

TURFACE

Sports Field Maintenance

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Introduction

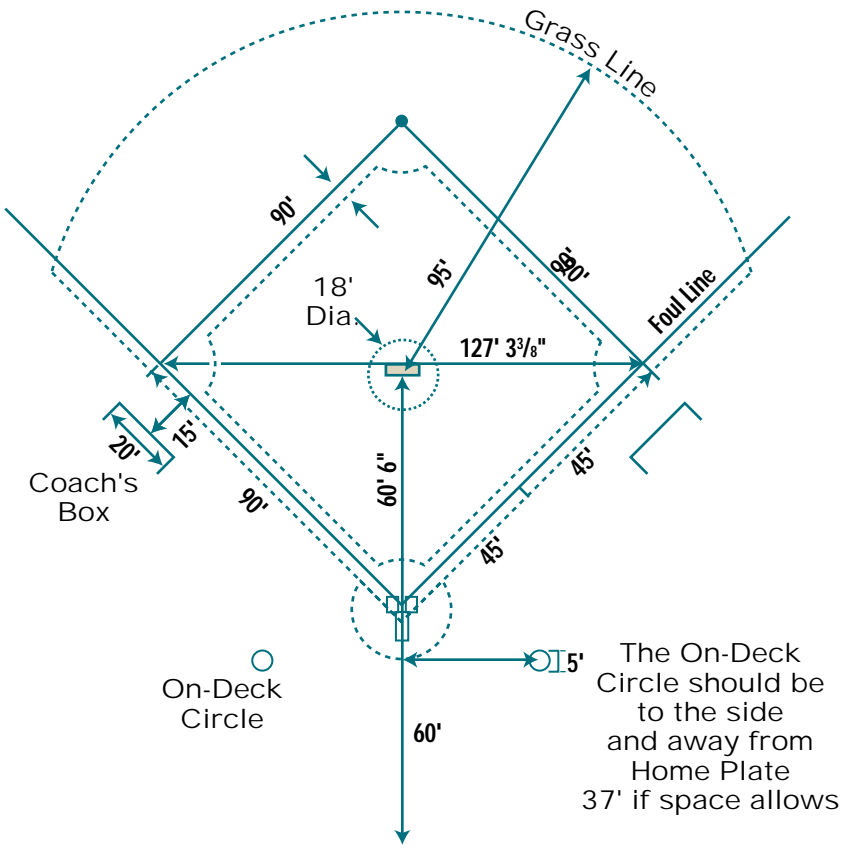
As coaches and groundskeepers, safety for athletes, young and old, must be of the highest priority. This video/guide provides you with easy and affordable steps to accomplish this mission.

Discussion covers reconstruction and renovation methods, as well as daily maintenance practices. Many problems are addressed in each of these areas and are given simple solutions. The only way to recognize these problems is to walk your field everyday. By walking the field on a daily basis, problems can be spotted before they put athletes in danger or jeopardize the quality of play.

So, it is important to get to know the playing field. It is essential to have dedication and patience. But, most of all, knowledge of proper field maintenance must be obtained to make all your efforts worthwhile. This video/guide will share that knowledge.

Give athletes the chance to perform at their highest level by providing them with a first-class playing field. It's time to get started - Good Luck!

Sports Field Preparation and Renovation



1. Reconstructing the Pitcher's Mound

The pitcher's mound requires the most attention on your field. A properly built and maintained mound will help prevent injuries to your pitcher and will give you a home field advantage.

The mound for high school through major league is a circle that is eighteen feet in diameter and ten inches higher than home plate.

The pitcher's mound is constructed using packing clay on the front half of the mound and infield clay on the back portion. There is no reason to buy a commercial packing clay. Get unfired clay from a brickyard. Moisten the clay down in a wheelbarrow to a damp, soft consistency. Keep covered with a wet towel when not in use.

The following steps will help you to reconstruct the pitcher's mound. Daily maintenance is found on [page 28](#).

Recommended Equipment and Materials:

<i>Square-Faced Shovel or Spade</i>	<i>Pick</i>
<i>Tamp</i>	<i>Two-Foot Carpenter's Level</i>
<i>Ten-Foot 2"x4"</i>	<i>Four-Foot 2"x4"</i>
<i>Frame for Plateau Reconstruction</i>	<i>Wheelbarrow</i>
<i>100-Foot Tape Measure</i>	<i>Large Nail or Spike</i>
<i>Landscape Rake</i>	<i>Damp Packing Clay</i>
<i>Four-Sided Rubber</i>	<i>Carpenter's Square</i>

Step 1: Obtain proper distance, alignment and height

The front of the pitcher's rubber should measure 60 feet 6 inches from the apex ([See diagram on Page 12](#)) of home plate and the top of the rubber must be 10 inches higher than home plate.

1. The pitcher's rubber is 24 inches long. Take a pencil and mark a line down the center.
2. Take a string from the apex ([see page 12](#)) of home plate and extend it to the second base peg.
3. Measure 60 feet 6 inches from the tip of home plate and sink a spike. This marks the front of the rubber.
4. Take a transit level and obtain a reading off home plate. The top of the pitching rubber must be 10" above home plate. Build or reduce height of the mound. [Page 7](#) reviews how to build the plateau on top and how to grade the mound.
5. Square the rubber into position by taking a measuring tape and measure from the front left corner of home plate to the front left corner of the pitcher's rubber. Do the same on the right side. When these two measurements are the same distance, the rubber will be squared. Make sure that the rubber measures 12 inches on each side of the anchored spike.

HINT: If building a mound from scratch, it is a good idea to place a solid concrete block under the rubber to keep it from shifting.

Step 2: Replace or Turn Rubber (See Video)

If your measurements are set and you are replacing the rubber, follow these simple steps:

1. With a pick, dig out the front of the pitching rubber while leaving the rear and sides intact.
2. Rake away material and remove from the pitcher's mound.
3. After front is completely exposed, pry the rubber out of the mound with a pick.

HINT: Follow these steps in a slow controlled manner so as not to break down the rear and side walls supporting the rubber. These walls are important because they clearly mark where the new rubber should be placed and they provide immediate support for the new rubber.

4. Level the surface of the foundation in which the new rubber will be placed.
5. Spread a small amount of damp packing clay in the foundation.
6. Place new rubber into existing foundation.
7. With a carpenter's level, level the rubber from side to side, as well as front to back.
8. Carefully refill the front wall of the rubber with damp packing clay.
9. Add packing clay to the sides and rear to replace lost materials.
10. Lightly tamp the new material to compact the clay to hold the new rubber in place.

Step 3: The Collar of the Pitcher's Mound

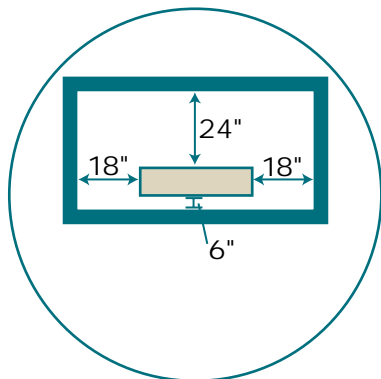
Once your pitching rubber is in place, it is important to establish a good outline of the pitcher's mound. The following steps will provide proper dimensions and an easy way to get your 9 foot radius. The diagram on page 4 provides clear dimensions of the pitcher's mound:

1. Measure out exactly 18 inches from the front of the pitcher's rubber and drive a spike. This should be in line with the exact center of the rubber. This is the center of the mound. 2. Attach a string to the spike and measure out exactly 9 feet from the spike.
3. Keeping the string taut, circle the mound marking the outline. The diameter of the outline should be exactly 18 feet.
4. With an edger or a spade, follow the outline and eliminate turf to establish a permanent boundary for the mound. This prevents clay from washing into the turf.

Step 4: Build the Pitcher's Plateau

The pitcher's mound is not supposed to be built up like a peak, but rather it should slope up to a firm and level plateau. This provides a pitcher with a firm, safe playing surface. The plateau should be level with the top of the rubber and measure 5 feet x 3 feet.

1. Place the plateau frame (The plateau frame is made with 2" x 6" boards and the inside measurements are 5' x 3') on the pitcher's mound as the following diagram illustrates:



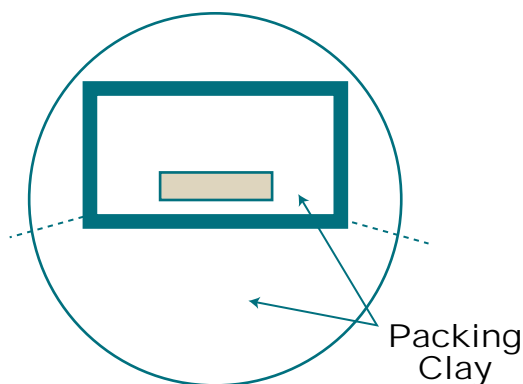
2. Assure exact measurements. The inside frame should be positioned 6 inches in front of the rubber, 24 inches in the back of the rubber and 18 inches on each side of the rubber.
3. Trace the inside frame of the box in the clay with a nail.
4. Carefully remove the frame from the mound.
5. With a pick, loosen existing soil within the outline and break up clumps with a square-faced shovel. This will allow existing materials to bond with the new packing clay. With the same square-faced shovel or a spade, make sure the edges of the outline are properly loosened as well.
6. Return frame and re-measure for accuracy.
7. Once frame is in place, add packing clay to entire loosened area inside the frame.
8. Level material so as to avoid inconsistency.
9. Having one person hold the frame in place with the weight of his/her foot, lightly tamp materials until firm. It is important to be extremely careful tamping the front of the plateau because the tamp is on top of the pitching rubber. By tamping too carelessly, you disturb the rubber.
10. Once new material is completely tamped and firmed, slowly remove the plateau frame. It is important to go slow to avoid breaking edges.

Step 5: Constructing the Slope (See Video)

Because of the risk of injury, it is important to give a pitcher a firm consistent landing area on which to complete a pitch. It is also important for moves to any of the bases.

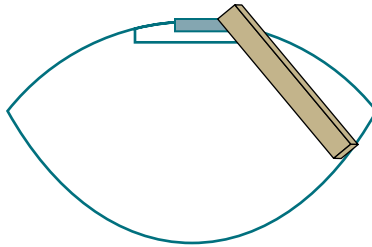
If the pitcher's mound is at its proper height, the slope from the edge of the plateau to the edge of the mound should drop one inch for every one foot of measurement (refer to the diagram on page 4). This slope can be accomplished as follows:

1. Use a large nail or spike to outline the landing area. This should start from the front corners of the plateau and continue outward to the turf as follows:



2. With a pick loosen existing clay so that new packing clay will be able to bond to it.
3. Break up clumps with a square-faced shovel or remove with a rake.
4. Place the four foot 2" x 4" on top of the rubber and extend it to the right edge of the plateau. The board should run parallel to the rubber making sure the four inch side of the board is resting on the surface.
5. Place the ten foot 2" x 4" along the right outline of the landing area. The top of the board should rest on the four foot 2" x 4" and the bottom on the board should rest at the base of the mound at

the edge of the turf. Be sure that the board is turned on its side so its two inch side is supported by the mound. The following will illustrate:



6. Bring a wheelbarrow of packing clay and dump it to the left of the ten foot 2"x4".
7. Spread materials along the length of the board. Move any substantial excess away from the board because it will cause too much buildup, making the board too heavy to move. Another person will be needed at this point. One person will be required to handle the top of the ten foot board near the pitcher's rubber, while another person will need to handle the bottom of the board at the base of the mound.
8. In a slow, controlled motion, begin moving the board in a short sawing motion, sliding the board up and down over the four foot board. It is important to keep the ten foot board on the four foot board to avoid damaging the edges of the plateau.
9. Continue the short sawing motion as you slowly move the board in a clockwise motion to the other side of the outlined landing area. As you are moving the board you may experience some low spots in the surface. Stop, move the board to the right of the low spot. Bring packing clay to the board in front of the low spot. Begin sawing motion again and continue forward. Once the entire landing area has been conditioned through this process, lightly tamp the same area for added firmness.

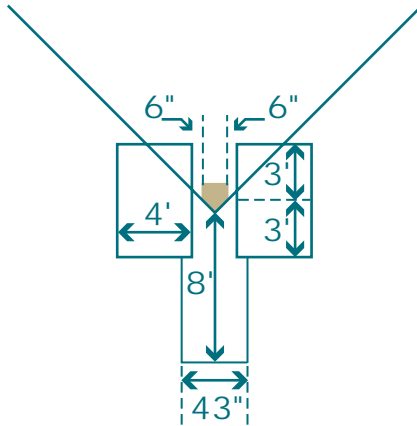
10. To condition the remainder of the mound, follow the above steps and continue around the mound to completion. It is not necessary to use packing clay for the remainder of the mound. Clay from your infield mix will be adequate.

Step 6: Condition the Pitcher's Mound

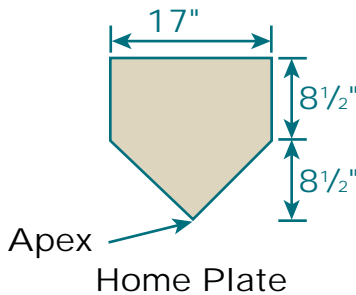
1. Once the entire mound has been rebuilt, spread one or two bags of TURFACE Regular to lightly cover the mound. This can be done with a landscape rake. The TURFACE helps keep the pitcher's mound moist with out being slippery.
2. Lightly moisten the mound.
3. Roll the mound with a hand roller, if available.
4. Cover the mound with tarp. The tarp is essential to prevent your mound from drying out and from washing into turf.

HINT: Your bullpen mounds should be cared for in the same manner as the field mound. Otherwise, the pitcher's timing and safety are affected.

II. Home Plate Replacement and Reconstruction



Catcher's Box
and Batter's Box



Home Plate

The home plate area experiences very high traffic. An improperly maintained home plate area results in bad ball hops and injuries. Because of the abuse caused by such high traffic, this area must be properly prepared. If home plate is worn, now may be the best time to replace it.

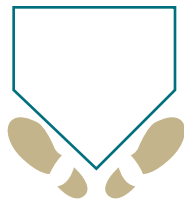
The home plate area is a circle with a 26 foot diameter. The base paths, batter's box and catcher's box should be completely level with home plate. Packing clay should be used in the batter's box and catcher's box.

Recommended Equipment and Materials:

<i>Square-Faced Shovel or Spade Pick</i>	<i>Pick</i>
<i>Tamp</i>	<i>Two-Foot Carpenter's level</i>
<i>Packing Clay</i>	<i>Home Plate</i>

The following steps are similar to those in replacing the Pitching Rubber.

1. To start, take a long nail and place it in the ground at the apex of home plate. This will act as a reference guide when dropping the new plate into the existing foundation.
2. With a pick, dig out in front of the plate, exposing The entire front base of the plate.
3. Dig out one side of the plate in a similar manner.
4. A person should support the back edges by standing with their feet apart at the point of home plate (See Diagram below), slowly and carefully pry out the plate from the front. This should leave three supporting walls in tact. Remove feet so you don't collapse walls.



5. Once the plate is removed, eliminate any excess material in or surrounding the hole.
6. Take some packing clay and spread and level it in the base of the foundation.

7. Place new home plate into existing foundation.
8. For proper accuracy, use a carpenters level and a tamp to level the plate from front to back and side to side.
9. Once the plate is leveled, fill all voids surrounding the plate with prepared packing clay. 10. Lightly tamp the new material so it will firm up and bond with the existing soil.
11. Make sure the batter's box and the catcher's box are built up to where they are perfectly level with the top of the plate. If home plate is elevated, even by the slightest amount, it can be a safety hazard. Leveling can be accomplished by adding clay, smoothing with the ten foot 2"x4" placed on top of home plate and then lightly tamping.

HINT: Many times a home plate is anchored with a cement anchor or a wooden base. This provides added security from home plate movement and makes replacement easier. Consult a base company for ways to accomplish this.

III. Foul Lines

Now that the home plate has been properly installed, foul lines can be marked. Work slowly and precisely, crisp foul lines not only add to the quality of play, but they add aesthetic appeal to the field, as well.

Recommended Equipment:

*400 Feet of String
Reel-type Hand Mower*

*Large Nail or Spike
Marker and Chalk*

Step 1: First Base

1. Run a string from well behind home plate, going along the right back edge, to beyond first base, going along the outside edge. Anchor each end of the string, pulling tight.
2. The foul line can be laid with chalk or paint. Lay the chalk on the inside edge of the string.

HINT: Chalk and paint will build up over time, making base paths soft. Remove old material as needed.

3. Run the line from first base to the foul pole and repeat Step #2.

Step 2: Third Base

Same steps, now move the string to the left back edge of home plate and third base.

HINT: The 1st and 3rd base paths should be 5 feet to 6 feet wide equally divided by the foul line. These edges should be well cut. This width allows for easier maintenance using roller and drag mat.

IV. Conditioning the Skinned Areas

Most infields have compaction and/or drainage problems. Conditioning infields helps to alleviate these problems. Major League teams make conditioners a mandatory equipment purchase because they make the field safer, improve play and make the field easier to maintain.

The skinned area of an infield is generally made up of a mixture of sand and clay. Two of the most popular mixes are 1) 70% sand, 30% clay amended with 25% TURFACE Sports Field Conditioner and 2) 80% sand, 20% clay amended with 20% TURFACE Sports Field Conditioner.

The following steps will eliminate hard, compacted surfaces. Such surfaces are unsafe for athletes, are subject to bad ball hops and add time to maintenance each week. The following steps will also make the field more playable. Rainouts will be minimized, allowing games and practices to stay on schedule. Also, dusting and blow-off will be reduced. This helps protect the turf areas, as well as reducing the repurchasing of infield mix.

Recommended Equipment:

<i>TURFACE Regular</i>	<i>Tractor</i>
<i>1 - Ton Roller or Hand Roller</i>	<i>Rototiller</i>
<i>Water Access</i>	<i>Nail Drag</i>
<i>Mat Drag</i>	<i>CUSHMAN Cart or Equivalent</i>
<i>Landscape Rake</i>	<i>Broom</i>

TURFACE

TURFACE is a calcined clay sports field conditioner used by more than 3 out of 4 Major League stadiums. For over twenty-five years, TURFACE has been mining clay from the Northern Mississippi region, sizing the material and then slowly baking it at 1500° F. The clay in this region has unique properties in absorption and when baked at such high temperatures, a very porous, stable aggregate is

created. TURFACE will absorb its weight in water and slowly release that moisture. The angular shape mixes with the infield to prevent compaction and will keep the surface firm, yet soft. TURFACE will last the life of a field if properly maintained, working over and over. There are two methods of incorporation:

Method 1: Full TURFACE Renovation

1. Evaluate infield mix. If the mix has a high sand content (over 80%), 8 to 10 tons of TURFACE Regular will be adequate for renovation. If the mix has a high clay content, 15-tons will be necessary to complete the renovation. It is rare that you will have to remove infield mix before adding TURFACE.

HINT: If your field is hard, moisten so that it will be easier to rototill.

2. After deciding how much TURFACE will be needed for the renovation, spread the TURFACE bags evenly throughout the skinned area. Depending on the amount of TURFACE used, it is recommended to align the bags 42 - 60 inches apart in both directions.
3. Once TURFACE bags are properly positioned, open bags and dump material.
4. Remove TURFACE bags from the field.
5. With a blade, mat drag or landscape rakes, level all of the TURFACE piles. It is important to go very slowly during this process. By being slow and controlled while leveling the infield, the TURFACE will be spread much more evenly and consistently. This will, in turn, provide a more consistent infield mix.
6. Moisten the entire skinned area. Do not soak. It is only important to get the material damp. The moisture helps the TURFACE when blending with the soil.
7. With a rototiller, blend the TURFACE with the existing infield mix to a depth of 3 to 4 inches. It is important not to blend the material deeper than the recommended 3 to 4 inches because this will lessen the benefits of TURFACE.

If a rototiller isn't available, use a disc. It is possible that you will need to work the field twice to get a good mix. 8. Drag the field with a mat drag to break up any clumping and complete the blending. Level with best means available.

9. Water the field again, as above. Moisten the entire blended area. Do not soak. This moisture will help settle the loose materials and prepare the field to be rolled. Too much moisture will cause the clay to stick to the roller. Let the field dry down if this happens.
10. Roll the infield with a 1-ton roller or a hand roller. This helps to speed up the settling process, allowing the field to firm up more quickly. Again, this should be done slowly. Don't worry about compaction, the TURFACE will keep this from happening.
11. Slowly drag the infield twice with a mat drag. This will loosen the surface to a desired consistency and level any visible low spots. It is essential to drag the field slowly and in control.
12. Lastly, with a broom or a rake, sweep all excess infield materials that washed out into the edges of the turf back onto the infield surface. This will prevent any lips or grading inconsistencies from being created.

When completed, the TURFACE should be on the surface as well as mixed evenly throughout the top 3 to 4 inches.

Method 2: Top Dressing and Nail Drag Installation

If your field already has TURFACE, if you have a loose field mix, or if your budget limits quantity, use a nail drag to incorporate the TURFACE into the top inch of the field. Nail drags are covered on [page 37](#).

Remember to moisten the field first. Evenly apply the TURFACE and work into the field with a nail drag. Allocate more TURFACE to your problem areas. Add TURFACE each year, slowly building the infield as your budget permits.

V. “Lip” or Build-Up Removal

As mentioned previously, the edges of turf must be maintained by eliminating all infield materials that have either blown or been pushed into the grass. If these materials are neglected, a hazardous lip can form over time. Because such a hazard is a risk to an athlete’s safety, a “lip” must be eliminated.

Recommended Equipment:

*Sod Cutter
Garden Rake*

Topdressing (TURFACE, Native Soil, Seed)

1. Use a sod cutter to remove all turf covering this raised area. Make sure to save and protect this freshly cut sod because it will be placed back in its original location.
2. After turf has been removed, eliminate all built-up materials until this area is on an even plane with the infield and the outfield surfaces.
3. Once leveled, return sod to its original location.
4. Topdress any damaged areas or exposed soil. Level the topdressing with a garden rake.
5. Lightly water daily until the grasstakes to the soil. Once turf has taken to the soil, water less frequently but with increased volume. This process provide will strong turf quickly in this repaired area.

Build-Up Prevention at the Pitcher’s Mound

1. Create a channel at the edge of the pitcher’s mound with an edger or a spade. This channel should be made around the circumference of the mound. Once made, this channel should be maintained on a regular basis.
2. If possible, cover the pitcher’s mound. A tarp for the mound would eliminate this problem completely. Covering the mound will protect the turf from run-off and will keep the mound moist and firm regardless of the climate.

VI. Turf Maintenance

Healthy turf is essential in providing athletes with a safe playing surface. Because of the various climates and types of grasses throughout the country, it is difficult to present a specific turf maintenance program for every coach and groundskeeper. A local University extension agent should be contacted for specific needs. At a minimum, make sure you have your soil tested to understand its requirements.

The following procedures are to help establish and maintain healthy turf and safe playing conditions for the upcoming seasons. It takes hard work, dedication and constant attention to weather and field conditions. Such efforts are demanding, but by doing so, athletes are provided with the safest, most playable turf surface.

Recommended Equipment:

<i>Reel-Type Mower (if available)</i>	<i>Rotary Spreader</i>
<i>Stir Seeder (if available)</i>	<i>Native Soil or Topdressing</i>
<i>Fertilizer</i>	<i>Hopper-Type Topdresser</i>
<i>Core Aerator</i>	<i>TURFACE</i>
<i>Grass Seed</i>	<i>Fungicides and Herbicides</i>

Spring

Depending on your region, March is usually the best time to start turf maintenance.

Step 1: Aerification

Soil compaction is one of the most common causes of weak turf on athletic fields. It is caused by soil particles being squeezed together by high traffic. Compaction reduces the rate of movement of air and water through the soil. This prevents grass roots from functioning normally, so they become shallow and eventually die. The result is weak turf with little density and is more subject to injury. Aerification on a regular basis will help combat such problems.

1. Once field is dry enough, core aerify in two directions diagonally, creating an X pattern.
2. Allow the plugs to dry about half a day, but do not remove. On days with high heat, the cores can dry out within a few hours. So, pay close attention. It is recommended to avoid aerifying on days over 80 degrees. This is because of the intense evaporation when so many “plugs” are pulled from the ground. If it is unavoidable, irrigate immediately after these steps are completed.
3. Because broken up cores or “plugs” are excellent topdressing materials and help control thatch, cores are not removed from the field. Break up cores with the use of a vertical mower or a mat drag.

Step 2: Topdressing

Aerification is followed by topdressing. One purpose of topdressing is to smooth the surface just as they do on golf greens. There are many schools of thought on which topdressing to use. At a minimum, topdress with sand. Many professionals topdress with a mixture of TURFACE and sand or just straight TURFACE. The benefits of topdressing with a material such as TURFACE is that it leaves channels in the filled aerification holes, permitting an excellent exchange of water and air at the root level. This promotes a deep, healthy root structure which is necessary to handle the day to day abuse of athletic turf. TURFACE also helps prevent future compaction. Finally, TURFACE holds moisture and nutrients at the root level.

Topdress turf areas with TURFACE at a minimum rate of 6 tons per grassed acre. This should be accomplished by the use of a hopper-type topdresser, or a properly calibrated rotary spreader. If a large hopper-type topdresser is out of the budget, one can often be borrowed from a local golf course, or one could be rented. This is true for almost all the large equipment mentioned here.

Topdressing application rates for sand vary from region to region depending on turf type, etc. It is recommended to contact a local extension agent for specific quantity and timing.

Step 3: Seeding

After the topdressing is applied, seeding should follow. Don't skimp on grass seed, make sure it is certified. Your local extension agent will recommend the best blends for your area. In most regions, excluding warm climate regions, Bluegrass is the base grass for athletic fields. In warm regions, Bermuda grasses are more predominant. When seeding in any region, it is wise not to use just one grass.

For example, it works well to blend Rye grass with Bluegrass. Not only is Rye quick to germinate, but by being added to Bluegrass, it reduces the risk of a disease eliminating an entire field of turf. If a disease infests the Bluegrass, the Rye grass is still able to flourish

Application rates vary, but in general spread seed mix at a rate of 5 to 6 pounds per 1000 square feet. This should be done with a slit seeder. This machine can also be borrowed or rented. If this machine is unobtainable, an aerifier and a properly calibrated rotary spreader can be used. It is essential to replenish the turf with proper seeding. In heavy traffic areas, an extra 1 to 2 pounds per 1000 square feet can be added to promote thicker grass growth in a shorter amount of time.

It is important to realize that seed will not germinate if the soil temperature is less than 55 degrees.

Step 4: Dragging

Now that the field has been aerated, the cores have been broken up, a topdressing application has been completed and seeding has been done, these materials must be blended and forced into the aerification holes for maximum benefits. This is best accomplished by dragging the field.

Slowly drag the entire field with a man drag. Again, this forces the materials into the aerification holes and the turf.

Step 5: Fungicide Application

If budget permits, a fungicide should be applied. This will act as insurance for the seed that has just been laid. Contact a local extension agent for the fungicide is best to use in your particular region.

Step 6: Fertilization

After the above process has been completed, it is necessary to fertilize. As previously mentioned, you should have your soil tested to determine proper types and amounts of fertilizer.

There are three major components to fertilizer. The amount of each component varies by region, season, etc.

Nitrogen - For color and growth

Phosphorus - For root growth

Potassium - To make plants hardier

In this case, a starter fertilizer is recommended to get the seed to start growing faster. Typically, one bag covers 1/4 acre, so apply accordingly.

Step 7: Irrigation

Irrigation must immediately follow. To water, wet the entire field, but do not soak the field to where puddling may occur. New seed must be kept moist without puddling. If puddling occurs, the seed will form rings and cause inconsistent growth. It is only important to keep the soil damp, but this must be done daily.

Once seeds germinate and establish turf, it is best to soak the field when watering, but irrigate much less often.

Step 8: Spot Seeding

Spot seeding is important after the germination of the seed.

After 1 to 1 1/2 weeks, the seed should be germinating. It is essential to spot seed any areas where there is thin growth caused by inconsistent watering patterns or thunderstorms.

1. Lightly rake any area with thin growth to loosen the soil.
2. Spread seed to areas of thin growth.
3. Lightly topdress with a mixture of TURFACE and native soil.

Remember to continue the same irrigation pattern of frequent, light waterings until there is established turf covering the field.

Step 9: Mowing

Once the turf has grown to 2 to 3 inches, it is time to mow. No more than 1/3 of the grass blades should be removed by mowing. The recommended maintained height of the Bluegrass type athletic turf is 2 to 2-1/2 inches. while Bermuda type grasses is 1 to 1-1/4 inches. This will allow the turf to ward off insects and disease. It will also require less water and maintenance. In most cases, the outfield and infield grass can be kept at the same height.

1. It is important to sharpen the mower blades as often as possible, optimally once per week. This cannot be overlooked. Poorly sharpened mower blades can be extremely damaging to the turf, causing the grass to be ripped instead of being sheered. The jagged edges of ripped turf attract disease and insects.
2. Another important mowing factor is the direction of the cut. At every mowing, the cutting pattern should be alternated. This allows for consistent mowing height for all grass blades and prevents the mower from creating ruts in the turf. It is also aesthetically pleasing. See [page 35](#) for different patterns that should be followed.

3. It is also important never to mow when the field is wet. This causes compaction of the field, which is damaging to the plant. If it is unavoidable to mow your field when it is wet, it is essential that the field is aerified once it dries.

HINT: Always keep your players off wet turf if it is possible.

Step 10: Strengthening Turf

After 6 to 8 week of growth, it is important to feed the plant again with a fertilizer that is high in Potash. The Potash will feed the turf Potassium. This will help turf withstand drought, heat and heavy traffic. The result will be stronger and more rigid turf.

Follow these steps:

1. Aerification:
 - a. Aerify in two directions. This will open up the turf.
 - b. Allow the cores to dry for half a day. Be aware of the heat. Remember, the cores can dry out in only a few hours of high heat.
 - c. Break the cores up with a vertical mower or a drag mat.
2. Topdress entire area.
3. Slowly drag the entire field with a mat drag. Again, this will force materials into the aerification holes and turf.
4. Feed the turf with a fertilizer high in Potash. This will continue to help strengthen the new turf. Consult a local extension agent for recommendations.
5. Spot seed in some of the weaker areas. This can be done with a rotary spreader.

Step 11: Herbicide Application

Now is a good time to give your turf an application of herbicide. A herbicide treatment will prevent weeds from being a problem in your turf areas. Contact a local extension agent for recommendations.

Step 12: Irrigation

At this point the irrigation pattern should be long, infrequent waterings. Frequent watering that does not soak the soil causes roots to stay near the surface, making them weak.

Summer

June/July

During the months of June and July it is important to just water and mow the turf consistently. Remember to pay attention to the weather.

August

It is now time to prepare the turf for the most strenuous part of the year. Football, Soccer and many other sports are starting at this time. Therefore, it is important to “beef up” the turf with an aerification and a fertilization.

Step 1: Aerification

On the 1st of August it is necessary to aerify your field again in preparation for fertilization. Being so far into the Summer, be alert to high heat. Break up cores with a vertical mower or a mat drag.

Step 2: Fertilization

Fertilize with a fertilizer high in Potash (An example is 164-20). Cut down on the Phosphorous at this point. Contact a local extension agent for a recommendation.

Step 3: Topdressing

1. If budget permits, now is the time to do another topdressing with TURFACE. If the entire turf areas cannot be done, at least topdress the high traffic areas.
2. Drag the field with a drag mat to force materials into the aeration holes.

Step 4: Fungicide and Insecticide Application

At this time of the year, turf is most vulnerable to fungus and insects. It is important to look for signs of fungus and react as quickly as possible.

1. Apply a fungicide to protect your turf from any fungus.
2. As a preventative step, an insecticide should be applied to ward off unwelcome insects that can greatly damage the turf.

Fall

Step 1: Aeration

Now that practices and games have started, aeration and fertilization becomes essential.

Throughout the season, it is best to aerify every 2-3 weeks. This will help fight compaction caused by the tremendous traffic the field receives at this time.

Step 2: Fertilization

By the second or third week in September, your field is ready for another application of fertilizer that is high in Potash (or Potassium).

Fertilize turf in conjunction with one of your frequent aerifications. This will help keep the turf strong under constant abuse.

Daily Maintenance Practices

The following steps outline a daily maintenance routine that, if followed, will provide the safest, most playable sports field for athletes. Also, this short daily routine will keep fields manageable and will eliminate the struggles of field maintenance. A little dedication is all it takes to significantly improve the condition of a problem sports field.

Maintenance should be performed immediately following field use, leaving it in good condition for the next day. Your field should be in the same shape for practice as for games. Inconsistencies can lead to errors and you lose the home field advantage.

A key to success is getting others involved in maintaining the field. As the old saying goes, “Many hands do light work.” Assign each player certain responsibilities that he/she must accomplish everyday. Give parents incentives to participate in the field’s maintenance. Be creative. The more people involved, the more work will get done to the field. So, let’s get to it!

I. Walk the Field

This is the single most important step in a daily maintenance routine when it comes to the safety of athletes. Because of this, it is essential for a field manager to be aware of such hazards and minimize the risk of injury to his/her players.

Slowly walk the entire field before every practice or game. In doing so, look for the following hazards:

- Large stones in the skinned areas and base paths
- Sprinkler heads that have not retracted
- Burrows or other holes in the turf
- Damaged fencing
- Lose Base anchors
- Etc.

Another hazard that is, unfortunately, becoming more prominent is vandalism. It cannot be ignored that some hazards are intentionally created to cause harm. Such hazards are usually the most difficult to locate, so be alert! Keep young athletes safe.

II. Skinned Area Maintenance

These simple steps will keep an infield playing surface safe, playable and manageable

Recommended Equipment:

Mat Drag

Broom

Hose with Water Access

Nail Drag

Landscape Rake

TURFACE

Step 1: Water the Infield

Water is important to the skinned areas. Water will keep the infield moist, providing many benefits. You don't want your clay mix to dry and breakdown. The moisture keeps the field soft and will also prevent wind erosion. A moist infield is more playable and easier to maintain. TURFACE incorporated into an infield will help keep it at the correct moisture level. Be sure to simulate a rain shower as you water the field, holding the nozzle high in the air.

HINT: Water in the morning, depending on weather, before games, provide enough time for partial dry down. Nail drag and mat drag before games when field is damp.

Step 2: Drag

An infield should be dragged daily. This process will keep the skinned playing surface loose, level and consistent. There is no "one" way to drag an infield, but there are key rules to follow.

1. It is important to drag the field slowly. Dragging the field quickly can cause loss of materials as well as an uneven surface. To begin, slowly drag around the perimeter of the skinned area before starting the dragging pattern. It is important to leave at least a 6" buffer between the drag and the edge of the turf while dragging. This will prevent materials from building up in the turf edges. With a rake, scarify the 6" area missed by a drag.

2. Alternate starting and stopping points every day. Otherwise, you will create low areas on your field that leads to puddles. Spread the small pile of dirt that has accumulated on the drag evenly with rake.

Nail Dragging

If you don't have a nail drag, build one. This is the best kept secret of major league baseball and is very affordable to build (See Appendix 1). TURFACE in your infield makes nail dragging easier.

HINT: Moisten with water before nail dragging, field should be damp.

A nail drag should be used as often as possible, at least once a week. It keeps the top 1/4" to 1/2" loose and friable. Not only does it make the field safer by relieving compaction, but it makes it easier to maintain.

You shouldn't need to put weight on your nail drag unless you have bad compaction problems.

HINT: The nail drag is an ideal way to incorporate small amounts of TURFACE.

Mat Dragging

Mat dragging will smooth the playing surface. Following nail dragging and on a daily basis, mat drag your field with a rigid drag that has a leveling bar on the front.

Flexible drags have a habit of dipping into low areas and doing little to level the field. A rigid drag fills in the low spots and makes your field level.

A rigid drag is easy to make. Take your flexible drag and turn it side-ways. Notice that it can't be rolled in this direction. Take a 2"x4" and attach to the "new" front. Put eye bolts on each end of the 2"x4" and attach rope or chain. The 2"x4" will act as leveling bar.

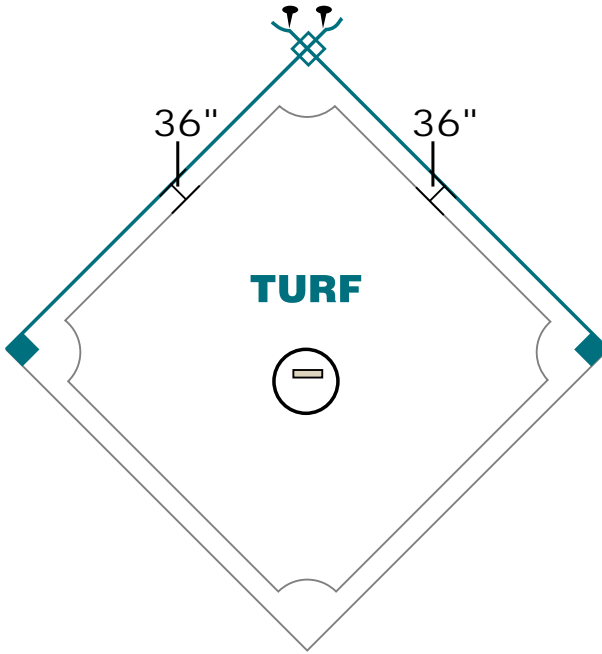
Step 3: Sweep Infield Edges

Sweeping the infield edges will prevent materials from building-up in the edges of the turf and causing a "lip" to form. To do this, take a broom or rake and sweep all loose materials lying in the turf back onto the skinned surface. Then remove any grass that is swept onto the infield with a rake. If more than one person does this task it should not take any longer than a few minutes. The efforts will be worthwhile.

Step 4: Edge the Infield Turf

Another important step in proper maintenance of the infield is edging. Not only is a good clean edge important in maintaining accurate base lines, but it makes your field look good. Edging can be done with string and a gas powered edger or a spade. Once this is done, maintenance is easy. Follow these steps:

1. Place pegs as shown in the diagram (p. 33).
2. Run a string between first and second base. The string should be on the outfield side of first base and run across the middle of second base.
3. Measure 36 inches from string toward the infield grass. Place pegs at each end of infield grass and move string over to these pegs. This line represents the edge of your infield grass.
4. Cut along edge.
5. Repeat same steps on the remaining base lines.



Step 5: Rake the Base Lines

To achieve the same benefits of dragging, use a landscape rake to scarify the base paths. This should be done lengthwise instead of side-to-side. Side-to-side raking will push loose materials into the turf. It is beneficial to spread three bags of TURFACE over each base path to prevent “slippery” conditions. The TURFACE should be raked in and not rototilled as in the infield. Keep base paths firm.

III. Pitcher's Mound and Batter's Box Maintenance

Recommended Equipment:

Packing Clay

Water Can (filled)

Pick

Landscape Rake

Tamp

Tarp

Broom

Mound Repair

Because of the abuse a pitcher's mound takes, it must be repaired everyday. This simple process should only take a few minutes at the end of the day.

1. Begin by sweeping dry, loose materials off worn areas and remove from the mound (don't sweep into the grass).
2. Loosen these worn areas with a pick in preparation to add new packing clay.
3. Now water the loosened areas lightly and add packing clay.
4. Tamp new materials until firm.
5. Once firm, lightly moisten these areas again.
6. Use your rake to pull dry material over wet material
7. Lightly rake, moisten mound and cover with your tarp.

Batter's Box and Catcher's Box Repair

The batter's box and the catcher's box are heavily worn areas. These areas must remain firm. To fix the holes, follow the same easy steps as those to repair the pitcher's mound. And remember, the entire batter's box must be firm and level when the repair is complete. Cover your box with tarp.

IV. Daily Turf Maintenance

There are a couple of key steps you can take to minimize turf damage:

1. Use fields as little as possible when wet.
2. Rotate play areas.
3. Allow turf to recover in Spring before start practicing.

The following guidelines should be followed as often as possible:

Step 1: Mowing

If possible, turf surfaces should be mowed everyday. If this is not possible, mow as often as capable, not allowing the grass to grow more than 1 inch above the desired length. There are a few guidelines to follow when mowing:

- Never cut more than 1/3 of the grass blade in one cutting.
- Always mow with sharp mower blades. A good guideline is to sharpen mower blades once per week.
- Alternate mowing patterns every time turf is mowed.
- Try to avoid mowing when soil is very wet. This can cause compaction and tire rutting.

There are five mowing patterns to use on your outfield and four on your infield:

Outfield:

1. Up and down parallel to the right field foul line.
2. Up and down parallel to the left field foul line.
3. From second base to center field, back and forth.
4. From foul pole to foul pole, back and forth.
5. Half circles, same contour as the skinned infield outer edge.

Infield:

1. Same as #1 above
2. Same as #2 above.
3. Home plate to second base, back and forth
4. Third base to first base, back and forth.

Step 2: Irrigation

Water is essential to healthy turf. For the strongest, most durable turf, it is important to know proper watering patterns. On established turf, it is best to heavily water the field every 5 to 7 days, rather than lightly watering everyday. This is because when soil is soaked deeply, the root level is usually dry within a day or two, but the deeper soil is still moist. Therefore for the next several days, turf roots must seek water deeper in the soil. Because this promotes a deeper root system, stronger turf is the result.

Remember to pay attention to weather. If there is high heat, more frequent waterings may be needed. If rain is in the forecast, less frequent waterings may be needed. Do not water on a time schedule!

Step 3: Spot Maintenance

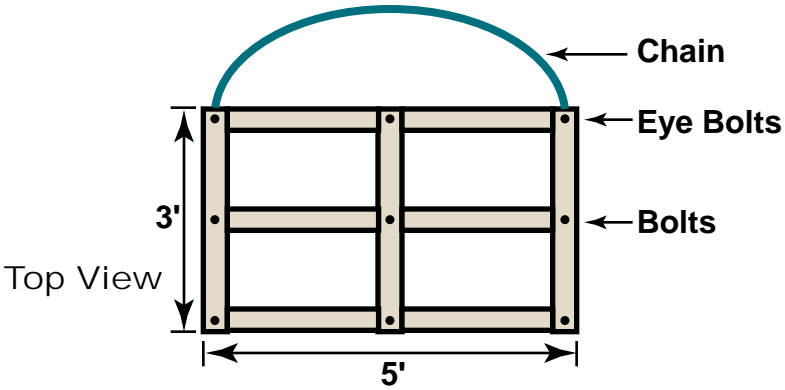
Take the time to repair and replace divots and damaged turf on a daily basis. Lightly topdress these damaged areas with a mixture of Native Soil, TURFACE and seed. Then lightly level the area with the back of a garden or landscape rake. It is very simple, not time consuming, and if done on a regular basis, it will insure a consistent, safe playing surface.

(See Turf Maintenance on page 20 for more details.)

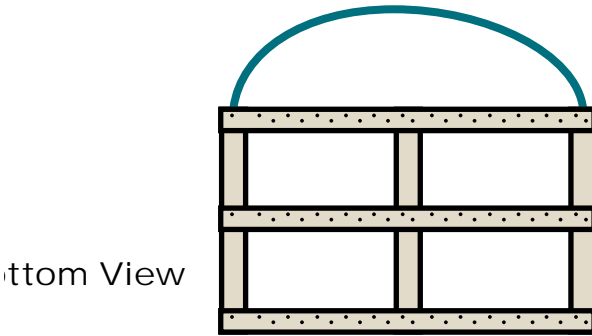
*If you have any questions, please contact TURFACE at
1-800-654-8793*

APPENDIX

I. Nail Drag



Made with 2" x 4"
Use 1" x 4" to cover 2" x 4" on top to hold in nails
Pre-drill straight holes for nails
Use 40 pennie nails



Stagger Nails 1-3/4" apart – 2 rows in each board

Special Thanks To:

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