



## Professional Installation Manual

### Guide Introduction:

The installation of artificial turf can be very simple and can add years of beauty to your home or business, as well as, a return on your investment in almost all cases. You can bet you will enjoy this experience, from selecting the correct artificial turf material to the finishing touches, which allow for many years of hassle and water free lawn.

After years of contractor and customer feedback from installations nationwide, Artificial Turf Supply has gathered and organized this information in order to provide you the most detailed and comprehensive installation guide in the artificial turf industry! All turf installation instructions are broken down into four key areas:  
Project Planning, Ground

Preparation, Artificial Turf Installation and Artificial Turf Care.

The goal of the Turf by Design's Detailed Installation Guide is to address almost every issue experienced in the field and give you the latest installation and maintenance tips, as well as, techniques to help you save time and money.

### Turf by Design Disclosure:

This guide is for the individual or contractor who wish to self install their artificial turf project. Artificial Turf Supply makes no representations or warranties regarding the following installation information. This guide is a best effort to installing no-infill artificial turf and is not intended for some other specialized artificial turfs, not all results are guaranteed.

### Time Line:

You should typically allow 2-3 days for most projects less than 1500 sq. ft. Additionally, projects may be completed faster depending on the size of your project crew or your experience.

## ARTIFICIAL GRASS PLANNING & DESIGN

### Installation Temperature:

Artificial Grass should be installed at 50 degrees Fahrenheit and above.

### Project Tools:

Before installation you need to have the right tools for the artificial turf project. It is important to understand what each tool function is and how it works for your artificial turf installation. For most tools you can contact a tool rental company to rent the equipment, but most can be found and purchased or rented from your local home improvement

stores. In many cases power tools can be substituted with hand tools, they may help make the process easier and more efficient. Below is a listing of all the tools applicable to synthetic turf.

#### **List of Tools:**

Sod Cutter , Shovel, Hoe, Wheelbarrow, Measuring Tape, Spray Paint or Chalk Line, Landscape Rake, Plate Compactor or Vibratory, Hand Roller or Plate Tamp, Trowel, Carpet Cutting knives or Razor Knife, Trimming Shears, Roof Flashing Tape or other seaming solution, Carpet Kicker, Hammer, Nailer boards or 60 (D) "Pole-Barn" Nails.

#### **Design Size:**

In order to determine the best size and shape design for your project, you have to keep in mind that all the artificial turfs are 15 FEET WIDE and up to 100 ft long. Artificial turf can be seamed together to create larger widths. The idea is to have the fewest amounts of seams as possible. Multiply the areas width and length based on 15 foot width rolls. This is how much turf you will need for your area. Your turf order should always be 15 foot wide by your determined lineal (Length) feet. Please make sure you allow for extra turf for any trimming and seaming. Please make sure that you measure at least twice and review your measurement with an Artificial Turf Supply consultant. Additionally, the turf weighs about one half pound per square foot. To determine the weight of your artificial turf roll; divide the total square footage of each roll in half. For Example 750 sq ft divided in half is 375 Pounds. NOTE: Artificial Turf comes on a carpet roll.

#### **Bordering:**

For most borders you can use nailer board, bender boards or your imagination. Some contractors have folded the turf over onto itself but this is not recommended in most cases. Make sure to take note of the borders of where the turf will go and determine which curbing you will use and what edging techniques will be applied. If you are planning on installing any edging, curbing or borders, please install prior to cutting the turf in order to get a more precise measurement.

If there is existing curbing or edging make sure that you measure perfectly in between the inside area of each of the borders.

**TBD Hot Tip: Some edging or bordering options that will enhance the appearance of your synthetic grass application are to add a nice frame around the turf: Curbing, decorative rock, mulch and treks boards are several ideas that will work nicely.**

#### **Vegetation:**

If your installation is going around trees, bushes, or any utilities such as light poles and air conditioning units, you must mark around these areas in order to account for the turf edges. Typically you should allow a 6" radius area uncovered around the bases of any trees, bushes and structures.

**WARNING: Please check for any wells or electrical that may be located in project area.**

#### **Current Irrigation:**

Check your area for irrigation heads. Once identified, be sure to cap them off or have them removed.

### **Turf Direction:**

Because the artificial turf is directional, you must make note of the fibers directions (grain). Determine which direction you will roll out your turf and how the turf will be laid down and seamed. Most projects tend to face towards the viewers perspective. If possible, you must always apply the turf with the fibers of the turf against the slope of your application area. Once you have made your decision on what direction your turf will go make sure to always run the fibers in the same direction. If you do not lay the turf, with the fibers going the same direction, the seams of your project will stick out and be too obvious.

### **Artificial Turf Selection:**

Now that we have our tools, design, bordering, turf direction and structures in mind we can begin the process of selection which turf you will use for your project. Typically for a Residential and Commercial application, Turf by Design recommends a turf model that does require infill. Infill will increase durability and increase the life of your Synthetic grass lawn.

## **GROUND PREPERATION**

### **Measuring & Outline:**

Measure the width and length of each area by using irrigation flags or landscape stakes. Then use spray paint or chalk to mark your turf rolls. Note the direction you have decided to lay the turf when you did your planning.

### **Removing Topsoil:**

Utilizing a sod cutter, hoe or shovel to cut grass, sod or any other unwanted vegetation from your marked areas will make it easy to roll up and remove sod or any other topsoil that is currently in your project area. Also remove any large rocks or roots that are unwanted. The typical depth of a sod cutter is set at 2-3 inches. However, some colder regions of the country may need to excavate up to 4 inches due to the need for more base material to address cold weather ground expansion and contraction. Do not forget to leave a 6" radius around trees, bushes or any shrubs.

### **Rough Grading:**

With a landscape rake, rough grade your turf application areas. Then use a garden hose to lightly water the areas and then compact the area with a plate compactor or a heavy drum roller. Keep making passes over the project area until you have ensured that your compaction is acceptable. 80-90% compaction is recommended.

**Geotextiles.** Geotextiles are permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect, or drain. Typically made from polypropylene or polyester, Geotextile fabrics come in three basic forms: woven (looks like mail bag sacking), needle punched (looks like felt), or heat bonded (looks like ironed felt). If there is any water that comes to the surface or standing water, then use a Geotextile fabric to separate the sub-base from the softer soils.

**WARNING:** Make sure your area maintains at least a 1% grade to allow for proper drainage.

**Weed Killer:**

It is a good idea, once the ground is completely cleared, to apply a weed killer and a grass blocker spray to the area. You need to ensure that any vegetation will not grow under the turf area in the future. You may also use a weed barrier material by cutting it to size and use sod staples to hold it in place.

**Edging Installation:**

Once the area has been cleared and the weed killer is applied, it is time to install your selected edging.

**Base Type:**

The purpose of base material is simple; it is your drainage for the artificial turf system, while providing a solid ground to walk on. The base allows the turf to drain up to 12 inches of water per hour in most cases. The most current feedback we have from contractors nationwide is to use a 3/4" down to 1/4" crushed drain rock as your primary base and then to use the fines (Smaller Parts) as a top coat that can help with drainage and the way the turf may feel under the feet. These rocks can be found at your local rock yards and may have several different names. You want to avoid using a rounded rock, like some pea gravels, as they will not compact well and are too rounded. Some common names for the base rock material are Crushed Stone, Breeze Rock, Chat, Decomposed Granite (DG), crusher fine gravel, Class 2 Aggregate or Class 2 Road base.

**TBD Hot Tip:** Home owners and Pet Facilities have experienced faster and better drainage of dog urine in order to reduce odor with a 3/4" rock.

**Base Depth:**

Although sub-base heights may vary from project to project, the standard recommended base is 4" below finish grade for outdoor projects. However, because of different weather from region to region, we recommend that for arid climates the sub-base may be as low as two (2") inches and the sub-base for climates with high water tables or rainfall may have a base up to six (6") inches. Additionally, in colder climates the ground will often expand and contract with freezing ground, it will be important to have a minimum of a 4" base for these applications.

### **Base Application:**

Now that you know what base you are using and the depth is established, you can place your order for your sub-base rock based on the following formula; 1 TON (2,000 LBS) of rock base per 100 Square Feet of artificial turf will give you a 2" sub-base. Spread the sub-base material around the area and then even the sub-base using the back of a bow rake or similar yard tool.

### **Grading:**

Using a sod roller or plate compactor type tool, you will tightly compact the sub-base up to 90%. The goal is to have the sub-base as smooth as possible, yet solid when walked upon. Do not accept a base that is compacted less than 80%. In order to achieve this compaction you may have to wet the area, without too much saturation, re-compact several times until level and at the recommended grade of 1%. This should allow water runoff the proper drainage. Basically, you can contour the areas to meet your drainage requirements. For those areas with depressions, simply add a small amount of screening or stone dust material until compacted level. However you must not use a compactor for these areas with screenings but must compact it with a roller. All bumps and holes should be eliminated from your sub-base, best as you can, because the undulation on the surface will be visible once the turf is applied.

This whole process will allow you to get the exact finish level of the artificial turf. You may have to repeat the process a few times, so please allow sub-base to dry then check for any inconsistencies and make adjustments to the areas with fines or screenings. Repeat until satisfied, however, the base does not have to be absolutely perfect to have a successful installation. The final base should be 1 1/2" below the top of your border. Use the smooth side of a trowel to compact any subbase build up around any corners or edges.

**WARNING: To avoid creating ridges in the sub-base, avoid making sharp turns with the plate compactor. Additionally, try not to walk on the surface once you have it leveled and prepared, if so you are advised to walk flat-footed. Additionally, make sure that all heavy machinery does not drive over the newly prepared sub-base.**

## **ARTIFICIAL TURF INSTALLATION**

### **Turf Preparation:**

Roll the turf out over a clean flat surface or the prepared base, but make sure not to drag it across the sub-base. Additionally, if you have a seam or another roll of turf, you want to make sure that the fiber blades of artificial turf are going the same direction you had in your planning design so the two pieces match up. It is important to let the artificial turf sit out in the sun for a couple of hours. This allows the fibers to begin to stand upright and relax from being rolled up and will also allow any wrinkles to settle in the backing. Once relaxed, lay your turf accordingly and for areas that will have seams, cut off the un-tufted (selvedge) edge of one roll and lay it to the base in your intended direction then lay your next artificial turf roll adjacent to first one and overlap one edge of the adjacent roll on top of the first artificial roll with the trimmed edge.

**TBD Hot Tip:** Your turf roll(s) are coming on a 4" wide cardboard carpet roll 15 feet long and wrapped in protective heavy duty plastic. The weight of your turf is half a pound per square foot. (SQ FT of turf roll divided by 2 = Weight).

**WARNING:** Although the turf is delivered to the shipping address, make sure that you have enough working crew to help the delivery driver get your turf roll(s) off of the delivery truck.

#### **Turf Cutting:**

Whether it is a winding path or an existing new or old border, the artificial turf can be custom cut to fit your yard. You will need a carpet cutting knife or a razor knife. Most contractors mark the back of the turf with a marker pen where they decide they are going to cut. Once this is accomplished you can roll the turf back and custom cut the turf with your carpet knife. With the area's that are overlapping, trim the overlapped roll to match the first roll that you trimmed. Your cuts should leave the two pieces as close as possible without actually touching. Then you can trim the turf to match your edges around the borders.

**WARNING:** Be careful and DO NOT Cut through any of the artificial turf that may be underneath the part you are cutting

#### **TBD Hot Tip:**

**Turf by Design is aware that there are several third party seaming solution products available on the market. Our tested and proven product is STA-1000 is a two component thixotropic polyurethane based adhesive specifically designed for Synthetic Turf. Our product is available in 5 gallon and 1 gallon units.**

#### **Turf Seaming:**

For those artificial grass projects requiring seams, this is probably the most critical part of the installation process in order to make your artificial turf product look realistic. It is always a good idea to practice the seaming process before you seam your project area. Make sure that you take your time when seaming your project. Remember to trim the untufted edge off one of your rolls. By now your base should be completed and your turf rolled out onto the base. Now mark the areas where your seam will be with chalk a chalk line. Place the seam tape down on chalk lines where you will have your seams. Nail in two of the 60 D nails at the end of the seam tape to hold it in place. Next you will prepare the turf by cutting both edges of the rolls to be seamed. Mix the two component product and trawl out onto the seam tape (or use a gluebox for longer seams) about 3.5 inches wide. 1 gallon will seam 25-35 feet for landscape applications.

**TBD Hot Tip:** Using six (6") long 60 D Galvanized Nails Other acceptable options are landscape spikes, sod staples and timber spikes. If you cannot locate nails in your area please contact an TURFBYDESIGN representative.

There are a few other seaming solutions available in the market place, such as seaming tape that requires tar or glue. These methods can also be use in the following way: Roll out seam tape the whole length of the seam. Apply tar or adhesive. Apply edges of each turf roll edges, lying in same direction. Add weight down the length of the seam or use a heavy roller. The drying time for adhesives will vary.

**WARNING: Some adhesives for tape require time for vapors to release**

## Artificial Turf Installation Using the STA-1000 Method

**This process should be simple, but any other questions or concerns should be addressed by your Turf by Design specialist.**

This section contains instructions and pictorals for installing artificial turf with our revolutionary STA-1000 synthetic turf adhesive. Our system utilizes a custom two-component glue for optimal durability and versatility.



**Installation Step One**

This picture shows the two components that make up our proprietary STA-1000 synthetic turf adhesive. One unit of STA-1000 contains a 5-gallon bucket of part A and a 1-gallon jug of Part B. The two componenets will be combined to create the strongest turf bonding agent on the market.



**Installation Step Two**

Pour the entire contents of the 1-gallon container of Part B into the 5-gallon bucket of Part A. There is room in the bucket to hold the contents of both Part A and Part B, as well as additional room for mixing without spillage.

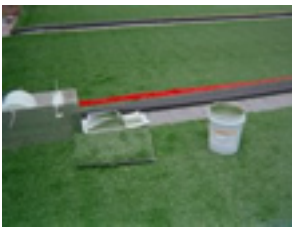


### **Installation Step Three**

Thoroughly mix the two components for approximately 3 minutes. Make sure that it is thoroughly mixed! STA-1000 is the strongest synthetic turf adhesive on the market when mixed correctly. This is the most critical part of the gluing process. The ready-to-use adhesive should have an even consistency, like that of pancake batter.

### **Installation Step Four**

This picture shows a typical setup for mixing our proprietary turf adhesive. Use a 1/2" drill with a 5-gallon mixing chuck as shown. A smaller drill will not have the required torque to get the job done.



### **Installation Step Five**

Here is a picture of a 5-gallon bucket of STA-1000 ready to be used with our Sports Turf Direct glue box. These glue boxes are custom-produced by a local machine shop, exclusively for us.



### **Installation Step Six**

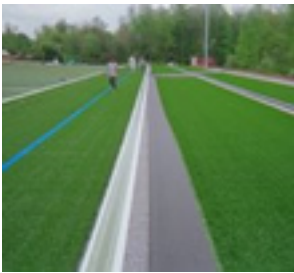
This image illustrates how our glue box works. One worker pours the STA-1000 into the glue box, while a second worker holds the box so that it does not slide forward. A third person (not pictured) pulls the adhesive-coated seaming tape along the length of the seam.





**Installation Step Seven**

This is another view of our gluing operation. Note the 3" thick bead of artificial turf adhesive running down the center of the tape. Installation companies typically make the mistake of putting a thin amount of glue across the entire width of the seaming tape. Synthetic turf seams that are on flat surfaces are not under a tensional load and do not need adhesive 5" into the carpet; they need the adhesive on the critical area, which is the seam itself.



**Installation Step Eight**

This is a picture of our artificial turf seaming technique. It is only necessary to fold back one piece of carpet. Be sure to fold over the side where the fibers of the turf lay into the seam. Consequently, the side that the fibers are pulling away from the seam should be left on the base.



**Installation Step Nine**

Slide the seaming tape under the side of carpet that is laying down. Set the seam so that the seaming tape and turf adhesive are centered on the seam. Glue bead should be thick enough to mushroom up and over the 1st 1/4" of the topside of your artificial turf. This will not trap fibers but it will create a moisture barrier for your seam.



**Installation Step Ten**

This is a picture of the seaming tape being centered under the first panel of artificial turf. Note that the fibers are pulling out of the seam on the piece of turf that is installed.



#### **Installation Step Eleven**

Now you are ready to flip the second panel over and place it into the artificial turf adhesive. Depending on temperature and humidity, STA-1000 should start curing in 15-30 minutes. Keep your eye on the seam, and once the adhesive has the consistency of bubble gum, you will want to roll the seam. STA-1000 will be completely cured in about 45 minutes – unless the installation is being done in cold weather, which will make it take a little longer.

#### **Perimeter:**

Secure the perimeter with your 6" inch galvanized nails every 6-10 inches around the edges is one option, but there are a few other options as well.

For securing turf in areas that are curved, typically you would excavate a really narrow trench around the perimeter so that you can then bury the edges of the artificial grass and then you could backfill it with base material, decorative rock, and mulch, straw or other.

Another option for high traffic areas is to use a 2" x 6" piece Trex decking. Bury it into the edge area and using heavy duty staples, staple the artificial turf every 4"-6" inches to the wood.

You can use Nailer Board when you are installing next to asphalt or concrete. Simply use concrete nails to secure the Nailer Board and then the artificial grass can be nailed to the Nailer Board using a nail.

#### **Finishing Touches:**

Using a leaf blower, broom or plastic rake you can quickly clean up the area and this also helps agitate the blades of artificial grass helping the stand up better.

**Infill Optional:**

Although this manual is intended for Infill Artificial Turfs, (crumb rubber particle or ½ to 1 Lb. of crumb rubber mixed with a minimum of 2 pounds of sand) to those areas that you may consider high traffic areas or fall zones for play structures.

**TBD Hot Tip:** (1-2 Pounds per sq ft) in order to help weigh the turf down as well as help keep the turf from matting down from high traffic areas. After turf material installation is complete and glue/seams are set, make sure the sand/rubber you buy is dry and that your turf is dry when applying the sand/rubber

Brush or comb the turf with your desired tool such as a push broom, backside of rake or carpet comb.

Apply the infill **EVENLY EVERYWHERE** one layer at a time using either a drop spreader or a broadcasting spreader. Take your time, pay attention to how much area you are covering with one or two bags of sand. You should walk at a **CONSISTENT** speed and adjust speed depending on how fast the sand is falling out of your spreader.

For hard to reach or small areas such as corners or against walls where a spreader cannot reach, you can hand spread these areas. Brush or comb again, repeat these two steps until you are out of sand/rubber bags or have reached your desired level of infill.

In the event of any uneven areas of infill that the broom or comb cannot fix easily, use a leaf blower about 3 inches from this area and the infill will quickly disperse. Feel free to level out any other areas especially corners and walls with the blower also. Once you are happy with your infill and brushing, generously hose the entire project area down evenly. Consider this the last self leveling step. You will be able to manipulate the infill once its dry again, which may take a few days.

**WARNING: DO NOT INFILL** while the infill material or artificial turf is wet; wait for dry ideal conditions. This is so the infill will **NOT** clump up on you while trying to complete the project.

**TBD Hot Tip:** The types of infill that can be used independently or as a mixture are Crumb Rubber, Silica Sand, Play Sand, Coated Sand, Silicon Dioxide Beads, or a mixture of any of the above sand products and Crumb Rubber.

**WARNING: DO NOT INFILL** your turf with sand if your application is for your dog(s) as the sand can hold the urine and create a dog urine odor in your application.

## ARTIFICIAL TURF CARE

### **Turf Care:**

Although, artificial grass is virtually maintenance free, you will need to care for your lawn in the following ways to help maximize the life span of your artificial lawn:

Typically, you will use a push broom if you do not have a rake or blower to care for your artificial turf. You should blow off or rake your grass once per month to maximize its look, (OR AS NEEDED) but this is not required for all projects. Once every 3 months the artificial grass should be brushed with a push broom against the grain to help eliminate any debris and dust as well as stabilize the fibers.

Water can be used to spray and clean up after any spills. You may also try a mild detergent, especially with pets. Additionally, in areas where the temperature is over 100 degrees, water should be used to cool off the grass for children if the grass gets too hot. However, the shade areas of the turf will be always be cool enough for play.