterans Stadium, and Cincinnati's Riverfront Stadium. Early AstroTurf baseball fields used the traditional all-dirt path, but starting in 1970 with Cincinnati's Riverfront Stadium,[5] teams began using the "base cutout" layout on the diamond, with the only dirt being on the pitcher's mound, batter's circle, and in a five-sided diamond-shaped "sliding box" around each base. With this layout, a painted arc would indicate where the edge of the outfield grass would normally be, to assist fielders in positioning themselves properly. The last stadium in MLB to use this configuration was Rogers Centre in Toronto, when they switched to an all-dirt infield (but keeping the artificial turf) for the 2016 season.[6][7]



Artificial turf being installed on a baseball field in Queens, New York City.

The biggest difference in play on artificial turf was that the ball bounced higher than on real grass and also traveled faster, causing infielders to play farther back than they would normally so that they would have sufficient time to react. The ball also had a truer bounce than on grass so that on long throws fielders could deliberately bounce the ball in front of the player they were throwing to, with the certainty that it would travel in a straight line and not be deflected to the right or left. The biggest impact on the game of "turf", as it came to be called, was on the bodies of the players. The artificial surface, which was generally placed over a concrete base, had much less give to it than a traditional dirt and grass field did, which caused more wear-and-tear on knees, ankles, feet, and the lower back, possibly even shortening the careers of those players who played a significant portion of their games on artificial surfaces. Players also complained that the turf was much hotter than grass, sometimes causing the metal spikes to burn their feet or plastic ones to melt. These factors eventually provoked a number of stadiums, such as the Kansas City Royals' Kauffman Stadium, to switch from artificial turf back to natural grass.

In 2000, St. Petersburg's Tropicana Field became the first MLB field to use a third-generation artificial surface, FieldTurf. All other remaining artificial turf stadiums were either converted to third-generation surfaces or were replaced entirely by new natural grass stadiums. In a span of 13 years, between 1992 and 2005, the National League went from having half of its teams using artificial turf to all of them playing on natural grass. With the replacement of Minneapolis's Hubert H. Humphrey Metrodome by Target Field in 2010, only two MLB stadiums used artificial turf from 2010 through 2018: Tropicana Field and Toronto's Rogers Centre. This number grew to three when the Arizona Diamondbacks switched Chase Field to artificial turf for the 2019 season; the stadium had grass from its opening in 1998 until 2018, but the difficulty of maintaining the grass in the stadium, which has a retractable roof and is located in a desert city, was cited as the reason for the switch.[8] In 2020, Miami's Marlins Park (now loanDepot Park) also

switched to artificial turf for similar reasons, while the Texas Rangers' new Globe Life Field was opened with an artificial surface, as it is also a retractable roof ballpark in a hot weather city; this puts the number of teams using synthetic turf in MLB at five as of 2023.

American football

[edit]

The first professional American football team to play on artificial turf was the Houston Oilers, then part of the American Football League, who moved into the Astrodome in 1968, which had installed AstroTurf two years prior. In 1969, the University of Pennsylvania's Franklin Field in Philadelphia, at the time also home field of the Philadelphia Eagles, switched from grass to AstroTurf, making it the first National Football League stadium to use artificial turf.

In 2002, CenturyLink Field, originally planned to have a natural grass field, was instead surfaced with FieldTurf upon positive reaction from the Seattle Seahawks when they played on the surface at their temporary home of Husky Stadium during the 2000 and 2001 seasons. This would be the first of a leaguewide trend taking place over the next several seasons that would not only result in teams already using artificial surfaces for their fields switching to the new FieldTurf or other similar surfaces but would also see several teams playing on grass adopt a new surface. (The Indianapolis Colts' RCA Dome and the St. Louis Rams' Edward Jones Dome were the last two stadiums in the NFL to replace their first-generation AstroTurf surfaces for next-generation ones after the 2004 season). For example, after a three-year experiment with a natural surface, Giants Stadium went to FieldTurf for 2003, while M&T Bank Stadium added its own artificial surface the same year (it has since been removed and replaced with a natural surface, which the stadium had before installing the turf). Later examples include Paul Brown Stadium (now Paycor Stadium), which went from grass to turf in 2004; Gillette Stadium, which made the switch in 2006;[9] and NRG Stadium, which did so in 2015. As of 2021, 14 NFL fields out of 30 are artificial. NFL players overwhelmingly prefer natural grass over synthetic surfaces, according to a league survey conducted in 2010. When asked, "Which surface do you think is more likely to shorten your career?", 90% responded artificial turf.[10] When players were asked "Is the Turf versus Grass debate overblown or a real concern"[11] in an anonymous player survey, 83% believe it is a real concern while 12.3%

believe it is overblown.

Following receiver Odell Beckham Jr.'s injury during Super Bowl LVI, other NFL players started calling for turf to be banned since the site of the game, SoFi Stadium, was a turf field.[12]

Arena football is played indoors on the older short-pile artificial turf.

Canadian football

[edit]

The first professional Canadian football stadium to use artificial turf was Empire Stadium in Vancouver, British Columbia, then home of the Canadian Football League's BC Lions, which installed 3M TartanTurf in 1970. Today, eight of the nine stadiums in the CFL currently use artificial turf, largely because of the harsh weather conditions in the latter-half of the season. The only one that does not is BMO Field in Toronto, which initially had an artificial pitch and has been shared by the CFL's Toronto Argonauts since 2016 (part of the endzones at that stadium are covered with artificial turf).[13] The first stadium to use the next-generation surface was Ottawa's Frank Clair Stadium (now TD Place Stadium), which the Ottawa Renegades used when they began play in 2002. The Saskatchewan Roughriders' Taylor Field was the only major professional sports venue in North America to use a second-generation artificial playing surface, Omniturf, which was used from 1988 to 2000, followed by AstroTurf from 2000 to 2007 and FieldTurf from 2007 to its 2016 closure.[14]

Cricket

[edit]

Some cricket pitches are made of synthetic grass[15] or of a hybrid of mostly natural and some artificial grass, with these "hybrid pitches" having been implemented across several parts of the United Kingdom[16] and Australia.[17] The first synthetic turf cricket field in the USA was opened in Fremont, California in 2016.[18]

Field hockey

[edit]

Further information: Field hockey history § The synthetic revolution

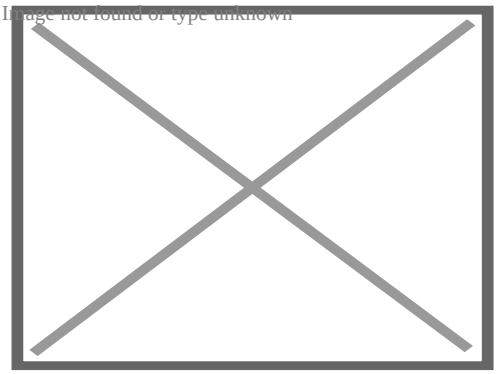
The introduction of synthetic surfaces has significantly changed the sport of field hockey. Since being introduced in the 1970s, competitions in western countries are now mostly played on artificial surfaces. This has increased the speed of the game considerably and changed the shape of hockey sticks to allow for different techniques, such as reverse stick trapping and hitting.

Field hockey artificial turf differs from artificial turf for other sports, in that it does not try to reproduce a grass feel, being made of shorter fibers. This allows the improvement in speed brought by earlier artificial turfs to be retained. This development is problematic for areas which cannot afford to build an extra artificial field for hockey alone. The International Hockey Federation and manufacturers are driving research in order to produce new fields that will be suitable for a variety of sports.

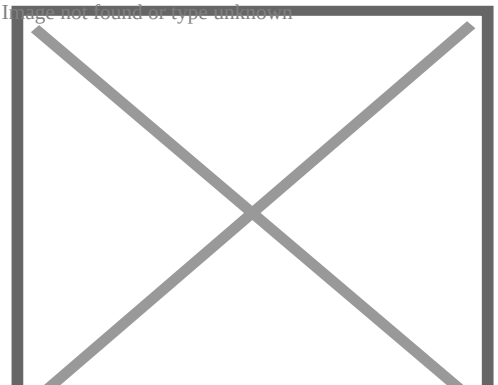
The use of artificial turf in conjunction with changes in the game's rules (e.g., the removal of offside, introduction of rolling substitutes and the self-pass, and to the interpretation of obstruction) have contributed significantly to change the nature of the game, greatly increasing the speed and intensity of play as well as placing far greater demands on the conditioning of the players.

Association football

[edit]



Aspmyra, Norway: home of the football club FK Bodø/Glimt



A slide tackle driving up crumbed rubber in the playing surface

The use of artificial turf, and whether they are not allowed or not, varies between different tournaments and time periods. Though grass is preferred in general in association football, artificial turf is found in areas where it is seen as impractical to maintain natural grass season-long, with causes including very cold climates (For instance Norway's Eliteserien) or multi-purpose stadiums (Seattle's Lumen Field).

Use permitted

[edit]

- UEFA Champions League (2005–)
- UEFA Europa League (2005–)
- UEFA Conference League
- FIFA national team matches (200?–)
- UEFA national team matches (2005–)
- FA Cup
- Swiss Super League
- Allsvenskan
- Danish Superliga
- Eliteserien
- Veikkausliiga
- Meistriliiga
- Cymru Premier
- CONMEBOL tournaments[19]
- Campeonato Brasileiro Série A (2016–)
- Bolivian Primera División[19]
- Major League Soccer

Use prohibited

[edit]

- Football League First Division / Premier League (1991–)
- Football League tiers 2–4 (1995–)

- Indian Super League (2015–)
- Eredivisie (2025–)
- Scottish Premiership (2026–)[20]

History in United Kingdom

[edit]

Some association football clubs in Europe installed synthetic surfaces in the 1980s, which were called "plastic pitches" (often derisively) in countries such as England. There, four professional club venues had adopted them; Queens Park Rangers's Loftus Road (1981–1988), Luton Town's Kenilworth Road (1985–1991), Oldham Athletic's Boundary Park (1986–1991) and Preston North End's Deepdale (1986–1994). QPR had been the first team to install an artificial pitch at their stadium in 1981, but were the first to remove it when they did so in 1988.

Artificial pitches were banned from top-flight (then First Division) football in 1991, forcing Oldham Athletic to remove their artificial pitch after their promotion to the First Division in 1991, while then top-flight Luton Town also removed their artificial pitch at the same time. The last Football League team to have an artificial pitch in England was Preston North End, who removed their pitch in 1994 after eight years in use. Artificial pitches were banned from the top four divisions from 1995.

Artificial turf gained a bad reputation[*neutrality is disputed*] globally, with fans and especially with players. The first-generation artificial turf surfaces were carpet-like in their look and feel, and thus, a far harder surface than grass and soon became known[*by whom?*] as an unforgiving playing surface that was prone to cause more injuries, and in particular, more serious joint injuries, than would comparatively be suffered on a grass surface. This turf was also regarded as aesthetically unappealing to many fans[*weasel words*].

> In 1981, London football club Queens Park Rangers dug up its grass pitch and installed an artificial one. Others followed, and by the mid-1980s there were four artificial surfaces in operation in the English league. They soon became a national joke: the ball pinged round like it was made of rubber, the players kept losing their footing, and anyone who fell over risked carpet burns. Unsurprisingly, fans complained that the football was awful to watch and, one

by one, the clubs returned to natural grass.[21]

In November 2011, it was reported that a number of English football clubs were interested in using artificial pitches again on economic grounds.[22] As of January 2020, artificial pitches are not permitted in the Premier League or Football League but are permitted in the National League and lower divisions. Bromley are an example of an English football club who currently use a third-generation artificial pitch.[23] In 2018, Sutton United were close to achieving promotion to the Football League and the debate in England about artificial pitches resurfaced again. It was reported that, if Sutton won promotion, they would subsequently be demoted two leagues if they refused to replace their pitch with natural grass.[24] After Harrogate Town's promotion to the Football League in 2020, the club was obliged to install a natural grass pitch at Wetherby Road;[25] and after winning promotion in 2021 Sutton Utd were also obliged to tear up their artificial pitch and replace it with grass, at a cost of more than £500,000.[26] Artificial pitches are permitted in all rounds of the FA Cup competition.

History elsewhere

[edit]

In the 1990s, many North American soccer clubs also removed their artificial surfaces and re-installed grass, while others moved to new stadiums with state-of-the-art grass surfaces that were designed to withstand cold temperatures where the climate demanded it. The use of artificial turf was later banned by FIFA, UEFA and by many domestic football associations, but FIFA and UEFA allowed it again from the mid-2000's (UEFA from the 2005–06 season onwards), provided that the turfs are FIFA Recommended. UEFA has now been heavily involved in programs to test artificial turf, with tests made in several grounds meeting with FIFA approval. A team of UEFA, FIFA and German company Polytan conducted tests in the Stadion Salzburg Wals-Siezenheim in Salzburg, Austria which had matches played on it in UEFA Euro 2008. It is the second FIFA 2 Star approved artificial turf in a European domestic top flight, after Dutch club Heracles Almelo received the FIFA certificate in August 2005.[27] The tests were approved.[28]

FIFA originally launched its FIFA Quality Concept in February 2001.

A full international fixture for the 2008 European Championships was played on October 17, 2007, between England and Russia on an artificial surface, which was installed to counteract adverse weather conditions, at the Luzhniki Stadium in Moscow.[29][30] It was one of the first full international games to be played on such a surface approved by FIFA and UEFA. The latter ordered the 2008 European Champions League final hosted in the same stadium in May 2008 to place on grass, so a temporary natural grass field was installed just for the final.

In 2007, UEFA stressed that artificial turf should only be considered an option where climatic conditions necessitate.[31] One Desso "hybrid grass" product incorporates both natural grass and artificial elements.[32]

In June 2009, following a match played at Estadio Ricardo Saprissa in Costa Rica, American national team manager Bob Bradley called on FIFA to "have some courage" and ban artificial surfaces.[33]

FIFA designated a star system for artificial turf fields that have undergone a series of tests that examine quality and performance based on a two star system.[34] Recommended two-star fields may be used for FIFA Final Round Competitions as well as for UEFA Europa League and Champions League matches.[35] There are currently 130 FIFA Recommended 2-Star installations in the world.[36]

In 2009, FIFA launched the Preferred Producer Initiative to improve the quality of artificial football turf at each stage of the life cycle (manufacturing, installation and maintenance).[37] Currently, there are five manufacturers that were selected by FIFA: Act Global, Limonta, Desso, GreenFields, and Edel Grass. These firms have made quality guarantees directly to FIFA and have agreed to increased research and development.

In 2010, Estadio Omnilife with an artificial turf opened in Guadalajara to be the new home of Chivas, one of the most popular teams in Mexico. The owner of Chivas, Jorge Vergara, defended the reasoning behind using artificial turf because the stadium was designed to be "environment friendly and as such, having grass would result [in] using too much water."[38] Some players criticized the field, saying its harder surface caused many injuries. When Johan Cruyff became the adviser of the team, he recommended the switch to natural grass, which the team did in 2012.[39]

The 2015 FIFA Women's World Cup took place entirely on artificial surfaces, as the event was played in Canada, where almost all of the country's stadiums use artificial turf due to climate issues. This plan garnered criticism from players and fans, some believing the artificial surfaces make players more susceptible to injuries. Over fifty of the female athletes protested against the use of artificial turf on the basis of gender discrimination.[40][41] Australia winger Caitlin Foord said that after playing 90 minutes there was no difference to her post-match recovery – a view shared by the rest of the squad. The squad spent much time preparing on the surface and had no problems with its use in Winnipeg. "We've been training on [artificial] turf pretty much all year so I think we're kind of used to it in that way ... I think grass or turf you can still pull up sore after a game so it's definitely about getting the recovery in and getting it right", Foord said.[42] A lawsuit was filed on October 1, 2014, in an Ontario tribunal court by a group of women's international soccer players against FIFA and the Canadian Soccer Association and specifically points out that in 1994 FIFA spent $2 million to plant natural grass over artificial turf in New Jersey and Detroit.[43] Various celebrities showed their support for the women soccer players in defense of their lawsuit, including actor Tom Hanks, NBA player Kobe Bryant and U.S. men's soccer team keeper Tim Howard. Even with the possibility of boycotts, FIFA's head of women's competitions, Tatjana Haenni, made it clear that "we play on artificial turf and there's no Plan B."[44][45]

The first stadium to use artificial turf in Brazil was Atlético Paranaense's Arena da Baixada in 2016. In 2020, the administration of Allianz Parque, home of Sociedade Esportiva Palmeiras, started the implementation of the second artificial pitch in the country.[46]

In 2024, the Eredivisie banned artificial turfs, meaning hybrid grass and natural grass became mandatory, starting from the 2025–26 season.[47]

In UEFA tournaments, teams who are used to playing on artificial turf are seen as having a large home advantage against teams who don't, as was the case for Bodø/Glimt's semi-final campaign in the 2024–25 UEFA Europa League.[48]

Rugby union

[edit]

Rugby union also uses artificial surfaces at a professional level. Infill fields are used by English Premiership Rugby teams Gloucester, Newcastle Falcons, Saracens F.C. and the now defunct Worcester Warriors, as well as United Rugby Championship teams Cardiff, Edinburgh and Glasgow Warriors. Some fields, including Twickenham Stadium, have incorporated a hybrid field, with grass and synthetic fibers used on the surface. This allows for the field to be much more hard wearing, making it less susceptible to weather conditions and frequent use.

Tennis

[edit]
Main article: Tennis court

Carpet has been used as a surface for indoor tennis courts for decades, though the first carpets used were more similar to home carpets than a synthetic grass. After the introduction of AstroTurf, it came to be used for tennis courts, both indoor and outdoor, though only a small minority of courts use the surface.[49][50] Both infill and non-infill versions are used, and are typically considered medium-fast to fast surfaces under the International Tennis Federation's classification scheme.[49] A distinct form found in tennis is an "artificial clay" surface,[49] which seeks to simulate a clay court by using a very short pile carpet with an infill of the same loose aggregate used for clay courts that rises above the carpet fibers.[49]

Tennis courts such as Wimbledon are considering using an artificial hybrid grass to replace their natural lawn courts. Such systems incorporate synthetic fibers into natural grass to create a more durable surface on which to play.[51] Such hybrid surfaces are currently used for some association football stadiums, including Wembley Stadium.

Golf

[edit]

This section **does not cite any sources**. Please help improve this section by adding citations to reliable sources. Unsourced material may be challenged and removed. *(October 2021) (Learn how and when to remove this message)*

Synthetic turf can also be used in the golf industry, such as on driving ranges, putting greens and even in some circumstances tee boxes. For low budget courses, particularly those catering to casual golfers, synthetic putting greens offer the advantage of being a relatively cheap alternative to installing and maintaining grass greens, but are much more similar to real grass in appearance and feel compared to sand greens which are the traditional alternative surface. Because of the vast areas of golf courses and the damage from clubs during shots, it is not feasible to surface fairways with artificial turf.

Motor racing

[edit]

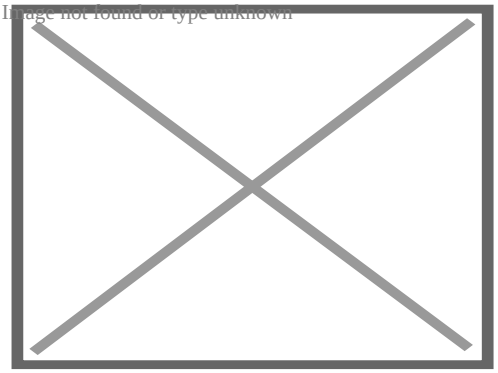
Artificial grass is used to line the perimeter of some sections of some motor circuits, and offers less grip than some other surfaces.[52] It can pose an obstacle to drivers if it gets caught on their car.[53]

Other applications

[edit]

Landscaping

[edit]



A home's yard with artificial grass.

Since the early 1990s, the use of synthetic grass in the more arid western states of the United States has moved beyond athletic fields to residential and commercial landscaping.[54] New water saving programs, as of 2019, which grant rebates for turf removal, do not accept artificial turf as replacement and require a minimum of plants.[55][56]

The use of artificial grass for convenience sometimes faces opposition: Legislation frequently seeks to preserve natural gardens and fully water permeable surfaces, therefore restricting the use of hardscape and plantless areas, including artificial turf. In several locations in different countries, homeowners have been fined, ordered to remove artificial turf and/or had to defend themselves in courts. Many of these restrictions can be found in local bylaws and ordinances. These not always applied in a consistent manner,[57][58][59] especially in municipalities that utilize a complaint-based model for enforcing local laws.

Sunlight reflections from nearby windows can cause artificial turf to melt. This can be avoided by adding perforated vinyl privacy window film adhesive to the outside of the window causing the reflection.

Airports

[edit]

Artificial turf has been used at airports.[60] Here it provides several advantages over natural turf – it does not support wildlife, it has high visual contrast with runways in all seasons, it reduces foreign object damage (FOD) since the surface has no rocks or clumps, and it drains well.[61]

Some artificial turf systems allow for the integration of fiber-optic fibers into the turf. This would allow for runway lighting to be embedded in artificial landing surfaces for aircraft (or lighting or advertisements to be directly embedded in a playing surface).[62]

Tanks for octopuses

[edit]

Artificial turf is commonly used for tanks containing octopusses, in particular the Giant Pacific octopus since it is a reliable way to prevent the octopusses from escaping their tank, as they prevent the suction cups on the tentacles from getting a tight seal.[63]

Environmental and safety concerns

[edit]

Environmental footprint

[edit]

The first major academic review of the environmental and health risks and benefits of artificial turf was published in 2014;[64] it was followed by extensive research on possible risks to human health, but holistic analyses of the environmental footprint of artificial turf compared with natural turf only began to emerge in the 2020s,[65][66] and frameworks to support informed policymaking were still lacking.[67][68] Evaluating the relative environmental footprints of natural and artificial turf is complex, with outcomes depending on a wide range of factors, including (to give the example of a sports field):[64]

- what ecosystem services are lost by converting a site to a sports pitch
- how resource-intensive is the landscaping work and transport of materials to create a pitch
- whether input materials are recycled and whether these are recycled again at the end of the pitch's life
- how resource-intensive and damaging maintenance is (whether through water, fertiliser, weed-killer, reapplication of rubber crumb, snow-clearing, etc.)
- how intensively the facility is used, for how long, and whether surface type can reduce the overall number of pitches required

Artificial turf has been shown to contribute to global warming by absorbing significantly more radiation than living turf and, to a lesser extent, by displacing living plants that could sequester carbon dioxide through photosynthesis;[69] a study at New Mexico State University found that in that environment, water-cooling of artificial turf can demand as much water as natural turf.[70] However, a 2022 study that used real-world data to model a ten-year-life-cycle environmental footprint for a new natural-turf soccer field compared with an artificial-turf field found that the natural-turf field contributed twice as much to global warming as the artificial one (largely due to a more resource-intensive construction phase), while finding that the artificial turf would likely cause more pollution of other kinds. It promoted improvements to usual practice such as the substitution of cork for rubber in artificial pitches and more drought-resistant grasses and electric mowing in natural ones.[65] In 2021, a Zurich University of Applied Sciences study for the city of Zurich, using local data on extant pitches, found that, per

hour of use, natural turf had the lowest environmental footprint, followed by artificial turf with no infill, and then artificial turf using an infill (e.g. granulated rubber). However, because it could tolerate more hours of use, unfilled artificial turf often had the lowest environmental footprint in practice, by reducing the total number of pitches required. The study recommended optimising the use of existing pitches before building new ones, and choosing the best surface for the likely intensity of use.[66] Another suggestion is the introduction of green roofs to offset the conversion of grassland to artificial turf.[71]

Maintenance

[edit]

Contrary to popular belief, artificial turf is not maintenance free. It requires regular maintenance, such as raking and patching, to keep it functional and safe.[72]

Pollution and associated health risks

[edit]

Further information: Artificial turf–cancer hypothesis

Some artificial turf uses infill such as silicon sand, but most uses granulated rubber, referred to as "crumb rubber". Granulated rubber can be made from recycled car tires and may carry heavy metals, PFAS chemicals, and other chemicals of environmental concern. The synthetic fibers of artificial turf are also subject to degradation. Thus chemicals from artificial turfs leach into the environment, and artificial turf is a source of microplastics pollution and rubber pollution in air, fresh-water, sea and soil environments.[73][74][75][76][77][78][64][*excessive citations*] In Norway, Sweden, and at least some other places, the rubber granulate from artificial turf infill constitutes the second largest source of microplastics in the environment after the tire and road wear particles that make up a large portion of the fine road debris.[79][80][81] As early as 2007, Environment and Human Health, Inc., a lobby-group, proposed a moratorium on the use of ground-up rubber tires in fields and playgrounds based on health concerns;[82] in September 2022, the European Commission made a draft proposal to restrict the use of microplastic granules as infill in sports fields.[83]

What is less clear is how likely this pollution is in practice to harm humans or other organisms and whether these environmental costs outweigh the benefits of artificial turf, with many scientific papers and government agencies (such as the United States Environmental Protection Agency) calling for more research.[2] A 2018 study published in *Water, Air, & Soil Pollution* analyzed the chemicals found in samples of tire crumbs, some used to install school athletic fields, and identified 92 chemicals only about half of which had ever been studied for their health effects and some of which are known to be carcinogenic or irritants. It stated "caution would argue against use of these materials where human exposure is likely, and this is especially true for playgrounds and athletic playing fields where young people may be affected".[84] Conversely, a 2017 study in *Sports Medicine* argued that "regular physical activity during adolescence and early adulthood helps prevent cancer later in life. Restricting the use or availability of all-weather year-round synthetic fields and thereby potentially reducing exercise could, in the long run, actually increase cancer incidence, as well as cardiovascular disease and other chronic illnesses."[85]

The possibility that carcinogenic substances in artificial turf could increase risks of human cancer (the artificial turf–cancer hypothesis) gained a particularly high profile in the first decades of the twenty-first century and attracted extensive study, with scientific reports around 2020 finding cancer-risks in modern artificial turf negligible.[86][87][88][89] But concerns have extended to other human-health risks, such as endocrine disruption that might affect early puberty, obesity, and children's attention spans.[90][91][92][93] Potential harm to fish[75] and earthworm[94] populations has also been shown.

A study for the New Jersey Department of Environmental Protection analyzed lead and other metals in dust kicked into the air by physical activity on five artificial turf fields. The results suggest that even low levels of activity on the field can cause particulate matter containing these chemicals to get into the air where it can be inhaled and be harmful. The authors state that since no level of lead exposure is considered safe for children, "only a comprehensive mandated testing of fields can provide assurance that no health hazard on these fields exists from lead or other metals used in their construction and maintenance."[95]

Kinesiological health risks

[edit]

A number of health and safety concerns have been raised about artificial turf.[2] Friction between skin and older generations of artificial turf can cause abrasions and/or burns to a much greater extent than natural grass.[96] Artificial turf tends to retain heat from the sun and can be much hotter than natural grass with prolonged exposure to the sun.[97]

There is some evidence that periodic disinfection of artificial turf is required as pathogens are not broken down by natural processes in the same manner as natural grass. Despite this, a 2006 study suggests certain microbial life is less active in artificial turf.[96]

There is evidence showing higher rates of player injury on artificial turf. By November 1971, the injury toll on first-generation artificial turf had reached a threshold that resulted in congressional hearings by the House subcommittee on commerce and finance.[98][99][100] In a study performed by the National Football League Injury and Safety Panel, published in the October 2012 issue of the *American Journal of Sports Medicine*, Elliott B. Hershman et al. reviewed injury data from NFL games played between 2000 and 2009, finding that "the injury rate of knee sprains as a whole was 22% higher on FieldTurf than on natural grass. While MCL sprains did not occur at a rate significantly higher than on grass, rates of ACL sprains were 67% higher on FieldTurf."[101] Metatarsophalangeal joint sprain, known as "turf toe" when the big toe is involved, is named from the injury being associated with playing sports on rigid surfaces such as artificial turf and is a fairly common injury among professional American football players. Artificial turf is a harder surface than grass and does not have much "give" when forces are placed on it.[102]

See also

[edit]

- International Association for Sports Surface Sciences
- List of college football stadiums with non-traditional field colors
- Poly-Turf
- The Flying Grass Carpet

References

[edit]

1. ^ **a b** Dave Brady, "It's All So Artificial: The Uncommon Ground", *Petersen's 12th Pro Football Annual, 1972.* Los Angeles: Petersen Publishing Co., 1972; pp. 62–65.
2. ^ **a b c d** *Weeks, Jennifer (2015). "Turf Wars". Distillations Magazine. **1** (3): 34–37. Archived from the original on March 21, 2018. Retrieved March 22, 2018.*
3. ^ *"Definition of Astroturf – Dictionary.com". dictionary.com. Archived from the original on April 18, 2023. Retrieved May 7, 2023. "This sense of the word has come to be frequently used as a generic term for any artificial turf (in the same way that other brand names have been genericized, such as xerox). When used this way, it's often seen in lowercase (astroturf)."*
4. ^ *"Chicago Tribune – Historical Newspapers". Archives.chicagotribune.com. Archived from the original on November 5, 2016. Retrieved August 1, 2018.*
5. ^ *Moore, Jack (July 2, 2015). "Throwback Thursday: Cincinnati's Riverfront Stadium and the Era of Multipurpose Mistakes". vice.com. Vice. Retrieved April 13, 2023. "It was the first stadium to include dirt sliding pits around each base, something that has become standard in every turf baseball field built since."*
6. ^ *"Blue Jays adding dirt infield at Rogers Centre". MLB.com. February 10, 2016. Archived from the original on November 7, 2017. Retrieved August 1, 2018.*
7. ^ *"Blue Jays begin work on all-dirt infield at Rogers Centre". Toronto Star. February 11, 2016.*
8. ^ *"Arizona Diamondbacks installing synthetic grass at Chase Field". azcentral.com. October 12, 2018. Retrieved October 13, 2018.*
9. ^ *"Pats sign Testaverde; Gillette Stadium's grass field replaced with Field Turf". November 14, 2006. Archived from the original on April 19, 2012. Retrieved August 1, 2018.*
10. ^ *"Archived copy". Archived from the original on January 11, 2015. Retrieved May 15, 2015.*cite web: CS1 maint: archived copy as title (link)
11. ^ *Staff, The Athletic NFL. "Anonymous NFL player poll 2023: Best player? Biggest trash talker? Most annoying fans?". The New York Times. Retrieved December 11, 2023.*
12. ^ *"Odell Beckham Jr.'s injury in Super Bowl prompts NFL players to speak out against turf fields". sportingnews.com. February 14, 2022. Retrieved February 16, 2022.*
13. ^ *"BMO Field: New renovations accommodate TFC, Argos – CBC Sports". Cbc.ca. Archived from the original on January 31, 2017. Retrieved August 1, 2018.*
14. ^ *"History". Saskatchewan Roughriders. June 12, 2002. Retrieved January 10, 2021. " In 1988, the Roughriders replaced the first artificial turf with a new type of system called OmniTurf. Unlike AstroTurf, OmniTurf was an inlay turf system, which relied on 300 tons of sand to hold it in place (rather than the traditional glued-down system). Over the years, a number of problems occurred with this system and it eventually became necessary to replace it prior to its usable age being reached."*
15. ^ *"Artificial (pitch) intelligence – all you need to know". Cricket World. June 12, 2015. Retrieved November 27, 2020.*

16. ^ Nolan, Grace (April 4, 2019). "SIS Pitches uses hybrid grass technology to transform cricket". British Plastics and Rubber. Retrieved November 27, 2020.
17. ^ "Stitched pitch – SACA adds hybrid wickets". Cricket SA. Retrieved November 27, 2020.
18. ^ "Fremont: First official, fully lighted cricket field opens Aug. 21". The Mercury News. August 11, 2016. Retrieved November 27, 2020.
19. ^ **a b** Stuart James (October 11, 2024). "Bolivia are thriving at high altitude in their new home at El Alto – 4,150m above sea level". The Athletic. Retrieved May 6, 2025.
20. ^ "Artificial pitches to be banned in Premiership from 2026". BBC. April 30, 2024. Retrieved May 6, 2025.
21. ^ Lawton, Graham (June 4, 2005). "Field battle over artificial grass". New Scientist (2502): 35. Archived from the original on February 17, 2006. Retrieved January 11, 2008.
22. ^ "Clubs want artificial turf return". BBC News. November 18, 2011.
23. ^ "Artificial 3G Pitches: Coming to a ground near you?". Football Ground Guide. April 26, 2016. Archived from the original on October 31, 2016. Retrieved October 30, 2016.
24. ^ "Plastic liberals vs conservative stick-in-the-muds: The debate around artificial pitches which isn't going away". The Independent. London. February 28, 2018. Retrieved January 25, 2020.
25. ^ "National League promotion final: Harrogate Town beat Notts County 3-1 to secure place in League 2". BBC Sport. August 2, 2020. Retrieved August 2, 2020.
26. ^ "Sutton United: Replacing pitch will cost promoted club over £500,000". BBC Sport. June 2, 2021. Retrieved July 7, 2021.
27. ^ Salzburg turf approval. UEFA.com (January 12, 2006)
28. ^ Mark Chaplin (November 10, 2004) Approval for artificial fields. UEFA.com
29. ^ "England to play on synthetic turf". BBC News. July 11, 2007. Archived from the original on October 8, 2007. Retrieved January 11, 2008.
30. ^ "Field 'No Excuse' For England". Sporting Life UK. Archived from the original on June 5, 2011. Retrieved January 11, 2008.
31. ^ Martyn Ziegler (October 10, 2007). "England could slip up on plastic field, warns Ferguson". The Independent. London. Archived from the original on January 12, 2008. Retrieved January 11, 2008.
32. ^ "Desso GrassMaster hybrid grass > reinforced natural grass | Desso Sports Systems" . Dessosports.com. Archived from the original on December 10, 2015. Retrieved December 24, 2015.
33. ^ "Plastic pitches will be a pain". The New Indian Express. May 16, 2012. Retrieved May 2, 2025.
34. ^ "FIFA Quality Concept – Handbook of Test Methods for Football Turf" (PDF). FIFA. Archived from the original (PDF) on April 3, 2018. Retrieved July 20, 2017.
35. ^ "Football Turf". FIFA. Archived from the original on February 28, 2008.

36. ^ *"Football Fields". FIFA. Archived from the original on February 28, 2008.*
37. ^ [1] Archived December 4, 2011, at the Wayback Machine
38. ^ *"Chivas quitará el pasto sintético que costó 1 mdd – construccion". Obrasweb.mx. Archived from the original on August 1, 2018. Retrieved August 1, 2018.*
39. ^ *"El Estadio Omnilife, listo con pasto natural". Mediotiempo.com. July 19, 2012. Archived from the original on July 8, 2018. Retrieved August 1, 2018.*
40. ^ *"USWNT stars not backing down on artificial playing surface stance". Fox Sports. Archived from the original on October 20, 2014. Retrieved October 9, 2014.*
41. ^ *"elite female players sue". ESPN. September 26, 2014. Archived from the original on October 3, 2014. Retrieved October 9, 2014.*
42. ^ *Dominic Bossi (June 10, 2015). "Matildas stay out of turf war at women's World Cup". The Sydney Morning Herald. Archived from the original on January 9, 2016. Retrieved December 24, 2015.*
43. ^ *"Equalizer Soccer – Players officially file lawsuit against FIFA, CSA over artificial turf at 2015 Women's World Cup". Womens.soccerly.com. Archived from the original on October 5, 2014. Retrieved October 9, 2014.*
44. ^ *"Players file lawsuit in Canada over artificial Women's World Cup turf". Global News. October 1, 2014. Archived from the original on October 8, 2014. Retrieved October 9, 2014.*
45. ^ *"FIFA officials to inspect BC Place turf in light of controversy". Global News. October 7, 2014. Archived from the original on October 8, 2014. Retrieved October 9, 2014.*
46. ^ *"Palmeiras begin installing synthetic pitch at Allianz Parque". Xinhua News Agency. Archived from the original on January 14, 2020. Retrieved January 25, 2020.*
47. ^ *Dennis van Bergen; Sjoerd Mossou (October 20, 2022). "Kunstgras definitief verdrongen: eredivisieclubs vanaf de zomer van 2025 verplicht op écht gras" (in Dutch). AD. Retrieved May 2, 2025.*
48. ^ *Rae Knwhoca (April 30, 2025). "Ange Postecoglou reveals what he learned last time he played Bodo/Glimt". Spurs Web. Retrieved May 3, 2025.*
49. ^ ***a b c d*** *"ITF surface descriptions". Itftennis.com. Archived from the original on June 13, 2018. Retrieved August 1, 2018.*
50. ^ *"Tennis". Dow.com. August 3, 2001. Archived from the original on December 15, 2015. Retrieved December 24, 2015.*
51. ^ *"Wimbledon considering controversial plans to introduce artificial grass courts". Tennis365. Archived from the original on July 31, 2018. Retrieved July 31, 2018.*
52. ^ *Benson, Andrew (June 11, 2019). "Sebastian Vettel: F1's rules-for-everything culture led to Canada penalty, says GPDA boss". BBC Sport. Retrieved April 11, 2021.*
53. ^ *"Korean GP: Hamilton hampered by loose astroturf". BBC Sport. October 12, 2012. Retrieved April 11, 2021.*
54. ^ *Hall, Janet (March 11, 2018). "Pros and Cons: Artificial Grass Versus a Live Lawn". Archived from the original on May 1, 2018. Retrieved April 30, 2018.*

55. ^ *McNary, Sharon (September 16, 2019). "You Can Rip Out Your SoCal Lawn For Money Again – Now Without Landscaping Abominations". LAist. Archived from the original on April 13, 2020. Retrieved April 29, 2020.*
56. ^ *"Turf Replacement Program, Terms & Conditions". SoCal Water$mart. Retrieved April 29, 2020.*
57. ^ *Richards, Stefanie (September 12, 2019). "Council bans fake grass from city verges". INDaily Adelaide Independent News.*
58. ^ *Yuen, Kelda (July 29, 2019). "'It breaks my heart to do it': Toronto homeowner ordered to remove fake grass". CBC News. Retrieved April 29, 2020.*
59. ^ *Gehrke, Robert (July 10, 2019). "Gehrke: Salt Lake City should revisit its ban on artificial grass and give some leniency to property owners". The Salt Lake City Tribune.*
60. ^ *"Airside Applications for Artificial Turf" (PDF). Federal Aviation Administration. 2006. Archived (PDF) from the original on April 14, 2012. Retrieved November 9, 2011.*
61. ^ *"Going Green – Artificial Turf for Tortoise Troubles and More". April 13, 2017.*
62. ^ *Monte Burke (November 27, 2006). "Field of Screens". Forbes. Archived from the original on December 15, 2007. Retrieved January 11, 2008.*
63. ^ *"Exhibit Galleries Blog". galleries.neaq.org. Retrieved July 8, 2023.*
64. ^ ***a b c*** *Cheng H, Hu Y, Reinhard M (2014). "Environmental and health impacts of artificial turf: a review" (PDF). Environ Sci Technol. **48** (4): 2114–29. doi: 10.1021/es4044193. PMID 24467230. Archived from the original (PDF) on March 29, 2024. Retrieved July 1, 2023. "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."*
65. ^ ***a b*** *Russo, Carlo; Cappelletti, Giulio Mario; Nicoletti, Giuseppe Martino (July 1, 2022). "The product environmental footprint approach to compare the environmental performances of artificial and natural turf". Environmental Impact Assessment Review. **95**: 106800. Bibcode:2022EIARv..9506800R. doi:10.1016/j.eiar.2022.106800. ISSN 0195-9255. S2CID 248644133.*
66. ^ ***a b*** René Itten, Lukas Glauser und Matthias Stucki, "Life Cycle Assessment of Artificial and Natural Turf Sports Fields – Executive Summary" (Wädenswil: ZHAW Zürcher Hochschule für Angewandte Wissenschaften, 2021); cf. "Ökobilanzierung von Rasensportfeldern: Natur-, Kunststoff- und Hybridrasen der Stadt Zürich im Vergleich" (Wädenswil: ZHAW Zürcher Hochschule für Angewandte Wissenschaften, 2020), doi:10.21256/zhaw-20774.
67. ^ *Barnes, Michael R; Watkins, Eric (September 30, 2022). "'Greenness' in the Eye of the Beholder: Comparing Perceptions of Sustainability and Well-being Between Artificial and Natural Turfgrass". Cities and the Environment. **15** (1). doi: 10.15365/cate.202.150102. ISSN 1932-7048. S2CID 252668065.*

68. ^ *Straw, C. M.; McCullough, B. P.; Segars, C.; Daher, B.; Patterson, M. S. (September 1, 2022). "Reimagining Sustainable Community Sports Fields of the Future: a Framework for Convergent Science-Stakeholder Decision-Making". Circular Economy and Sustainability. **2** (3): 1267–1277. Bibcode:2022CirES...2.1267S. doi: 10.1007/s43615-021-00115-z. ISSN 2730-5988. S2CID 242002500.*

69. ^ Golden, Leslie M. (2021) "The Contribution of Artificial Turf to Global Warming," *Sustainability and Climate Change*, December,**14** (6) 436–449; http://doi.org/10.1089/scc.2021.0038

70. ^ *Kanaan, Ahmed; Sevostianova, Elena; Leinauer, Bernd; Sevostianov, Igor (October 2020). "Water Requirements for Cooling Artificial Turf". Journal of Irrigation and Drainage Engineering. **146** (10). doi:10.1061/(ASCE)IR.1943-4774.0001506. ISSN 0733-9437. S2CID 224884193.*

71. ^ Julian E. Lozano and Shon Ferguson, "Ecosystem services for compensation of artificial turf systems" (May 2021).

72. ^ *Jastifer JR, McNitt AS, Mack CD, Kent RW, McCullough KA, Coughlin MJ, Anderson RB (2019). "Synthetic Turf: History, Design, Maintenance, and Athlete Safety". Sports Health (Review). **11** (1): 84–90. doi:10.1177/1941738118793378. PMC 6299344. PMID 30096021.*

73. ^ *Lerner, Sharon (October 8, 2019). "Toxic PFAS Chemicals Found in Artificial Turf". The Intercept. Retrieved January 4, 2020.*

74. ^ *Celeiro, Maria; Armada, Daniel; Ratola, Nuno; Dagnac, Thierry; de Boer, Jacob; Llompart, Maria (May 1, 2021). "Evaluation of chemicals of environmental concern in crumb rubber and water leachates from several types of synthetic turf football pitches". Chemosphere. **270**: 128610. Bibcode:2021Chmsp.27028610C. doi: 10.1016/j.chemosphere.2020.128610. hdl:1871.1/b88f1b78-db15-4e7c-9129-91bc833e35e3. ISSN 0045-6535. PMID 33121811. S2CID 226206761.*

75. ^ ***a b*** *Chiba, Rihito; Fujinuma, Ryosuke; Yoshitomi, Tomoyasu; Shimizu, Yasuo; Kobayashi, Makito (January 24, 2023). "Ingestion of rubber tips of artificial turf fields by goldfish". Scientific Reports. **13** (1): 1344. Bibcode:2023NatSR..13.1344C. doi: 10.1038/s41598-023-28672-3. ISSN 2045-2322. PMC 9873930. PMID 36693897.*

76. ^ *"Microplastic Pollution from Artificial Grass – A Field Guide". KIMO. February 27, 2017. Archived from the original on April 19, 2017. Retrieved April 19, 2017.*

77. ^ *"Artificial Turf. Why it is not the answer". SELVA. Archived from the original on August 3, 2016. Retrieved April 19, 2017.*

78. ^ *"Microplastics in agricultural soils: A reason to worry?". Norwegian Institute for Water Research (NIVA). February 3, 2017. Archived from the original on April 19, 2017. Retrieved April 19, 2017. "Microplastics are increasingly seen as an environmental problem of global proportions. While the focus to date has been on microplastics in the ocean and their effects on marine life, microplastics in soils have largely been overlooked. Researchers are concerned about the lack of knowledge regarding potential consequences of microplastics in agricultural landscapes from application of sewage sludge."*

79. ^ Kole, Pieter Jan; Löhr, Ansje J.; Van Belleghem, Frank; Ragas, Ad; Kole, Pieter Jan; Löhr, Ansje J.; Van Belleghem, Frank G. A. J.; Ragas, Ad M. J. (October 20, 2017). "Wear and Tear of Tyres: A Stealthy Source of Microplastics in the Environment". International Journal of Environmental Research and Public Health. **14** (10): 1265. doi: 10.3390/ijerph14101265. PMC 5664766. PMID 29053641.

80. ^ Bø, S M; Bohne, R A; Aas, B; Hansen, L M (November 1, 2020). "Material flow analysis for Norway's artificial turfs". IOP Conference Series: Earth and Environmental Science. **588** (4): 042068. Bibcode:2020E&ES..588d2068B. doi:10.1088/1755-1315/588/4/042068. hdl:11250/2724609. ISSN 1755-1307. S2CID 229516855.

81. ^ "Tire wear foremost source of microplastics". IVL Swedish Environmental Research Institute. March 29, 2016. Archived from the original on April 19, 2017. Retrieved April 19, 2017. "researchers have ranked the sources of microplastic particles by size. The amount of microplastic particles emitted by traffic is estimated to 13 500 tonnes per year. Artificial turf ranks as the second largest source of emissions and is responsible for approximately 2300-3900 tonnes per year."

82. ^ Brown, Sc.D., David R. (2007). Artificial Turf (PDF) (Report). The Board of Environment & Human Health, Inc. Archived from the original (PDF) on April 10, 2008. Retrieved December 21, 2007.

83. ^ "COMMISSION REGULATION (EU) …/… of XXX amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards synthetic polymer microparticles". The European Commission. September 23, 2022. Retrieved February 16, 2023.

84. ^ Benoit G & Demars S (2018). "Evaluation of organic and inorganic compounds extractable by multiple methods from commercially available crumb rubber mulch". Water, Air, & Soil Pollution. **229** (3): 64. Bibcode:2018WASP..229...64B. doi: 10.1007/s11270-018-3711-7. S2CID 103861679.

85. ^ Bleyer, Archie (December 1, 2017). "Synthetic Turf Fields, Crumb Rubber, and Alleged Cancer Risk". Sports Medicine. **47** (12): 2437–2441. doi:10.1007/s40279-017-0735-x. ISSN 1179-2035. PMID 28493060. S2CID 46183771.

86. ^ "Granules and mulches on sports pitches and playgrounds – ECHA". echa.europa.eu. Retrieved July 1, 2023.

87. ^ Perkins, AN; Inayat-Hussain, SH; Deziel, NC; et al. (2019). "Evaluation of potential carcinogenicity of organic chemicals in synthetic turf crumb rubber". Environmental Research. **169**: 163–172. Bibcode:2019ER....169..163P. doi: 10.1016/j.envres.2018.10.018. PMC 6396308. PMID 30458352.

88. ^ Pronk, Marja E. J.; Woutersen, Marjolijn; Herremans, Joke M. M. (May 2020). "Synthetic turf pitches with rubber granulate infill: are there health risks for people playing sports on such pitches?". Journal of Exposure Science & Environmental Epidemiology. **30** (3): 567–584. Bibcode:2020JESEE..30..567P. doi:10.1038/s41370-018-0106-1. ISSN 1559-064X. PMC 7181390. PMID 30568187.

89. ^ Schneider, Klaus; Bierwisch, Anne; Kaiser, Eva (May 20, 2020). "ERASSTRI – European risk assessment study on synthetic turf rubber infill – Part 3: Exposure and

risk characterisation". Science of the Total Environment. ***718****: 137721. Bibcode:2020ScTEn.71837721S. doi:10.1016/j.scitotenv.2020.137721. ISSN 0048-9697. PMID 32173010. S2CID 212729483.*

90. ^ *Armada, Daniel; Llompart, Maria; Celeiro, Maria; Garcia-Castro, Pablo; Ratola, Nuno; Dagnac, Thierry; de Boer, Jacob (March 15, 2022). "Global evaluation of the chemical hazard of recycled tire crumb rubber employed on worldwide synthetic turf football pitches". Science of the Total Environment.* ***812****: 152542. Bibcode:2022ScTEn.81252542A. doi:10.1016/j.scitotenv.2021.152542. hdl:10347/27898. ISSN 0048-9697. PMID 34952075. S2CID 245432545.*
91. ^ *Colon, I (2000). "Identification of phthalate esters in the serum of young Puerto Rican girls with premature breast development". Environmental Health Perspectives.* ***108*** *(9): 895–900. doi:10.1289/ehp.108-2556932. PMC 2556932. PMID 11017896.*
92. ^ *Newbold, RR (2009). "Environmental estrogens and obesity". Molecular and Cellular Endocrinology.* ***304*** *(1–2): 84–89. doi:10.1016/j.mce.2009.02.024. PMC 2682588. PMID 19433252.*
93. ^ *Grun, F. (2009). "Endocrine disruptors as obesogens". Molecular and Cellular Endocrinology.* ***304*** *(1–2): 19–29. doi:10.1016/j.mce.2009.02.018. PMC 2713042. PMID 19433244.*
94. ^ *Pochron, Sharon T.; Fiorenza, Andrew; Sperl, Cassandra; Ledda, Brianne; Lawrence Patterson, Charles; Tucker, Clara C.; Tucker, Wade; Ho, Yuwan Lisa; Panico, Nicholas (April 2017). "The response of earthworms (Eisenia fetida) and soil microbes to the crumb rubber material used in artificial turf fields". Chemosphere.* ***173****: 557–562. Bibcode:2017Chmsp.173..557P. doi:10.1016/j.chemosphere.2017.01.091. PMID 28142114.*
95. ^ Shalat SL. An evaluation of potential exposures to lead and other metals as the result of aerosolized particulate matter from artificial turf playing fields. 2011. New Jersey Department of Environmental Protection. http://www.nj.gov/dep/dsr/publications/artificial-turf-report.pdf
96. ^ ***a b*** *"New Penn State Study Debunks Staph Bacteria Scare in Synthetic Turf" (Press release). Penn State College of Agricultural Sciences. August 30, 2006. Archived from the original on August 30, 2006. Retrieved January 11, 2008.*
97. ^ *Williams, C. Frank; Pulley, Gilbert E. (2002). Synthetic Surface Heat Studies (PDF) (Report). Brigham Young University. Archived (PDF) from the original on April 10, 2008. Retrieved February 19, 2008.*
98. ^ *"Senate (House) studies 'Mod Sod'". Spokane Daily Chronicle. (Washington). Associated Press. November 2, 1971. p. 16.*
99. ^ *"Fake turf makers deny fault". Eugene Register-Guard. (Oregon). Associated Press. November 3, 1971. p. 5D.*
100. ^ *Underwood, John (November 15, 1971). "New Slant on the Mod Sod". Sports Illustrated. p. 32.*

101. ^ *"Ask Dr. Geier – Are ACL tears more common on grass or FieldTurf? | Dr. David Geier – Sports Medicine Simplified". Dr. David Geier. January 18, 2013. Archived from the original on January 9, 2016. Retrieved December 24, 2015.*
102. ^ *"Turf Toe-OrthoInfo – AAOS". Orthoinfo.aaos.org. August 1, 2012. Archived from the original on December 9, 2015. Retrieved December 24, 2015.*

Image not found or type unknown

Wikimedia Commons has media related to ***Artificial turf***.

Image not found or type unknown *This article incorporates text by National Center for Health Research available under the CC BY-SA 3.0 license. The text and its release have been received by the Wikimedia Volunteer Response Team*

; for more information, see the talk page.

Authority control databases: **National**

- Germany
- United States
- Israel

Image not found or type unknown **Edit this at Wikidata**

About hybrid grass

This article is about grass reinforced with other material. For grass hybrids, see Grass (disambiguation).

Hybrid grass or **reinforced natural grass** is a product created by combining natural lawn grass with reinforcing synthetic fibres. It is used for stadiums[1] and training pitches used for association football,[2] rugby,[3] gridiron football[4] and cricket.[5] Reinforced natural grass can also be used for events and concerts. The synthetic fibres incorporated into the rootzone make the grass stronger and more resistant to damage.[6]

A first generation of hybrid grass appeared in the 1990s. Grass roots were allowed to intertwine with a mix of soil and synthetic fibres as they grew.[6] Three main methods exist to insert synthetic fibres in the root zone. The first is to inject fibres in the sand with a tufting machine.[7][8]

The second method is to mix fibres, cork and sand in an automated plant and to install it afterwards on the pitch. The system was created by a laboratory at the Arts et Métiers ParisTech.[9][10][11]

The third method is to put a carpet or mat with woven or tufted fibres on the surface, then to brush in sand or sand mixes to keep the fibres in an upright position and finally to seed grass mixtures on top. The natural grass roots through the mat and stabilizes the system. These systems are called carpet-based hybrid grass solutions.[12]

References

[edit]

1. ^ National Stadium at Singapore Sports Hub unveils state-of-the-art hybrid grass pitch – 938LIVE on xinmsn Entertainment[*permanent dead link*]
2. ^ *"World-Class Hybrid Grass for the World Cup: Video – Bloomberg". Archived from the original on 2 June 2014. Retrieved 7 March 2017.*
3. ^ *"Murrayfield pitch to be replaced with hybrid grass". BBC Sport. 5 February 2014. Archived from the original on 26 April 2014. Retrieved 5 May 2025.*
4. ^ *Hodkiewicz, Wes (1 August 2018). "New turf ready to welcome Packers into 2018 season". packers.com. Archived from the original on 16 October 2023. Retrieved 7 July 2021.*
5. ^ *Nolan, Grace (4 April 2019). "SIS Pitches uses hybrid grass technology to transform cricket". British Plastics and Rubber. Archived from the original on 17 October 2022. Retrieved 27 November 2020.*
6. ^ ***a b*** *Rowaan, Dave (10 March 2014). "Hybrid grass, football, and soccer: Can it work?". SB Nation. Archived from the original on 19 August 2018. Retrieved 23 July 2014.*
7. ^ *"Desso GrassMaster technology". Archived from the original on 10 December 2015. Retrieved 14 November 2013.*
8. ^ *"Arizona Turf Depot". Archived from the original on 31 October 2023. Retrieved 19 July 2020.*
9. ^ *"AirFibr : 1ère technologie de pelouse sportive augmentée, conçue pour la sécurité et la performance des sportifs de haut niveau grâce au Carnot ARTS | le réseau des Carnot". Archived from the original on 3 February 2020. Retrieved 3 February 2020.*
10. ^ *"Natural Grass équipe la moitié des terrains de football de l'Euro 2016". Archived from the original on 19 October 2022. Retrieved 5 May 2025.*
11. ^ *"La pelouse hybride, la pelouse du futur ? | STIGA". Archived from the original on 28 January 2023. Retrieved 5 May 2025.*

12. ^ *"Installation of Hybrid Grass". greentechsod.bg. Archived from the original on 19 October 2022. Retrieved 2 January 2022.*

About Rock N Block - Turf N Hardscapes

Driving Directions in

Driving Directions From 36.161101469679, -115.24023784407 to

Driving Directions From 36.204048406654, -115.07060892966 to

Driving Directions From 36.059845804985, -115.11051197402 to

Driving Directions From 36.217321549587, -115.03096451151 to

Driving Directions From 36.179365980183, -115.28172924124 to

Driving Directions From 36.140719909033, -115.13622075405 to

Driving Directions From 36.201297787393, -115.16763237205 to

Driving Directions From 36.034781160289, -115.27339545983 to

Driving Directions From 36.066128369982, -115.2736452018 to

Driving Directions From 36.124641545897, -115.18952369231 to

Driving Directions From 36.123765600262, -115.31049347598 to

Driving Directions From 36.108080542887, -115.29829407827 to

Driving Directions From 36.18728238744, -115.15215232625 to

Driving Directions From 36.095725822184, -115.19702299233 to

Driving Directions From 36.083039086155, -115.04698705795 to

Driving Directions From 36.228462908728, -115.26373302826 to

Driving Directions From 36.233491219118, -115.31233072296 to

Driving Directions From 36.119965600938, -115.04817790431 to

Driving Directions From 36.164916023717, -115.15965924789 to

Driving Directions From 36.042245867959, -115.02695451348 to

Driving Directions From 36.241926641592, -115.34546048619 to

Driving Directions From 36.19937935395, -114.98124591563 to

Driving Directions From 36.042287838954, -115.31268803147 to

Driving Directions From 36.167466952951, -114.96278298368 to

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.111321528435,-
115.02255471568,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.160830336042,-
115.01620211476,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.16789706479,-
114.95760641062,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.243265447665,-
115.03202949651,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.118844579958,-
115.33669205701,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.15732136159,-
114.99562927177,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.109312846027,-
115.07092326153,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.010036746064,-
115.13932424699,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.16536719466,-
115.03440282422,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.150075
115.16984902226562!16s%2F

https://www.google.com/maps/place/Rock+N+Block+-
+Turf+N+Hardscapes/@36.228462908728,-
115.26373302826,25.2z/data=!4m6!3m5!1s0x80c8eb5afc675d0f:0x19c06675a06c11f!8m2!3d36.1500755
115.16984902226562!16s%2F

https://www.google.com/maps/dir/?api=1&origin=36.013386051602,-
115.14308483851&destination=Rock+N+Block+-
+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.137925333428,-
115.18715442322&destination=Rock+N+Block+-
+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.294787449369,-
115.17925870787&destination=Rock+N+Block+-
+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.226558420977,-
115.22026792954&destination=Rock+N+Block+-
+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.120036897134,-115.17049811581&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.084637866029,-115.09168518675&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.102836572355,-115.08322541811&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.059845804985,-115.11051197402&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.003589304011,-115.13136195031&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.243265447665,-115.03202949651&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.108080542887,-115.29829407827&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.095725822184,-115.19702299233&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.094480164514,-115.0934697304&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=35.998717035407,-115.11265616991&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.028276864512,-115.11503875685&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.179365980183,-115.28172924124&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.155060744058,-114.98817875079&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.145287533686,-115.33559263723&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.101234541016,-115.12263040925&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.084978080588,-114.98930327675&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.228462908728,-115.26373302826&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.242837520632,-115.24744869011&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.034781160289,-115.27339545983&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.017105632933,-115.16697949024&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.18138080808,-115.26596246375&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.090127933961,-115.244004971&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.241926641592,-115.34546048619&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.130466732148,-115.32237895511&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=35.998805389177,-115.11975208821&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des
friendly+turf+North+Las+Vegas

https://www.google.com/maps/dir/?api=1&origin=36.066128369982,-115.2736452018&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des
tolerant+lawn

https://www.google.com/maps/dir/?api=1&origin=36.111321528435,-115.02255471568&destination=Rock+N+Block+-

+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.214222925041,-115.04247748805&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.165876739649,-115.00936336561&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=35.99980264083,-115.20932904226&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.182712589437,-115.27533623359&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.16536719466,-115.03440282422&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.18728238744,-115.15215232625&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.118844579958,-115.33669205701&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.112546657319,-115.37017201789&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.042245867959,-115.02695451348&destination=Rock+N+Block+-

+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.228641261521,-115.29021480659&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.212408810479,-115.20753320259&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des
tolerant+lawn

https://www.google.com/maps/dir/?api=1&origin=36.061420741071,-115.24380262711&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.060083711889,-115.05055044653&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.1054289431,-115.19800344958&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.045016840921,-115.26772411916&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.081818860205,-115.31024142639&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.187472933907,-115.29738646212&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.090258798648,-115.01832273742&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

https://www.google.com/maps/dir/?api=1&origin=36.200267719741,-115.00746067437&destination=Rock+N+Block+-+Turf+N+Hardscapes%2C+3267+N+Torrey+Pines+Dr%2C+Las+Vegas%2C+NV+89108%2C+USA&des

Google Business Profile

Google Business Website

USEFUL LINKS

Synthetic Grass Las Vegas

Synthetic Turf Las Vegas

Synthetic Grass Las Vegas, Nevada

Synthetic Turf Las Vegas, Nevada

LATEST BLOGPOSTS

Synthetic Grass Las Vegas, Nevada, USA

Synthetic Grass Las Vegas