



## The Total Putting Green System

### **Installation procedure for installing panels with no gaps**

#### DISCLAIMER

The techniques described in the Tour Links installation manual are recommendations only. Tour Links takes no responsibility for any installation in which the end results are not satisfactory. There are many factors to take into consideration prior to installing your green, inclusive of temperature, drainage, soil type, and location. It is the responsibility of installer to test these procedures in order to find which techniques work best for their particular situation.



Prepare the ground and assemble the panels as normally done.



Kick the panels together with one person on either side of layout.



All sides are pushed together.



Panels are assembled with no gaps regardless of outdoor temperatures. No screws are used around the perimeter. Stapling the turf to the outermost edges of the panels will hold the entire system in place. If screws are needed over contours to create proper alignment it is O.K. to do so. Belt sand down any high teeth tips on contours.



The turf is left next to the panels to ensure same temperatures are achieved prior to affixing the turf to the panels.



Turf is assembled onto the panels and stretched and stapled around the perimeter only. Turf can always be loose laid for temporary installations



Direct sun with turf at 185 degrees no wrinkles.



Torrential rain storm no wrinkles turf 65 degrees.

**A**s most of our dealers know, Tour Links has spent much time and energy training dealers in the proper installation of our panel system. One of the most important steps we have emphasized is the proper gaps created between the panels in order to allow for expansion and contraction of the panels and turf when placed outdoors. As in all industries, technology changes through continued experimentation and the same is true for Tour Links. Many synthetic turf mills around the country are beginning to experiment with different backing materials in an effort to improve the product, as well as lower cost, which has resulted in some difficulties with exterior installations, which we will address.

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At Tour Links, we prefer installing turf that has a rubberized action back. We have found that this backing system, even though it has a tendency for shrinkage over time, when installed on our panel system with the proper techniques allows the turf to maintain a wrinkle free putting surface for many years. Thousands of installations worldwide have shown that rubberized action backed turf is a proven product that performs in all climate conditions. However, turfs that have backing systems that instead of shrinking, expand rapidly in the heat, are finding their way into the market place. In some situations, this is causing wrinkles in the putting turf during the heat of the day. Our goal has always been to ensure that any turf can be used with our panel system, when installed properly, and we have been working on some new techniques over the last several months in an effort to produce quality installations every time. They will be discussed a bit later.

The methodology that we have recommended to our dealers over the years was based on placing a certain gap size between the panels, depending upon the temperature of the panel. The rule has always been to leave a 1/16th inch gap when the panels are hot and to leave a 1/8th inch gap when the panels are cool. This was done in an effort to ensure that when the panels began to expand there would be enough space between them to prevent any buckling of the panels, as well as to help stabilize the overall size of the installation. This system has worked incredibly well and has allowed dealers to successfully install putting greens in virtually any climate condition, without failure. The reason being is that over time, the turf will contract due to the natural characteristics of the rubber and will expand slightly in the heat. By following the process of gapping, stretching and stapling we effectively create a situation where the turf is stretched onto the panels like a drum skin

and is moving in harmony with the panels during these natural expansion and contraction cycles, while limiting the overall size change of the green. This method works well, but we believe everything can be improved and we try it in our test labs first.

Recently, it came to our attention that a few dealers are finding wrinkles occurring on panel greens. We have found that some of the turf being produced today has a urethane coating or a hot melt material on the back which reacts completely opposite from a rubberized action backed turf. Instead of shrinking, this turf is expanding in the sun and, in some cases, quite dramatically (as much as one-inch or more over 20 feet). This is affecting the dealers who use this type of turf, especially if they make the error of installing a cold piece of turf over panels that are hot. Wrinkles could occur when the turf begins to expand and is locked onto the panels with staples around the perimeter. When it begins to cool and the turf returns back to its original position, the wrinkles disappear. Customers could have a green that wrinkles during the day and is perfectly flat during cloudy days or evening hours. Regardless of whether or not the turf is installed on panels, if the turf is locked to the ground and expands in the heat, it will wrinkle. Our job at Tour Links has been to gain an understanding of the properties of these turfs in order to develop installation methods that ensure perfect installations every time.

The results of our test have created installation techniques that are somewhat different from the practices we have used over the last several years. The following steps can be used for any type of turf currently on the market (including rubber backed, urethane backed or hot melt glue backed) when used on Tour Links panels for an exterior installation, regardless of geographic location or climate conditions.

Our test greens have shown that perhaps the most important part of proper installation is to be sure that the turf and the panels are both placed in the same temperature condition and environment. For example, if the panels are in the full sun during installation, it is imperative that the turf be laid out in the sun also. We recommend that every installer purchase an infrared thermometer that can be pointed at the surface and register temperature. This device is available in nearly any electronics gadget store, such as Granger, for about \$40. You will never get the temperature of the panels to equal that of the turf because the turf is always hotter, but you'll know that you're heading in the right direction. The panels and the turf, when placed in the same sun conditions, will result in both products being in harmony with each other. The same holds true if it is cold and cloudy outside. It is important that the turf

be installed at the same cool temperature as the panels. The rule of thumb is to unroll your turf and place it in the same location as the panels in an effort to create temperatures that are somewhat equal to each other. It won't be perfect but at least you're applying warm turf onto warm panels or cool turf onto cool panels.

Prepare the ground under the panels in the same method that we have written about for years. Create a solid firm smooth terrain on which the panels can rest. If installing over a deck or concrete your work is already done. Install the panels so there are NO gaps between any of the panels. This is easily achieved by sliding the panels together and occasionally standing up and gently kicking the panels tight against each other. This does not require a lot of force but will drive all the panels together tight. As always, make sure the panels are not rocking under foot and, if they are, correct the issue now. When all the panels are installed, have one person stand on one end and you on the other. Kick all the panels row by row in both directions. The goal is to see minimum gaps between the panels. Some gaps may be larger over contours, but do the best you can. This process of leaving no gaps should be done regardless of whether the panels are hot or cold. We realize this is the exact opposite of what we have been teaching over the years, but we have found that this method works well with all turfs and will be explained in detail later.

We recommend that a limited number of screws be used during installation unless they are needed to draw down the panels over contours or some other area where the panels are not in perfect alignment. We are not saying screws are bad, but try to use them sparingly, as we have shown in the past. Because the putting turf or fringe is going to be stretched and stapled to the panels on the outer most edge it will not be necessary to put screws around the outer perimeter in this type of installation. If any of the cut panels have small pieces that need to be screwed to the larger panel, that's okay. The turf will guarantee the panels cannot move out of alignment due to the fact the turf is stapled to the edge of the panels. In essence, the turf is locking everything in place.

Do not hammer any spikes into the panels around the perimeter to lock the ring of panels in place on the ground. It is important that the entire system be able to move on its own. In the past we talked about spiking the panels down to prevent vandalism, etc. but doing this could cause future wrinkling of certain types of turfs by limiting movement of the panel system. We've not seen spikes in the ground cause an issue on a rubberized back turf, but it may on the new urethane backed

turf that tends to expand. We do not recommend anchoring the panels into the ground around the perimeter unless very large oversized holes are created in the panel to allow for free movement of the entire green system. It is our opinion that anchoring the panels into the ground is unnecessary in 99% of installations.

**Continue to install the turf using the same methods of stretching and stapling that we have always recommended, being careful not to overstretch the turf.** You will find that the rubberized action backed turf that we recommend stretches much more than a urethane backed turf. Don't overdo it. You are just trying to put slight tension on the turf to remove any wrinkles that may have occurred during shipping (like stretching a rubber band). If you don't have a carpet kicker you can hop across the turf, stretching as you go. Do not distort the turf, just add some tension to it. Staple the turf to the panels using a pneumatic staple gun and quarter inch wide by 1 inch long staples. As always, start to staple on one end, stretch to the opposite side and staple. Now move to the side and staple and then kick to the opposite side. You now have north, south, east and west attached to the panels. Now move from the center out and stretch to all the rest of the perimeter and staple. This is fast and holds the turf incredibly well. Be certain, however, that the pressure of the gun is not so high that the staples shoot through the back of the turf. Use just enough air pressure so that the staple is just above the panel height to prevent ripping the back. Do not staple the cups to the panels or staple turf around the panels. This will prohibit turf movement, which could result in wrinkles. Install your fringe around the putting turf by stapling the fringe next to the putting turf and then staple the fringe to the outside edge of the panels. Wrap the turf over the side of the panels and staple. This is the process for backyard installations where landscaping will come up to the panels. If installing one of our Designer Links greens with the Styrofoam tapered edge, stop the stapling at the edge of the panel and let the turf run down the foam.

What you have effectively done with this new technique is create a situation where the turf and the panels are working with each other in an effort to prevent wrinkling. I will try to explain.

When attaching a hot piece of turf onto hot panels both of the products are at their extreme dimensions. Because there is a slight stretch to the turf, when the rubber turfs begin to shrink and contract as the temperatures cool down, the panels will also cool down and contract. The panels will actually draw into each other because the turf is pulling the panels with it. You

will see in cold temperatures that there will be minimal gap between the panels even when they are cold. When the panels heat up and the turf heats up the panels will pull the turf with them, thereby keeping the turf tight and preventing wrinkles. In essence during the heating temperatures the panels will pull the turf with them and the turf, when contracting as it cools, will pull the panels with it. This will create a situation where there are minimal gaps between the panels at any time during the day. Our tests show that the expansion and contraction rate of the turf in relation to the current panels is very close, which is the reason the panels do not heave upwards. This system of installation will work incredibly well with rubberized action backed turf and will work with other turfs that tend to expand. One of the reasons I like this new method is that at no time during the day could a customer jump on the turf and potentially slide the panels together ultimately creating a wrinkle.

For example, if I had 20 feet of panels that were gapped with an eighth of an inch gap and the turf was attached to the panels, running on the turf and stopping quickly could force the turf to pull the panels into each other and, because the turf is anchored on the perimeter, this would mean that the turf would have no option but to pull in and wrinkle. By installing the new way we have just described, there is limited chance of the panels pushing together and creating a smaller footprint than the turf, and therefore should prevent wrinkles. With this technique we believe that we can ensure a proper installation both with turfs that expand in the sun and those that shrink over time. **By installing a hot expanded turf onto hot expanded panels with no gaps left between the panels this allows us to eliminate turf wrinkles during the heating or cooling cycles. Installing a cold turf on cold panels with no gaps also allows for no wrinkles during the heating process. Again use screws sparingly and only when needed for contour areas.**

When building a large Tour Links bump rail green, the same no panel gap technique should be used as described above. The only difference is there is a bump rail edge around the perimeter. The turf must be stapled around the perimeter edge near the bump rail so that it can create the same non wrinkle situation we just described. The turf is working with the panels and the panels are working with the turf.

We realize this technique is different than what Tour Links has recommended in the past. The methods we have been recommending have worked very well with a rubberized action back putting turf but, as stated earlier, the industry is changing and we must change with it. The techniques described above will ensure installations that customers should be happy with for

years to come. We recommend that you experiment with this technique, as we have been doing for the last several months, to make sure that you agree with our findings. Our data is showing that the installations are flat and wrinkle free during any phase of expansion and contraction.

For indoor installations, push the panels together and install the turf at the same temperatures as the panels. If you have to place the turf out in the sun to force it to relax and to remove any wrinkles due to shipping, bring the turf back inside and let it return to room temperature before installing on the panels. Again keep everything the same temperature.

### ***In summary:***

Prepare the ground properly

Install the panels with no gaps, regardless of temperature.

Do not use screws or spikes around the perimeter

Important to install the turfs at the same approximate temperature as the panels

Stretch and fasten the turf to the panels.

Do not staple the turf around the cups.



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