



## Perfect Footing

By Sushil Dulai Wenholtz

### From schooling rings to Olympic stadiums, Robert Jolicoeur shares his secret formula

Robert Jolicoeur remembers one of his proudest moments: a rainstorm during the 1996 Olympics that dumped two inches of rain onto the equestrian arena in a less than a half an hour.

At local show grounds, a two-hour delay might be tolerated. But at the Olympics, televised to the world, such an interruption would be unforgivable.

"The whole ring was covered in water, but when the rain slowed, the drainage started to work," says Jolicoeur, who had devised the footing. "Then they had to set up the jumps again and fluff the sand. But we still only lost 45 minutes. That was a pretty good thrill."



12:45 p.m.  
Atlanta, August 1, 1996



45 Minutes Later  
Atlanta, August 1, 1996

This is a man who has a passion for dirt. And rocks. And sand. In short, footing for hunter, jumper, and dressage arenas, derby fields, racetracks, and other places where good ground may enhance a horse's comfort, safety, and performance.

To Jolicoeur, proper footing isn't important, it's essential.

That mandate, he insists, doesn't apply only to the wealthy or to show facilities. "You've got to have it at home too," he says, adding emphatically, "Everyone can afford to have a good ring... but you've got to build it right."

## From Fences to Footing

Today Jolicoeur is Chairman of the Fédération Équestre Internationale (FEI) - recognized List of International Footing Experts (LIFE) and is considered one of North America's top arena and footing gurus.

He founded North America's premier equestrian landscape architecture firm, International Equestrian Design (IED). The company has designed the footing, layout, and even fencing of rings and tracks, as well as paddocks at horse parks, equestrian show grounds, training centers, racetracks, and recreation communities across North America.

But the Montreal resident and lifelong horseman didn't always see the beauty in a blend of sands. In fact, while competing jumpers in area shows as a young man, he was more concerned about the poor course design than by what lay underhoof.

So the tall, lanky rider began offering his course suggestions to local show managers, who often put them to use. As his interest in the field grew, he signed on as assistant to British Course Designer Pam Carruthers, whose international work included competitions such as Hickstead in England and Spruce Meadows in Calgary, Canada.

But ambition spurred Jolicoeur toward even higher aspirations: the 1976 Montreal Olympics. "I thought there might be an opportunity for me there," he says in a French accent that is part of his Quebecois heritage.

Indeed an ecstatic Jolicoeur was selected as course designer for those equestrian games. It was more of a turning point than he could have imagined.

"That's when I realized how important footing was," he says. The individual show-jumping rounds were held at Bromont on a sand ring -- the first time any Olympic show-jumping competition was held on a sand ring. "It was a success," Jolicoeur says. "The ring had been completed one and a half years before."

The Team Nations Cup, on the other hand, was held in the Olympic Stadium on grass. The ring was completed only three months before the Games. "It rained a lot that week, and all of the track and field events as well as soccer games were held in that stadium. By Saturday night, it was just mud."

"After the '76 Olympics, I not only saw problems just with footing but also with barns, layout, the flow of traffic. There were engineers, architects, but there was no leadership. I decided then to take a four-year degree." While at the University of Montreal earning a landscape architecture degree, his teachers were engineers and other non-horse world tradesmen. From them he gained valuable knowledge to bolster his equestrian experience.

"As a landscape architect, I have a better understanding of the land, and I can read plans," Jolicoeur says. "So even if I'm not there in person, I can read the plans and understand the land. The land is a living space -- trees, grass -- you've got to respect that. You have to try to visualize the whole thing before you start."

## The Key to Success

Upon completion of his degree, Jolicoeur founded International Equestrian Design in 1981. Since then, the company has become a leader in the creation of environmentally-conscious horse facilities.

His list of clients includes the Georgia International Horse Park, host of the 1996 Olympic Games; The Oaks, Joan Irvine Smith's prestigious show facility in San Juan Capistrano, California; John Deuss' Windsome Farms training center in West Palm Beach, Florida; and Bar Gee Farm, a privately-owned hunter and jumper stable in Pittsburgh, Pennsylvania.

At the center of International Equestrian Design and Jolicoeur's success, lies his team passion for footing: "The footing mix is a key factor for success in all equestrian training and competition sites," states a company profile. "IED's objective is to protect horses' health and enhance their performance through the development of outstanding footing material."

Jolicoeur's dedication to providing the best possible footing drove him to develop a research program at International Equestrian Design to evaluate surface materials. Using a machine that simulates a horse's hoof hitting the ground, researchers are able to measure the shock absorption of various materials.

"We try to be very technical," explains Jolicoeur. "So when we do suggest a product, we have tested it to see if it will be serviceable and if it will not degrade over time."

Research is important to Jolicoeur, even when the results are unexpected. "We were amazed at times when we thought we would get great results and the product didn't do much." At times they found the opposite: "The stone dust being used on the East Coast, for example, has more water penetration than we thought." Water penetration is directly proportional to drainage.

## Recipes For Success

Like a minister preaching the gospel, Jolicoeur passionately delineates the overriding theories of building a good arena



Jolicoeur uses the natural terrain when building arenas and combines footings if possible. At The Oaks, in California, he used sand and grass.

"First location, then size, then building the base, then topping," he begins, emphasizing that a ring's placement affects its functionality, attractiveness, and even cost. "In some places, it's more expensive to build than others. We see people who want to put their ring in the most difficult place to build."

"When you select an area to place your ring, look for an area that has not too much of a slope, so you don't have to blast and dig for ages to level it," Jolicoeur advises. "You must understand your land."

And you must understand your surroundings. "If the ring is too close to the barn, the barn gets too dusty, and the horses are distracted," he says. "You want a nice, cozy place, surrounded with trees, buildings, like a natural amphitheater. Look for a quiet area. If a highway runs near you, don't put the ring near the highway. Trees add shade and make it pleasant. But don't put a ring too close to existing trees; the compaction of the soil will kill them. The roots stop in line with the tree's canopy. If it's a windy area, when you water it, it dries right up again." But at the same time, he warns, "the only water a ring receives should be its own." No run-off from hills or buildings should reach it.



Jolicoeur combined his landscape / footing skills to build dream facilities such as Belle Herbe Farm in Florida.

On size, Jolicoeur says simply, "Sometimes rings are too large or too small. A training ring is not as big as a Grand Prix ring, and hunters do not need the same size as jumpers. One hundred (100) feet by two hundred (200) feet is very, very small for an outdoor ring, but indoors it is a very big ring. A horse doesn't ride the same indoors as out -- he's stronger outdoors, and his stride is longer. One hundred and thirty feet (130) by two hundred and seventy (270) feet is a good size. Usually it's good to have the length twice the width." Grass fields have to be much larger.

Dressage rings typically are twenty (20) meters by sixty (60) meters, but Jolicoeur sometimes makes them bigger: "You can remove the little white fence and use the ring for something else. With dressage, we try not to take as much slope if it's possible. We can do the ring almost flat -- but then you need underground drainage."

## A Firm Foundation

But in Jolicoeur's eyes, the base and sub-base are most important. If you get the topping wrong, you can always correct it; but if the base or sub-base are wrong, no mix of toppings will fix the arena.

The sub-base is the bottom layer. It usually consists of the native soil, often stone dust or rock. Occasionally, it may need additives because the natural material is not suitable for a ring. This layer is leveled and allowed to settle before the base is laid down. With an indoor arena, only a sub-base and sand topping are necessary because drainage isn't a worry. "The only time you would need stone is when there is too much rock or debris and you need to cover it up," says Jolicoeur. Some good, clean clay could also be used.

The base, the next layer up, should be very firm because it acts as the ring's foundation; if it is not strong, the horse can break through, and weather can wear it down, leading to drainage problems and an uneven riding surface. Again, the part of the country you live in

dictates what should make up your base. 'If the climate is rainy, you use different gradations of stones to drain water. If there is not much rain, like in Arizona, you can use clay if it's well prepared. On the East Coast, we use a lot of stone dust -- the kind that packs well for the base."

Jolicoeur believes that enough time is essential for creating a good arena. "You don't rush the construction," he insists. Jolicoeur's favored method of compacting the base: the natural elements of rain and cold.

"I like to finish a ring base before winter," he says. "Then it gets water and weight, which packs the base down and pushes the air out. Once the base is packed down, you can tell if there are any slope problems and fill in any depressions that collect water."

Jolicoeur's philosophy of footing comes from the view that basic elements matter more than the latest trends. It's only natural, then, that simple sand remains his most used surface material. But not just any sand will do. "You don't want it too dusty. You want it to be firm," he says. "It's not like beach sand. It's coarse but has enough loam (a sand-soil mix) to keep it together."

IED's research has helped Jolicoeur narrow the range of sands he considers suitable for footing. "If you exceed 18 or 20 percent fine particles, that sand is useless. But under 8 percent, you don't have the compaction, so the sand is shifting," he says. The percentage relates to the proportion of clay and silt (fines) in the sand. Fines aid in holding the sand together so it isn't loose and slippery. If you have no watering system, you want to keep the percentage of fines low because they cause dust. But if you have a sprinkler system or a water truck, you can have a higher percentage of fines. For grass rings, the sand percentage of the top layer needs to be close to 75 percent fine particles.

If the perfect sand seems just beyond your grasp, he says, consider additives, such as rubber shavings, wood chips, or synthetic fibers to either bond or loosen the sand. But "additives will not make the footing," Jolicoeur warns.

And you shouldn't blindly believe the claims of every footing-additive manufacturer, he says, since not every product is appropriate for every ring.

For instance, adding rubber shavings to a sand surface can cause problems in outdoor arenas, says Jolicoeur. "It is lighter than sand, so if it rains, the rubber comes up to the top, and it can all get washed away. Indoors, however, rubber "helps to avoid packing, keeping it a bit more bouncy, fluffy. You can't compact rubber."

To keep costs down, Jolicoeur says, buy your materials from a nearby site. "Every material is not expensive. What makes it costly is the delivery. My principle is to adapt to local conditions and find the closest possible materials...I say 'I've got to find it, I've got to find it,' and eventually, I do find it." To learn what is available in your area, ask what materials local barns, equestrian centers, and show grounds use. Contact as many quarries as possible to shop for the best prices on sand and rock.

While Jolicoeur can lose himself in studying the differences between two grains of sand, he warns people not to worry about the minutiae so they forget how the ring fits into the big picture.

"Function comes from quality of footing, but rings have got to be pretty too," he says. "They don't have to be rectangular; I like if they fit with the contour of the land. Life is short," he sums up. "You don't want to live on a desert island."

But if you do, Jolicoeur could turn that sea of sand into fine footing -- and he'd be thrilled to show you how.