



## SYNTHETIC TURF – A RISING PHENOMENON

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At the 18th Annual Ontario Turfgrass Symposium, we were treated to a talk on synthetic turf. The speaker, Mark Nicholls, presented the audience with some facts that he feels people need to know about this technology. One thing worth noting about this presentation is that after being present on the market for many years, synthetic turf has finally managed to pop up on the radar of the Canadian sports turf industry. This invariably heralds an upcoming rise in the number of synthetic installations in the very near future.

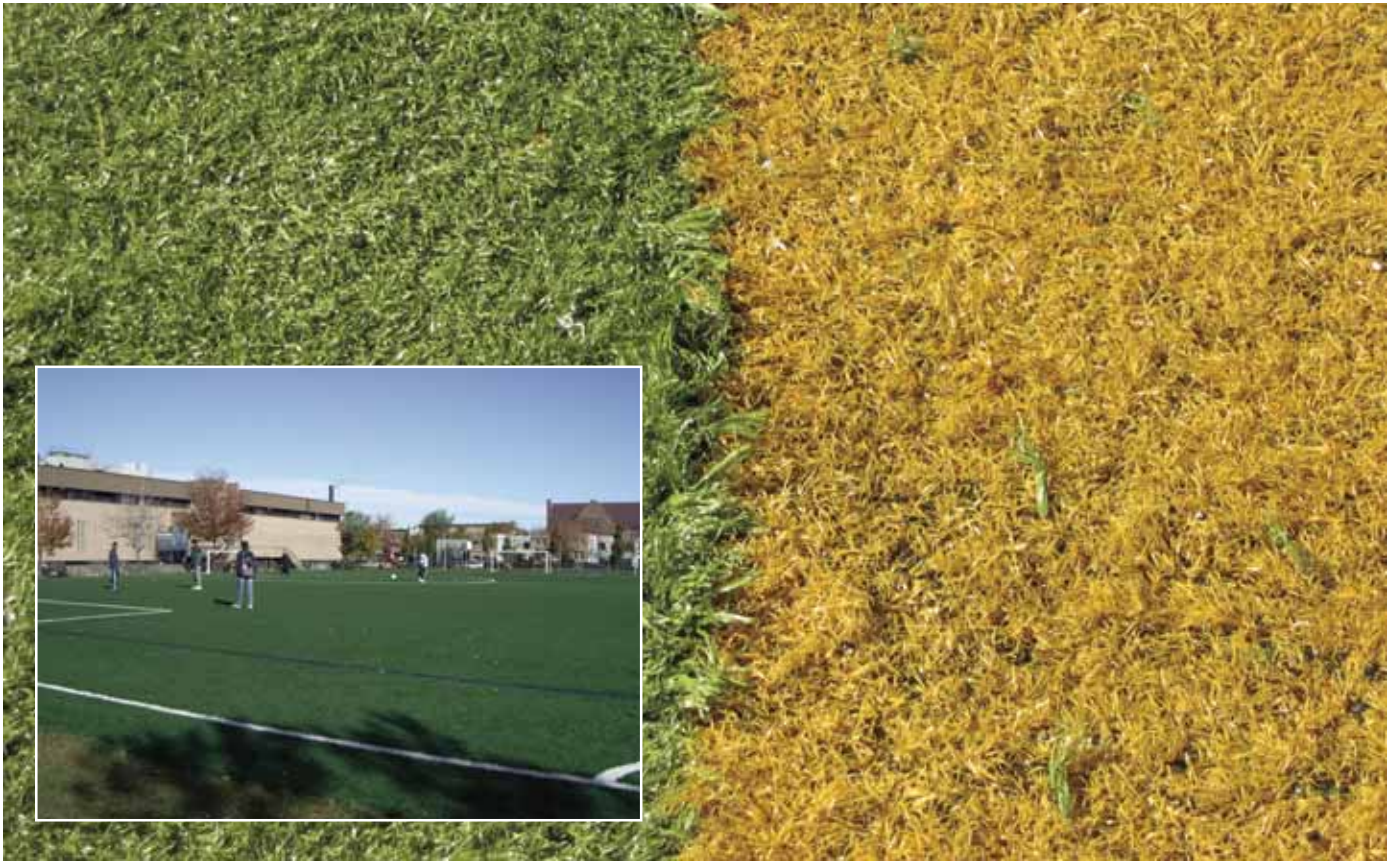
In one form or another, synthetic turf has been around for a long time. But it is only with the advent of infilled polyethylene turf that this technology started to take serious hold and grow at an increasingly accelerated pace. Invariably, wherever it appeared, synthetic turf was met with strong resistance from many, the most vocal objections being expressed by members of the turfgrass industry. I remember the 2004 STMA Annual Conference when synthetic turf first won

recognition by being the topic of the main session. Mark Nicholls was also one of the speakers at that session. I can still hear some of the speakers in other sessions cutting short their talks to warn the audience of the impending doom of their industry and loss of their livelihood if this menace was allowed to establish itself.

Luckily, in Guelph this year, we were spared such displays and the audience seemed attentive, even if there were some signs of skepticism. But one was able to

**Main Photo:** The definition of the lines in a synthetic turf surface will always be a little low. But in this case, the lines were put in so badly that they cannot be corrected. Poor workmanship is not an option in a product that is meant to last over 10 years.

**Inset:** Synthetic turf can be used in all weather. Here, snow covers this soccer field and the kids can play – even if the snow is still many feet deep around the field. Synthetic fields allow considerable lengthening of the playing season, helping to lighten the load on a municipality's natural turf fields.



tell that the prevailing sentiment was that this phenomenon is something that is here to stay and the audience displayed a healthy appetite for information.

Today, synthetic turf has come to be seen by many not as a substitute to natural grass, but as a necessary tool in the sports field manager's arsenal to provide the public with quality playing surfaces. Faced with an unbridled rise in usage figures and user demands for playing surfaces that are both safe and aesthetic, it is only normal that the claims of the synthetic turf industry attract attention and interest.

### The Downside of Market Growth

Over the last few years, synthetic turf companies have experienced formidable growth. With the generalized acceptance of this technology and growing demand for safe quality surfaces, their business has grown exponentially.

Unfortunately, high market growth and volume have the nasty habit of also attracting some who see this as a chance at making easy money. Sadly, the synthetic turf industry has its lot of less-than-respectable operators peddling cheap products.

As long as the market lies dormant, the efforts of such entrepreneurs are concentrated elsewhere. But when market growth becomes imminent, attention turns towards this new business potential and the market operators become feverish. This is when those entrusted with putting together these projects for their communities are the most vulnerable. The Canadian market is presently at this juncture.

### Pitfalls of Synthetic Turf Projects

When considering a system for his/her municipality, school or sports complex, one of the main dangers looming over today's sports turf manager is to discount the technical nature of this technology and to focus solely on price as a factor to consider. Prices can vary considerably from one installer to another – from roughly \$40 a square metre to over \$60 and well beyond for more elaborate systems. For a 10,000 sq m playing surface, this translates into a price difference that can exceed \$200,000 for what can appear to the uninitiated as similar products. Faced with such a decision, one may naturally opt for the cheaper option, confident that the huge savings will potentially offset whatever

**Main Photo:** Over brushing has totally ripped up these slit film fibres. Thus, they become extremely fragile and their wear resistance is decreased considerably. We see that the yellow line was cut out and glued in place. The joints are coming apart.

**Inset Photo:** Small, accessible playing surfaces can be installed in neighbourhood parks to relieve the user pressure on the bigger natural fields. Informal pickup games are organized on these surfaces and the kids do not feel the need to go onto the regular fields, allowing greater accessibility for maintenance.

slight disadvantages a “cheaper” surface may present.

This is a trap in which all new markets risk falling. Some manufacturers will try to dazzle their customers with the technical aspects of the products, which tends to become confusing. Others will try to downplay technicalities by emphasizing the price gaps between their products and others. They use this gap as a selling point. The novice will inevitably be attracted by this second approach, because it is appealing and it has the advantage of being easy to understand.

## Cheaper is Not Necessarily Better

The history of infilled synthetic turf is strewn with horror stories and failed projects. These can be attributed to many factors such as poor design, cheap products, bad workmanship or even outright fraud and false representation.

Independent of price, when synthetic turf systems are considered, all projects are required to meet certain requirements that are generally considered to be industry standards. For instance, an eight year warranty is one such industry standard, which means that clients will usually expect their surface to be usable for a minimum 10-year period or more. No installer will dispute this. Unfortunately, countless projects have performed poorly and it is not unusual to see some playing surfaces present serious defects after five years of use or less. Some poor installation work can even result in extreme aging of the surface – in some cases, before it is even used!

Consider a 10,000 sq m surface expected to be used for an average of 1,000 hours a season. The initial cost of a \$40/sq m playing surface amounts to \$400,000. At \$60/sq m, the surface costs \$600,000. Over a 10-year period, the hourly usage cost would be respectively \$40 and \$60. But, if the cheaper surface should need to be replaced after only five years because of poor quality or poor workmanship, its relative hourly usage would then be \$80 and the added cost of replacing the surface would also need to be factored in. This would mean that what was initially seen as \$200,000 in savings could end up being \$250,000 in extra costs once the expense of replacing the turf before its time has been added.

This example does not mean that low cost solutions must be shunned. Although some products may be less resistant to wear, they can be appropriate when the anticipated use may be light, such as in some schools or other instances. Other lower cost products can perform just as well as the flashier brands, but are just not promoted as actively by the suppliers. Most companies propose a range of products that address different applications or needs. In cases where lower cost products can meet the needs, it becomes important not to fall for forceful marketing pitches that inevitably favour more expensive solutions.

But on the other hand, it is important to bear in mind that in all cases, quality needs to remain the principal concern in choosing a given product or system. When choosing a system or a supplier, one must always focus on three main aspects: the actual carpet and different components composing the system; the quality of the installation of the system; and the support the supplier and installer will provide throughout the surface's life cycle.

## Striving for Product Quality

Synthetic turf products are typically comprised of three main components: the actual turf fibers, the primary backing into which they are tufted and the secondary backing, which is the coating that is applied to the underside of the carpet to hold the fibers in place. This creates a "carpet" that is but one part of the actual system. When put in place, the carpet is filled in with different materials such as rubber granules and/or sand.

Like anything else, all these components come in varying shapes and sizes, but most importantly, levels of quality. In most cases, an untrained eye could not tell cheap, low grade fibers from the highest quality products. But if visual examination cannot distinguish between qualities, the differences can be dramatic. For instance, extensive research has gone into creating fibers that can resist the devastating effects of UV rays that can break them down in a matter of a few years. They literally turn to dust. Considering the huge amount of fibers that go into a playing

surface, substituting cheap fibers for higher quality ones can be attractive for some suppliers.

The same goes for the other components that go into the system. For instance, the secondary backing coats the underside of the carpet, virtually binding the fibers in place, creating what is called the "turf bind." If this is not done right, or if not enough is used, or the polyurethane is not adequate, the fibers can pull out of the backing causing the turf cover to thin out rapidly. This is especially important with the new monofilament products which typically have lower turf bind. Inadequate undercoating or the use of low grade fibers can result in failing systems. Also, in many cases, the quality control procedures in the production plants (most manufacturers outsource their production – tufting and undercoating) are less than stringent and the delivered products can vary in quality from one job to another, which can result in defects that are not easily detectable.

Fortunately, there are specialized labs that can test the products that are put in place to ensure that: the product that is delivered on site is the one that was agreed upon; the components (fiber, backings, infill materials) are compatible with the specified system, and they perform according to specs (turf bind, fiber density, etc.).

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**Below:** The slightest movements in the stone base are directly translated in unsightly waves in the lines and graphics.



Even lower priced products can provide great performance if the component and manufacturing quality are there. A low price doesn't necessarily mean a low quality product just as high price doesn't automatically guarantee a high quality product. In every instance, the client must take the necessary measures to ensure that the expected quality levels are met by the supplier. When you install something for a 10 year life span, cheap quality can prove to be expensive.

### **Installation Quality is Also Essential**

Using the best products does not necessarily translate into a well installed system. Installation of an infilled turf surface involves many operations and techniques that can have a devastating effect on the finished project if they are not conducted properly. The use of inappropriate tools and equipment can virtually destroy the fibers before the playing surface is even used. Uneven or insufficient infilling can also cause accelerated surface wear.

Carpet assembly can either be done by gluing the fabric onto a seaming tape with

In order to incorporate the infill material into the surface, the contractor must brush it into the carpet pile, lifting the fibers before laying the infill material between them. Some contractors are not equipped with the proper brushes, either because they do not know better or because they rent their equipment and do not have access to the right equipment. Overbrushing can split and break the fibers, especially the slit film type that is extremely delicate during this operation. This results in a splitting of the fibers which causes them to lose their long-term resistance to wear. Overbrushing can also pull out the fibers when the product has a low turf bind because of faulty design and improper or insufficient coating of low quality fibers.

There are a few ways for project managers to protect themselves from unscrupulous or even incompetent contractors. The first line of defense is to require an extensive list of references with names and contact information so a background check can be made. There are contractors on the market today who have extremely

testing labs to do this for them. Other labs are not registered with this organization, but can apply the standards and conduct the tests.

Such a quality control process should be an intrinsic part of a project and be presented clearly as such in the construction documents. In a new, less informed market, some installers may count on the relative inexperience of prospective clients to try to get away with some corner cutting that can have detrimental effects on the finished projects. With time, information, experience and with the implementation and application of such measures, the more respectable and qualified manufacturers start to gain ground over the cost cutting fly-by-night operators.

### **A Maturing Market Naturally Tends Towards Better Quality Projects**

With the exception of a few specific regions that have experienced very active synthetic turf markets in the past years, the Canadian infilled turf market as a whole is relatively young. Most informed observers agree that Canada is on the verge of a surge in the number of playing surfaces that will be built in the next few years. Industry professionals are feverishly preparing for this anticipated boom.

Typically, the early stages of such a period are characterized by a great number of projects designed around tight if not insufficient budgets that are justified by the general perception that this technology is grossly too expensive. After a while, some playing surfaces start presenting problems that can be attributed to some of the pitfalls that have been described. Then there is a shift towards greater care being given to ensuring better quality both in the products that are used and the installation work that is provided by the suppliers.

The Canadian market is lucky in that forerunners in the users of this technology have made it possible to identify many of the pitfalls that can be encountered in these projects – and some have done so at great personal cost. This acquired experience can now be drawn upon in order to avoid repeating some of the costly mistakes that have been made by others. ♦

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special glue, or by stitching the strips together. In Canada, most installers will stitch the seams. But worldwide, more than 80% of turf assembly is done by gluing methods. When the work is well done and proper materials are used, both methods can produce good results. But both methods can also produce disastrous results when they are not done properly. The special glue that is used in this type of assembly is extremely expensive and difficult to manipulate. It can be very tempting for an installer to use a cheap glue because this can mean important savings for him, even if this invariably results in grave problems for the user. Temperature constraints are also very severe, which probably explains why stitching is preferred over gluing in Canada. But improper stitching can also lead to problems, especially if stitching is done on a carpet that was not designed to be sewn.

long lists of finished projects but who have left an incredibly bad track record behind them. The only way to guard oneself against this is to call and ask around. With the number of projects increasing in the near future, people will become more aware of whom the disreputable contractors are and the information will get around. Until then, the onus is on individual clients to inform themselves.

Just as with the products and the different system components, there are specialized firms that can monitor and validate the installation work. Using recognized standards and methods, they can check the work as it is being conducted or just before it is completed so that the client can be assured that the work is done according to specs. Contact information on these firms can be found on the websites of certain international governing bodies, such as FIFA, which certifies