



Artificial Turf Supply 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 ATS 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.

ATS Disclosure:

This guide is for the individuals or contractors who wish to 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 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: (See Photo Appendix, Figure 1: Tools)

Sod Cutter , Shovel, Hoe, Wheelbarrow, Measuring Tape, Spray Paint or Chalk Line, Landscape Rake, Broom, Fertilizer Spreader, Plate Compactor or Vibratory, Hand Roller or Plate Tamp, Trowel, Carpet Cutting Knives or Razor Knife, Trimming Shears, Roof Flashing, Seam Tape or other seaming solution, Glue, Carpet Kicker, Hammer, Staples, 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 specialist. 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 in a roll on a carpet core.

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.

ATS 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 bender boards are several ideas that will work nicely.

Vegetation: (See Photo Appendix, Figure 2: 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 viewer's 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, Artificial Turf Supply recommends a turf model from 40 ounces to 90 ounces per square yard of face weight. These artificial grasses are extremely durable; dual thatched and will make for an easy installation. Infill is always recommended to enhance the appearance, reduce surface temperature, allow the artificial turf blades to stand up, emulate the feeling of soil, handle light to heavy traffic, add extra cushioning for an impact zone, prevent mold and mildew, and increase the overall wear of your artificial turf system.

GROUND PREPERATION

Measuring & Outline: (See Photo Appendix, Figure 3: 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: (See Photo Appendix, Figure 4: 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 1-2 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: (See Photo Appendix, Figure 5: Rough Grading)

With a landscape rake, rough grade your turf application area. Then use a garden hose to lightly water the area 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. 95% compaction is recommended.

ATS Hot Tip: If your area has a high clay concentrate or is too moist and wet, then spread a small layer of crushed stone over the area before you do your compacting or use



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: (See Photo Appendix, Figure 6: 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.

ATS 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 3" 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: (See Photo Appendix, Figure 7: Grading)

Using a sod roller or plate compactor type tool, you will tightly compact the sub-base up to 95%. 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 85%. 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 1.5" below the top of your border. Use the smooth side of a trowel to compact any sub-base 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: (See Photo Appendix, Figure 8: 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 (2-3 tuft rows) of each roll and lay them onto the base in your intended direction, then lay your next artificial turf roll adjacent to the first one leaving 1/16-1/8 inch gap between rolls. DO NOT overlap the rolls.



ATS 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: (See Photo Appendix, Figure 9: 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: DO NOT cut through any of the artificial turf that may be underneath the part you are cutting.

ATS Hot Tip: Artificial Turf Supply can supply seaming solution products for your project. Please contact an Artificial Turf Supply representative. The Adhesive is a single part, moisture curing, polyurethane adhesive designed specifically for bonding various substrates to the backing of synthetic turf. Substrates include: SEAM FABRIC, ROAD BASE, DECOMPOSED GRANITE, CONCRETE, ASPHALT, WOOD, RUBBER TILES and FOAM PADDING.

Turf Seaming: (See Photo Appendix, Figure 10: 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 project 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 at least one tuft row off of both rolls you're seaming together.

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 a chalk line. Next, you will prepare the turf by cutting both edges of the rolls to be seamed. Using your cutting tool (Seam Row Knife, Carpet Knife or Razor Knife) you want to cut as close to the second tuft row as possible (2-3 tuft rows is okay). This eliminates waste and should give you the proper edges for seaming. Fold back the edges of each turf roll and place the 12 inch seaming tape down (dull side up) on the chalk lines where you will have your seams.

ATS Hot Tip: It is important to be accurate when cutting both edges of the turf. The goal is to create the same distance between the tuft rows in the seaming area as in the manufactured area.



Seaming application area should be clean and free of oil and debris. Apply Adhesive to seam tape or surface via trowel, spray rig, glue box, or by simply pouring over the surface area. A light mist or spray of water over the adhesive will accelerate cure time (only a light mist is needed as too much water will cause foaming therefore weakening the bond).

Allow 3-5 minutes wait time for adhesive to absorb surface and atmospheric moisture, then lay down the turf edges. Wait 10-15 minutes then firmly press seam area ensuring contact between both surfaces (weighted roller may be used for field applications).

WARNING: Do not pull on turf as it is bonding as you will re-start the bonding process. Allow seams to cure with atmospheric and surface moisture.

After 25-35 minutes of cure time, press or roll seam area again ensuring contact between both surfaces. Adhesive will be hard enough to begin any brooming after 2-3 hours and be completely cured after 24 hours.

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

Perimeter: (See Photo Appendix, Figure 11: Perimeter)

Secure the perimeter with your galvanized sod staples or 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 4" x 4" piece of pressure treated wood and bury it into the edge area and using heavy duty staples, staple the artificial turf every 6"-8" 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.

ATS Hot Tip: Using six (6") Galvanized Sod Staples or six (6") long 60 D Galvanized Nails, preferably with a ribbed or spiral shank. Other acceptable options are landscape spikes, sod staples and timber spikes. Artificial Turf Supply can supply you with staples or nails for your project, please contact an Artificial Turf Supply representative.

Infill:

"Infill" is either an acrylic coated, green colored sand with antimicrobial properties or black crumb rubber particles. Either infill product is put in between the blades of the artificial grass products to deliver a complete solution allowing the blades to stand up, improve durability in traffic zones, and emulate the look and feel of natural grass. Infill is recommended in all artificial turf products to enhance usability and durability at the following rates: In a lighter weighted turf (under 60 ounces of face weight) 3 pounds of



infill per square foot of artificial turf. In a heavier weighted turf (over 60 ounces of face weight) 2 pounds per square foot of artificial turf.

ATS Hot Tip: Artificial Turf Supply recommends using Envirofill infill. This acrylic coated, green colored sand with antimicrobial properties is the best product for artificial turf and will help control pet odors, mold and bacteria growth, as well as, keep the artificial turf project 25% cooler. Please contact an Artificial Turf Supply representative to order Envirofill for your project today.

After the artificial turf material installation is completed and glue/seams are set, make sure the infill is dry and that your artificial turf is dry when applying the infill. Brush or comb the artificial turf with your desired tool such as a power broom, push broom, backside of rake or carpet comb.

ATS Hot Tip: Artificial Turf Supply recommends using a power broom. The STIHL MM55-C-E Yard Boss for brushing and maintenance of your artificial turf. The unit comes as a roto-tiller (great tool for small removal) with 4 tines. You will need the 24" bristle brush attachment and wheel kit for use with artificial turf. Click product link to buy: <http://www.stihlusa.com/products/multi-task-tools/yard-boss/mm55ce/>

Apply the infill EVENLY EVERYWHERE one layer at a time using either a drop spreader or a broadcasting spreader to achieve recommended infill usage rate. Take your time, pay attention to how much area you are covering with one or two bags of infill. You should walk at a CONSISTENT speed and adjust speed depending on how fast the infill 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. Power broom, brush or comb again, repeating these two steps until you are out of infill or have reached your desired/recommended level of infill.

In the event there are any uneven areas of infill that the power broom, brush 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.

Finishing Touches:

Using a power broom, leaf blower, push 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.



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 or your artificial lawn:

Typically, you will use a power broom, push broom, rake or blower to care for your artificial turf. You should brush, blow off or rake your grass to remove fallen leaves, branches and other organic debris at least once per month to maximize its look, 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.

It's important to pick up solid pet waste on a regular basis to keep your artificial turf looking great. Following pickup, rinse the turf area with water to help flush and further clean out the system. Weekly rinsing/flushing will help keep your turf area smelling fresh and odor free. Envirofill is also recommended for pet areas to help keep your turf fresh.

Water can be used to spray and clean up after any spills. You may also try a mild detergent or vinegar mixed with water to help clean some of the tougher areas. Remember, the faster you are able to clean up a mess, the better, 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.

PHOTO APPENDIX

Figure 1: Tools



Sod Cutter



Spade



Wheelbarrow



Straight Line



Mason Line



Landscape Rake



Compactor



Tamper



Carpet Cutter



Carpet Cutter



Seam Tape



Adhesive



Carpet Kicker



Carpet Kicker



Hammer



Nails



Nails



Staples



Push Broom



Weed Blocker

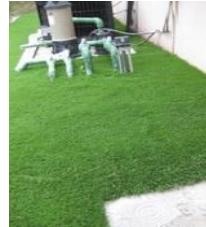
Figure 2: Vegetation



Around Tree



Utilities



Utilities

Figure 3: Measuring & Outline



Measuring



Turf Direction



Turf Direction

Figure 4: Removing Topsoil



Sod Cutter Removal



Removal

Figure 5: Rough Grading



Rough Grading



Rough Grading



Rough Grading

Figure 6: Base Type



$\frac{3}{4}$ " to $\frac{1}{4}$ " Primary Base
Drain Rock



$\frac{3}{4}$ " to $\frac{1}{4}$ " Primary Base
Drain Rock



$\frac{3}{4}$ " to $\frac{1}{4}$ " Primary
Base Drain Rock



Crusher Fine



Crusher Fine



Crusher Fine



$\frac{3}{4}$ " Drain Rock

Figure 7: Grading



Grading



Grading



Grading

Figure 8: Turf Preparation



Turf Direction



Turf Direction



Selvedge Edge

Figure 9: Turf Cutting



Turf Cutting



Turf Cutting Around



Carpet Knife

Figure 10: Turf Seaming



Seaming



Seaming



Seaming



Seam



Selvedge Edge



Seam Tape

Figure 11: Perimeter



Perimeter



Perimeter