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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section includes lecture notes of papers presented at the 1999 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily available source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section includes research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of this section is to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann B. Gould, Editor
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PITCHERS MOUND CONSTRUCTION

Dan Douglas[1]

A properly built and maintained pitchers mound will help prevent injuries to your pitchers and will give you a home field advantage. The equipment and materials you will need to build a mound include:

- square faced shovel
- hand tamp or vibrating tamp
- 200-foot tape
- landscape rake
- carpenters square
- ball of braided nylon cord
- two pick-foot carpenters level
- wheelbarrow
- large nail or spike
- four-sided rubber
- three iron stakes 3 feet long
- transit, builders level, or other means to measure elevation
- two or three tons of infield mix
- one ton of mound packing clay
- frame for plateau construction (optional)
- mound slope board (optional)

The first step in constructing a mound is to know the dimensions. It is assumed that the bases are in place and properly aligned. The mound for high school through the major leagues should be a circle that is 18 feet in diameter with a plateau 10 inches higher than home plate. The pitchers rubber should be 60 feet 6 inches from the back point (apex) of home plate to the front edge of the rubber. The top of the mound should be a 3 x 5 foot plateau, and the front slope of the mound should fall 1 inch for each foot. The center of the mound is a point 18 inches in front of the rubber and on a line stretched from home plate to second base which makes the center of the mound 59 feet from the plate. It is from this point that the 9 foot radius circle is marked to outline the mound.

Stretch a string from the apex of home plate to behind the center of the second base peg. It is imperative that the stakes anchoring the string are securely placed in the ground so that when the string is drawn tight they will not move. Measure 59 feet from the apex of home plate along the string and drive a spike. This locates the center of the mound.

Measure 60 feet 6 inches from the apex of home plate and drive a stake. This stake should be 12 to 15 inches in the ground and 15 to 20 inches above ground. It marks the front of the pitching rubber. Now, using a transit, builders level, or any other technique to determine elevation difference, put a mark on this stake that is 10 inches above the elevation of home plate. This mark will be the top of the pitchers rubber.

From the center point of the mound mark a 9 foot radius circle to outline the perimeter of the mound, and dig out the inside of the circle to a depth of 2 inches. Rake the bottom smooth, wet it, and add 2 inches of infield mix. Tamp firmly using the hand tamp or a vibrating tamp. This creates a firm base for the mound. You can now remove the spike that marked the center of the mound.

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Next, begin to build a dome in the center of the circle. Do this by adding infield mix in 2 to 3 inch layers, wetting and tamping each layer. When the dome reaches a point 6 inches below the top of the mound (the 10 inch mark on the stake), stop and level the surface in preparation for setting the rubber. Be sure the base is firm. It will keep the mound from settling when it is complete.

Using a square, mark the center point on the front and back edge of the rubber. Restretch the string from home plate to second base. Be sure it is tight. Place the rubber under the string and on top of the flat dome—it should be against the spike that marks the 60 foot 6 inch distance from home plate. Line up the two center marks on the rubber with the string. To be certain the rubber is square with the plate, measure from the left front corner of home plate to the left corner of the pitchers rubber. Do the same thing on the right side. When the two measure the same distance, the rubber will be square. Place a carpenters level on the rubber and adjust the rubber until it is level. Double check to be sure the rubber is centered on the string and the 60 foot 6 inch measurement is accurate.

The pitchers mound is not supposed to be shaped like a peak, but rather it should slope up to a firm 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 at least 3 x 5 feet. Place the plateau frame (the plateau frame is helpful but not essential—it is made with 2 x 6 inch boards and the inside measurements are 3 x 5 feet) on the pitchers mound. Position the frame by lining the center point on the front and back with the string that marks the center line from home plate to second base. Make sure that the front edge is 6 inches in front of the pitchers rubber and that the back edge is 24 inches in back of the rubber and 18 inches on each side of the rubber. Trace the inside of the frame with a nail. Carefully remove the frame from the mound. With a pick, loosen existing soil within the outline and break any clumps with a square faced shovel. This will allow existing material to bond to the mound packing clay that will be added to finish the top of the mound. Make sure the edges of the outline are loose.

Return the frame to the mound. Check to be certain it is level. With the frame in place, wet the surface and add 2 inches of mound packing clay. With one person holding the frame in place with his or her feet, lightly tamp the material until it is firm. Be careful not to move the pitchers rubber, and keep checking it for accuracy; if it needs to be moved, it is much easier to reposition it now than when the mound is complete. Wet the surface of the new clay, check that the frame is level, and add another 2 inch layer. Repeat the process until the plateau is about 1/2 inch below the level of the pitchers rubber. This 1/2 inch will be added as infield mix when the entire mound is completed. Next, pack the outside edges of the plateau with infield mix and slope them to the perimeter of the circle. Add in 2 inch layers, wetting and tamping as you go. Once the new material is completely tamped and firm, slowly remove the plateau frame. It is important to lift it slowly to avoid breaking the edges. If the frame is put together with screws, you may consider removing the screws and taking the frame apart so the sides of the plateau stay in place. The clay will tend to stick to the frame; if so, have someone hold it in place with their feet while another person lifts around the edges. Now, tamp the plateau firmly.

Because of the risk of injuries, it is important to give the pitcher a firm, consistent landing area on which to pitch. It is also important for moves to any of the bases. If the pitchers mound is at the proper height, the slope from the edge of the plateau to the front edge of the mound should drop 1 inch for every foot of measurement. This slope can be accomplished by the following steps.

With a large nail, outline the landing area. It should start from the front edge of the pitchers rubber and extend 6 feet toward home plate and be 5 feet wide at the bottom of the slope. Loosen and remove 4 to 6 inches of the soil inside of the marked area, being careful to keep the edges

as straight as possible. Loosen an inch of the old material in the bottom of the dug out area, moisten it, and add 1 inch of mound packing clay. Blend the old and the new material in the bottom with a square shovel. This will create a bonding layer between the two materials which helps to avoid separation. Tamp the surface, add water, another layer of mound packing clay, and repeat the process until the front slope is raised to the level of the sides. Be sure to pack each layer firmly and use a lot of water. Next, check the slope using a mound slope board if you have one. If you do not have a mound slope board, drive a stake in the front of the pitchers circle and measure 10 inches up the stake. A string or straight board placed from the 10 inch mark to the top of the pitchers rubber should be level. The front slope should fall one inch for each foot. At this point, if the mound is properly constructed very little adjusting should be needed. Make the necessary corrections.

The final step is to wet the mound surface, loosen the top lightly with a rake, and put a half inch of infield mix over the entire mound. Tamp or tire roll the entire mound one final time. Lightly rake the slopes smooth and add 50 pounds of calcined clay as a topdressing to help with moisture control.

The end result should be a firm safe mound from which each pitcher will have an opportunity to perform his best.