

# Five-Star Footing

## Building a Riding Ring with Robert Jolicoeur

BY KATE TULLY

**The perfect riding arena is one that you don't even have to think about. It is performing its function best when you don't even notice it. But all too often, after going through the trouble of installing a ring, people find that it hasn't been installed properly. "My ring is a mud-hole," "There are huge rocks along the track," "It's too deep," "The sand has all washed away" — these complaints can be avoided from the get-go if you build your arena properly from the foundation upwards.**

The riding ring, whether it is outdoors or indoors, is one of those things you just can't cut corners with. If you want arena footing that is safe for your horse's legs and will last for years to come, then develop a step-by-step process that addresses each level of the arena, from the sub-base to the top surface.



This ring is 2/3 sand and 1/3 grass with natural obstacles



As soon as the ring is completed, a good maintenance program should be put in place.



The size and traffic of a ring will determine its design. If possible, it should be in a sheltered location. The landscaping around it should address such things as the viewing, shade and windbreak needs of both riders and spectators.

### Before You Begin

When planning your new arena, the first order of business is answering the question: where will my ring be located? Placement of your ring determines a lot, and unlike footing, it can't be changed once you start to install it. Robert Jolicoeur, founder of International Equestrian Design and world-renowned course designer and

footing expert, has some advice on how to pick the location of your new ring. He suggests finding a flat, level area to start with. Any place with a significant slope will make the initial digging (or blasting) a real hassle. Also, Robert suggests you consider the surroundings carefully: is it an environment that you'll be comfortable riding in? If it's too close to the barn, or at a high elevation where you can see activity for miles around, your horse could get easily distracted by the surroundings. If you build your arena upwind of nearby buildings, expect to see a layer of dust and grit on those buildings in no time, as the dust kicked up in the ring will cling to any surface in the vicinity. But on the other hand, if your ring feels like it's miles away from civilization, this could upset your mount, and is potentially unsafe if you're riding out of sight of anyone else, should you or your horse get injured. Ideally, find a location that feels cozy but not claustrophobic. Shade from trees is desirable, especially in the sweltering summer, but the trees shouldn't hang too close to the ring. Keep the ring out of the path of runoff water. And try to avoid building near major roads and other loud distractions.

Robert Jolicoeur assures that "it's also important to consider the height of the fence and the size of the ring." The fence should be built at a height safe for riders. He recommends a fence about 3 feet high (although it depends on the size of horses and riders that will be using the ring), so that you don't run the risk of injuring your knees on a fence post while riding. The size and shape of your ring is largely determined by the disciplines you cater to. For dressage, a standard size ring is 20x60 meters, but for training, you might want a slightly larger arena to allow riding around that rectangle. For hunters and jumpers, a ring at least 130x270 feet should suffice. For sand arenas especially, it works well if the length is at least double the width. The horse should have enough length so that your horse can comfortably jump a line of fences without having to turn immediately afterwards. If your barn has riders of many disciplines, either plan for separate rings, or you can use dividers to make a small dressage ring within the larger hunter ring. If it is a grass field used for jumping, you want to

expand the dimensions even more, since horses can really open up their strides and gallop on a grass surface. A horse's stride is on average 12 feet long. In a sand ring, it may shorten to about 11 feet. On grass, and especially after jumping natural obstacles (like water jumps) and can stretch to more than 13 feet, says Robert.

There is a science to installing proper footing. The process, when done correctly, is very complex, and there are some terms you should know before starting out. Compaction is a term that refers to how tightly packed together the footing particles are. When you buy a substance in which the particles are all the same size, they lay in a way that leaves gaps between the particles, and therefore they do not compact tightly. Particles of different sizes compact more tightly, because the smaller grains fill the gaps that are left by the larger particles. For the base, you want to look for a substance that compacts firmly. A compacted base acts as a barrier, keeping rocks from pushing up into the top layer, and keeping the foundation (and hence the top layer) level and even. This layer needs to be firm but still acting like a cushion, and there are several ways to achieve the right consistency.

If you are getting footing advice from professionals, you will want to ask about how much compaction is best for your riding needs. Robert explains that "there are different designs for high and low traffic." Some footing materials will hold up better in high traffic than others. These factors all depend on what disciplines the ring will be used for. For instance, a horse practicing driving maneuvers requires a completely different mixture of footing than a horse cutting cattle.

### **Base Basics**

The sub-base and base, the lowest levels, are the most important and most often overlooked ingredients to building the perfect riding ring. The sub-base is usually the natural surface under the topsoil, such as stone dust or rock. If the materials that nature has provided aren't suitable as a foundation for an arena, then you may have to add other substances to even it out. In outdoor rings, the sub-base is leveled and given time to



A grader is highly recommended to properly level the different layers of footing.

settle before adding the base on top of it. For indoor rings, you can put the top surface directly on the sub-base, because indoors don't encounter the drainage problems that outdoors do. If your indoor has a rocky or uneven sub-base, you can use stone or clay to fill in the gaps.

Pay special attention to the base in your outdoor arena. Often when riders notice holes, rocks, and puddles in their ring, it is because the base is breaking apart. The point of the base is to provide a firm surface that protects the top layer from the elements underneath. The base has to be strong enough to stand up against lots of rainy and cold weather, and it must endure the wear and tear of hooves pounding down upon it. Otherwise, a base with poor drainage or a loose construction will cave in and ruin the top surface. The base you use depends on the climate in your area and the amount of riding that will be done on it. The more horses you'll have working in the ring, the more attention you'll need to pay in choosing a firm base. And if you live in a rainy climate like the Northeast, a substance like stone dust works well, because it drains well and doesn't break down easily. Don't rush this step of installation. Mother Nature will help the base compact, if you give it a little time before adding the top footing. The water from rain will help to set the base in a more firm position, and if any holes or puddles arise, you can fill them in before it becomes a problem.

### **Which Brand of Sand?**

Once your base has been set, it's on to the top surface. Sand is the most common and most reliable surface. But not all sands are created equally. Sand composition differs in different geographies, so you'll have to work with



The combination of a sand ring and a grass field with natural obstacles are excellent tools to get horses ready for major events. The sand ring should be visible from the barn for security

better to purchase sand from a quarry, where the ratio of finer and larger particles has been measured. Also, this kind of manufactured sand is more durable, less likely to break down into finer particles, and has sharper edges that make for better traction. If you get a higher quality and more durable top surface initially, then you won't have to replace it as often in the future. Some barns need to replace their top surface less than every five years, which can get costly and tedious. You don't want all of your sand granules to be the same size, but rather varying sizes. The small particles make the soil more compacted and less slippery or loose. Small sand particles, however, are more easily kicked up when a horse moves, and if you have too many small particles, they fit so tightly inside the gaps of the larger ones that the sand compacts and eventually becomes unrideable. So by finding the right proportion of finely grained particles (like clay and silt) and larger-grained sand, you will have a foundation that is firm enough for jumping and flat work. Robert suggests using a sand mixture that has 5% or more fine particles. Less than that, and the footing will be too loose and slippery. But each load of sand is different, and each arena has its own needs, so the ratio will be unique to each case. It is costly and tedious to experiment with these proportions, however, so leave it up to professionals to guide you in purchasing the right mixture of sand.

You'll run into the most painful expenses when looking for a company to deliver your footing materials. Robert recommends you shop around and check prices of different shipping companies

in your area. Usually, the farther the shipping distance, the more expensive it will be. So try to keep it local.

### **High-Tech Solutions**

If you're not happy with the consistency of your sand ring, there are ways to tinker with it using additives. Shredded materials such as rubber or synthetic fibers can help balance out your arena, if you find that the soil is too loose or too compacted. However, additives should be used sparingly, says Robert. "I try to create a surface without any additive. Additives don't make the ring." Additives will not "fix" poorly installed footing, but it can help improve less-than-perfect footing or inconsistent footing. Rubber, for instance, can help with a footing that has become too firm and compacted. Rubber has a lot of bounce to it, and for this reason it helps loosen up a compacted arena. But in outdoor rings that get a lot of rain, the rubber often moves to the top because it is a lighter material than wet sand, and this makes the proportions off. Indoor arenas and ones that don't get a lot of weather abuse are better suited to this kind of material. If you are considering using ground rubber as an additive, make sure it is rubber that it is free of metal or other harmful materials. Robert does not recommend using organic additives, because they break down into small particles quickly and create a lot of dust.

The weather is a major factor in planning your ring. Rain can do a lot of damage to an outdoor arena. By laying the footing at about a 1% slope, you can help reduce puddles from pooling in the ring. Robert warns that if you make the slope too dramatic, then the footing becomes more susceptible to erosion. If you are assembling the ring in a particularly wet area, you may need to create a simple drainage ditch around the perimeter of the ring.

### **Disciplinary Measures**

As mentioned before, different disciplines have different footing needs. Robert helps us distinguish which kinds of riding require which kinds of footing.

Many of the western disciplines benefit from a deeper top surface. Cutting and barrel racing are

hard on the horse's legs, and therefore the horse needs lots of cushioning. Robert recommends a thick layer of footing containing plenty of loam, making it versatile. The footing can be made looser or harder using water or rolling as needed. For reiners, he emphasizes the need for footing that is slippery enough to allow horses to slide.

On the other hand, hunters and jumpers require firmer footing. "The horse is more likely to get hurt if it's deep. The harder the footing is, the better their take-off is," says Robert. When a horse takes off, the propulsion needs to move the horse upwards over the fence, and in deep footing, that propulsion is absorbed by the ground instead. He notes that when hunter horses hang their knees too low when jumping a fence, it's a sign that the footing is not firm enough. Jumpers, when faced with deep footing, will trail their hind ends over wider jumps. Wide oxers are especially a problem when the footing is deep and loose. However, if the footing is too hard, it makes landing a jump painful. Robert believes that grass surfaces are the easiest to build for jumpers. "The grass has a more elastic feel, which is very good for older horses." Grass rings are also great because, in a large field or ring, the track doesn't get as worn down because everyone chooses a slightly different path and the jumps can be moved to places with less wear and tear. However, Robert recognizes that it's beneficial to have both a sand ring and a grass field to practice on, so that you are ready for anything that a show day might bring. He says, "Sand is good for gymnastics. Grass is good for the whole horse, especially to get them fit."

Dressage riders usually do best with a firmer footing. "If it's too deep, the horse is harder to get together. The rear end drags behind." He emphasizes that the ring needs to be consistent, because the horse needs to be able to make intricate movements at all parts of the ring and needs to be collected at all times. If the horse is losing his propulsion in deep corners, then the performance will be hindered.

In general, Robert reminds us that "building a ring has to be well thought-out and well supervised." Repairing a poorly done ring is just as painstaking as starting from scratch. If the base is installed incorrectly, then it will take a

major reworking to fix the problem. Doing it correctly the first time can save you a great deal of money, time, and frustration. The process should take at least one month to complete, from sub-base to top surface. Robert thinks it's best to install the base in the fall, let it set through the winter, and then finish with the top surface in the spring. By using the winter to settle, any holes or lumps will be discovered before the top surface is in place and it's too late to repair it. Then you can start your spring season with a beautiful new arena.

If you would like additional information, feel free to visit Robert Jolicoeur's Web site at [www.iedsopra.com](http://www.iedsopra.com).



◀ **Robert Jolicoeur** has played a key role in the development of equestrian sport in North America for the past 25 years. He is the Chairman of List of International Footing Experts (LIFE) and he is considered one of North America's top arena and footing experts. Robert is President of International Equestrian Design, a landscape architecture firm based in Montreal, which specializes in equestrian design and planning. IED's projects have included the 1996 Atlanta Olympic Games and the 1999 Pan Am Games in Winnipeg.