



» Left: Spray

## Selecting synthetic turf adhesives

**T**HE TOTAL COST for a sound base for synthetic turf, the synthetic turf itself, and labor for a successful installation is very high compared to the cost of the adhesive used to hold the installation together and/or down. However, it's the adhesive that often determines the success of an installation; the amount of profit after the job is completed and how much profit is retained later by avoiding expensive callbacks due to adhesive "time bombs."

Tremendous amounts of money have been wasted by intelligent, educated, and experienced turf people and architects who have no technical knowledge of adhesives or adhesive chemistry. They buy or specify a synthetic turf adhesive based on its high strength after it cures and/or its low price. Both reasons are costly and unimportant because the adhesive strength needed for an adequate bond is one that is stronger than

the bond between the turf's primary and secondary backing, both initially and after weathering.

Higher adhesive strength will not give a better bond. Some adhesives that have high initial strength deteriorate and become time bombs after weathering. Regarding price, it's the finished job profit that counts and not the initial cost of the adhesive. With unpredictable day to day weather, why jeopardize finished job profits by trying to "save money" on an adhesive that is weather sensitive during installation?

If the adhesive slows down or temporarily prevents an installation because its "outdoor working window" is narrow (too hot, too cold, too damp, too dry, too windy, it's going to rain, etc.), and/or the adhesive requires more labor to use, the job becomes more expensive and less profitable. Even on the same day, an installation is different at 7 AM vs. 10 AM vs. 1 PM, etc., as the sun rises and sets. Also, after installation, the adhesive must be durable enough to withstand several years of weathering.

Let's outline negative followed by positive adhesive properties that are necessary for a successful and profitable installation.

### Negatives

Don't purchase or specify a synthetic turf adhesive based on price and/or indoor laboratory tests of cured films at room temperature. Such indoor tests do not reveal "fair weather adhesives" with installation problems due to: the adhesive becoming too thick to spread when cold; or snap curing too fast when hot; or with a narrow weather working window during installation; or requiring sand bags, brinks or other weights to hold the turf in place while the adhesive cures, especially if the turf has a curl or if it is windy; or if the adhesive will be damaged by rain when it occurs almost immediately after application.

### Positives

Factors and properties that indicate a good outdoor adhesive are: it can be left outside on the jobsite in unopened pails without fear of it becoming too thick to spread when cold; or



## Pay now or pay later

There is much more to selecting a synthetic turf adhesive than its price and a high initial strength. More importantly is obtaining an adequate bond, not just initially, but after years of weathering. It is also essential that the adhesive be easily usable and reliable when applied under a wide variety of variable outdoor weather conditions. Profits disappear if the adhesive slows down installation, increases labor costs, or later becomes a “time bomb.”

when hot, not snap curing with little or no working time; it is practical to use in variable weather, unexpected rain or surface expansion and contraction on sunny days from passing clouds or moving shadows; plus it has a high green strength.

Green strength is the ability to hold two surfaces together when first contacted and before (still green) the adhesive develops its ultimate bonding properties when fully cured. High green strength adhesives are vital to outdoor installations because they help overcome the tendency of surfaces like synthetic turf to separate, curl, bubble, lift, creep, slip and wrinkle during installation without resorting to excessive rolling or sand-bagging.

High green strength or “high grab” adhesives are essential for profitable installations because they don’t have limits like oily, slippery adhesives have, regardless of their strength after curing.

There will always be delays if the installer can not use the adhesive when it’s below 40 degrees or above 90 degrees or if it is likely to rain. Incidentally, don’t mistakenly think that because an adhesive is thick or a paste that it has green strength; grease, toothpaste, mud pies are thick but they don’t have grab.

### Adhesive types

There is no such thing as a “one size fits all” synthetic turf adhesive. Most adhesives used today for installing synthetic turf are one-part urethane; but the term “urethane,” like the word “metal,” is generic. Just like there is an enormous difference between metals like gold, tin, lead or copper, not all “urethane adhesives” are the same or remotely similar.

**Newtonian liquids** pour and flow like syrup, water and most common liquids.

**Thixotropic liquids** which resist flow when

» Below: Squeegee



» Below: Glue Box



>> Trowel



at rest but temporarily thin down for easy spreading when subjected to shear such as stirring, shaking, troweling, or when applied from a glue box. However, when the shear is stopped they once again return to resisting flow. Thixotropic adhesives that have a light mayonnaise-type consistency at rest are easy to spread while their thixotropy also enables them to hold trowel ridges and not flow off the sides of seam tape nor to messily leak out of the bottom of glue boxes when not applying adhesive.

**Spraying** adhesives must be handled carefully. It is essential when spraying that the adhesive has negligible overspray and minimal airborne adhesive mist even when breezy. This is a safety issue, and a cleanliness issue. Not inhaling an aerosol mist of sticky, durable adhesives is a good idea.

**Hot melt** adhesives go from liquid to solid when they cool. However, they require special equipment to melt them for use.

**Two-part** adhesives are liquid until cured. Keep in mind that each component by itself is not an adhesive so that if not completely and accurately mixed at the jobsite, durability problems can arise later.

**Silicone (silane)** adhesives are light pastes that after application need contact with water in order to hydrolyze and then begin to cure.

**Water-based (latex)** adhesives are environmentally friendly but they depend on water evaporating to dry. Hence, sensitive to humidity and/or rain during installations.

## When and where to use

Newtonian liquids are used because they are supplied in containers with pour spouts and can be easily applied with a squeegee, trowel, or sprayed. They flow and level after application.

Thixotropic adhesives are preferred for glue boxes and troweling

where maintaining trowel ridges instead of leveling is important. This includes when applying to vertical surfaces.

Spraying is usually for total glue downs of turf and/or shock absorbent underlayments in large installations like synthetic turf athletic fields. Also, for fast application to long runs of seaming tape.

Hot melt adhesives bond fast when they cool. Handling can sometimes be tricky. Their performance is better in cool weather than hot weather because even though they don't completely remelt when hot, some re-soften in hot desert or tropical climates. The re-softening sometimes allows turf seams to "creep open."

Two-part adhesives also usually bond well. They are more labor intensive because of the mixing and lack of green strength.

Silicone adhesives give adequate bond but the usual installation problems associated with negligible green strength.

Water-based adhesives are like going to Las Vegas to gamble on what the weather will be on future installation days. Sometimes you win, sometimes you lose. ■



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