
The Basics of Jumping Course Design for Eventing

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United States Eventing Association

Table of Contents

Introduction	3
Past Introduction	4
Design Philosophy	5
Tools of the Trade.....	6
Using the Tools of the Trade	7
Building the Course	11
Guidelines for Each Level of Competition	12
Safety Considerations	14
About the Author	15

Introduction

It doesn't seem possible that it has been 24 years since this pamphlet was first published. The Second Edition was published in 2002, and now we're publishing the Third Edition.

I've taken out details that are no longer relevant, included Appendix 1 from the *USEF Rules for Eventing* because of the guidelines this document contains for all the levels, but other than that, there are very few changes.

Remember that this pamphlet is about the basics of course design for Jumping courses. It is only about the basics. My advice is to stick to the basics until you have a thorough appreciation of what effect your modifications will have. Like any art, you must understand the basics first, and only then can you mix them up and become more 'creative'.

In addition, I recommend that you read the Introduction to both of the other editions because of my messages there. The Introduction to the First Edition is a good synopsis of my goals in writing this pamphlet. The Introduction to the Second Edition underscores why good Jumping courses are so important; reading it again will serve as a reminder.

GOOD LUCK!

Sally Ike
January 2019

Past Introductions

From Second Edition

When I was asked, as part of the second edition of this brochure, to review its contents, and rewrite any section, I was interested to see how much I would want to change. After all, it had been more than five years and I wondered how much my philosophy might have changed in that time. I was not totally surprised to realize that the answer was “very little,” because I have always believed that the basics are constant, regardless of current fads or trends.

But recent changes in the FEI Eventing Rules (which will put much more emphasis on the show jumping phase in three-day events) make me nervous that the basics described here will be put aside, in a mistaken attempt by insufficiently experienced course designers to interpret the new rules, and make our eventing show jumping courses more like those found in the “Jumper” arena. My nightmare is that instead of seeing courses which encourage good jumping, and educate horses and riders, we will begin to see courses which are not an accurate reflection of the types of questions asked in dressage and cross-country and in an effort to be more like a “Jumper” course are overly tricky, with little or no consideration and/or understanding of the requirements of the phase. Unless a designer truly has an understanding of show jumping, these new rules will become like a razor in a monkey’s fist and our horses and riders will be the ones to suffer.

So the message I would like this introduction to the Second Edition to underscore is – Don’t stray from the basics outlined in this brochure. Like any art, you must understand these first. Only then can you vary them and become more “creative.”

GOOD LUCK!

Sally Ike,
February, 2002

From First Edition

Show jumping is often the “forgotten” phase in combined training: forgotten by riders, who may focus more on their dressage and/or cross-country skills, and forgotten by the event, when significant time/funds must be spent on the cross-country course.

It is hoped that this brochure will provide direction to those who have little or no experience designing show jumping courses, as well as to those veterans who may need some guidance as to where this phase differs when a part of a combined training event.

You have been asked to design the show jumping courses at a combined training event. What questions do you need to ask? The most important ones are: “What levels of competition are you offering?” and, “What are the competitors there to accomplish?” Knowing this, the next step is to refer to the rules for combined training to determine what criteria are required for the levels offered, so that your course(s) will comply with the rules (length, number of fences, etc.).

Read through the entire combined training rules to establish the philosophies and differences of each level in your own mind. Remember that within each level, there is also a relationship between the different phases. Read through the dressage tests and, if possible, walk the cross-country courses. For each level of competition, show jumping courses should ask the same types of questions as those asked in the dressage arena and on the cross-country course. Talk to the cross-country course designer to learn his perspective, to ensure that your course reflects show jumping versions of what he has asked in the test in the open.

Sally Ike
June, 1995

Design Philosophy

Course design is like writing music, with each course a finished composition. Like a piece of music, every course will have a definite rhythm, with individual notes of varying length and intensity. The track of the course is the entire piece of music; the jumps are the individual notes.

Like composers, different course designers will have different styles. But, just as a waltz is a waltz whether it is written by Straus or Sting, all courses have to adhere to certain requirements documented by rules (length, speed, and number of jumping efforts).

Simple courses will be like a simple piece of music – slow rhythm with notes coming at regular intervals; Row, Row, Row Your Boat, for example.

The most difficult courses will be like a difficult piece of music – the notes will be of varying lengths and come at irregular intervals. These courses will have more notes than Row, Row, Row Your Boat, and will take more skill and training on the part of the horse and rider combination to complete successfully, but, as in any piece of music, the basic rhythm will stay constant.

Riders are given a chance to “read their music” (walk the course) before trying to “play” (ride) it. Riders who are the most successful will have appreciated what the “composer” (course designer) has “written” (designed) and will have a horse trained to respond to the aids—lengthen, shorten, turn both directions, etc., while maintaining the basic sense of rhythm required by the “composition.” The course walk will give these riders a sense of what kind of rhythm is required for a successful round, which they will establish in their warm-up circle.

Tools of the Trade

Think of your course as a multi-dimensional puzzle. The course designer creates the puzzle. The competitors who ride over it are trying to solve it.

As designer, you will use many tools to create your puzzle:

1. Track of the course;
2. Placement of the fences along the track;
3. Related distances (including not only those in combinations, and with more than two strides between, but also the number of related distances throughout the course and their location);
4. Dimension and type of jump;
5. Equipment used to build the jump; and
6. The inter-relationship of all of the above tools.

There will also be several constants, which will have influence on how you use the above tools.

They are:

1. Arena size and shape;
2. Type of terrain (flat, bumpy, hilly, etc.);
3. Type of going (deep, hard, muddy, slick, sand, grass, etc.); and
4. Speed at which the course must be ridden.

Realize that how you choose to mix/match the above tools and combine them with the non-variables will determine how easy/difficult your course is.

Using the Tools of the Trade

AREAS WHICH AFFECT DIFFICULTY

Arenas

Arenas with generous and relatively equal length sides will allow the designer the most flexibility, because of the ability to use all dimensions equally. Most arenas, however, are rectangular, with courses necessarily being largely built using diagonals and the long sides.

While small arenas usually produce a more difficult course, because the lack of space means tighter turns and a specified number of jumps fit into a comparably small area, very large arenas can also prove difficult to design in – particularly at the lower levels – for the opposite reasons; too much space, with the course very spread out.

Arenas of an irregular shape or with one or more distinguishing physical feature (trees, bank, etc.) often produce the most interesting courses, because the course designer is able to use these irregularities while considering the track and placement of the jumps. Take care, however, in the design of lower level courses in irregular arenas, that aspects such as appropriate turns and placement of jumps are still in the proper perspective.

If the arena is on uneven ground, care must be taken in the location of jumps to avoid adding unnecessary difficulty because of the terrain, e.g. even at the upper levels, it is inappropriate to place a maximum height/maximum width square oxer on ground which slopes sharply either uphill or down.

Track of the Course

The frequency with which jumps are placed on the track and the types of turns used will affect the difficulty of the course, as well as the related distances along the way. Simple courses will have long straight lines and easy sweeping turns, with the jumps located at very regular intervals. More difficult tracks will include more complicated

lines and turns, with the jumps sited at varying intervals.

Do not include turns that are too difficult for the level being offered. An inappropriate turn for any level is one in which either the turn itself, or the turn together with the placement of the jump on the turn, is disruptive with and to the rhythm of the rest of the course.

Do not try and be too creative with related distances between two or more jumps. Don't vary too far from multiples of 12', especially at the lower levels. Because the size of jumps used for eventing (even at the advanced levels) is comparatively small, you will not "go wrong" using this criteria.

While sticking to your basic philosophy of 12' multiples for related distances, realize that uneven ground or deep or hard footing will affect how these distances ride. For example, 24' will ride longer on uphill terrain or in deep footing, and shorter going downhill or on firm ground, than on even terrain with good footing.

While rarely a problem in eventing, except when indoor arenas are used, care should be taken to leave enough room when a jump is placed coming out of a corner of the arena. A good rule of thumb is no closer than 60' from where the track leaves the end or side of the arena to the front of the jump.

Be aware that horses will be distracted by the location of jumps close to the in-gate – either jumping toward, away, or adjacent to it, which will have an affect on the difficulty of a course. In particular, because of the added difficulty of cantering by the in-gate at the end of a course and jumping another fence, siting the last jump in this location is a design tool that should be reserved for preliminary and above. Be sure to consider all of your options, especially when designing courses for the lower levels.

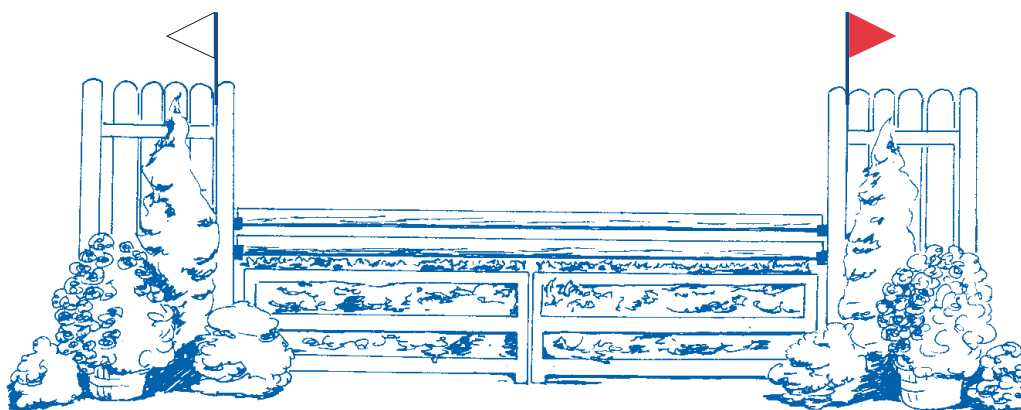


FIGURE 1 FIRST FENCE

The first fence should be inviting (see figure 1). Locating it going toward the in-gate will help competitors get a good start on their course.

If the competition has a great number of entries, siting the last fence going towards the gate from which horses will leave the arena will assist in getting horses in and out promptly.

In addition, remember that separate flags should be used for the start and finish, even if they are in line with each other. Doing so limits the chances of a competitor inadvertently going through the start while making his/her warm-up circle.

Check your track to avoid right- or left-handed courses. It is important to achieve a balance in the use of turns. It is also important to have a balance of vertical and spread fences

It is also important to have a balance of vertical and spread fences.

If more than one level is offered, consider designing different tracks for each with as few changes as possible.

Appendix 1 of the *USEF Rules for Eventing* now provide very specific guidelines on what can be included in each track. This means that, if more than one level is offered, it is likely that it will be necessary to vary the tracks so that the appropriate level of difficulty is included for each level.

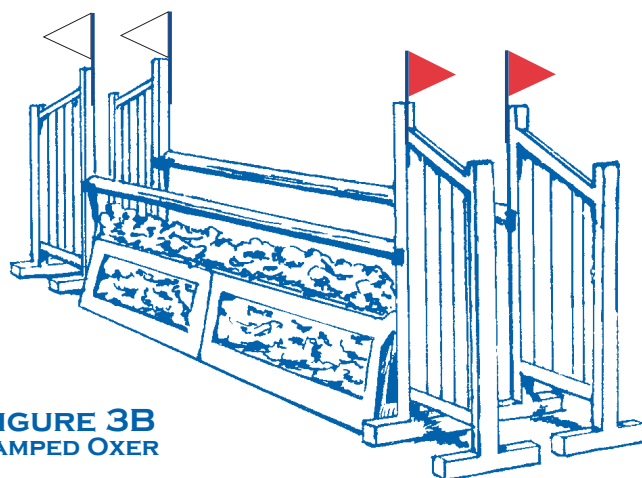
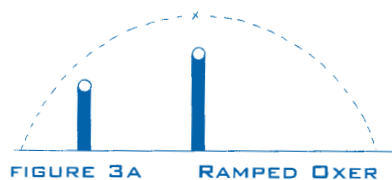
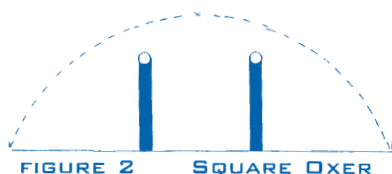


FIGURE 3B RAMPED OXER

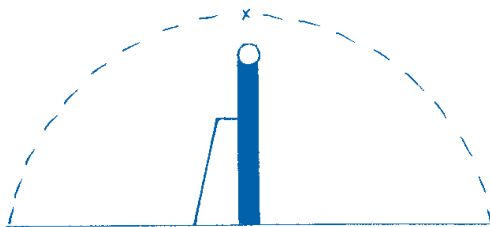


FIGURE 4A VERTICAL WITH GROUNDLINE PULLED OUT

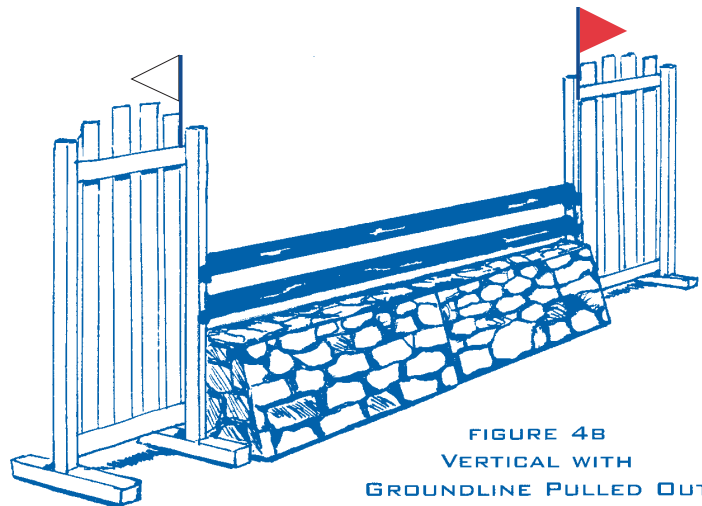


FIGURE 4B VERTICAL WITH GROUNDLINE PULLED OUT

Jumps

Jumps are easy or difficult to jump depending on how the shape (as viewed from the side) interferes with the natural round flight of the horse over the jump (see figure 2).

A well-filled ramped (front rail one hole lower than the back) oxer, not too wide, therefore, is the easiest type of jump (see figures 3A & B). It is not necessary to ramp oxers more than one hole.

A vertical with a well-defined ground line placed slightly in front would be next on the scale going from easy to difficult (see figures 4A & B).

Square (front and back rails the same height) wide oxers or high verticals are the most difficult, because of the

adjustments the horse must make in his normal flight to clear an obstacle of this shape.

Be sure not to ask the same question over and over again around the course, e.g. all lines or combinations are vertical to oxer.

A single fence on its own, with a long approach, can be very difficult to jump, particularly if the equipment used makes it unappealing to the horse.

While it is preferable to be imaginative in the use of equipment so all the jumps don't look the same, avoid the use of "airy" or spooky jumps at the lower levels. Asking multiple questions at the same fence, e.g. a spooky or "airy" jump of maximum dimensions, should be limited to the upper levels, if at all (see figure 5).

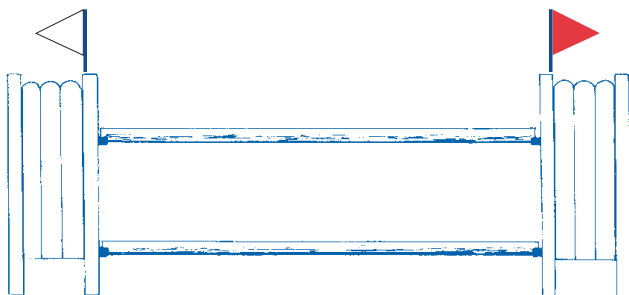
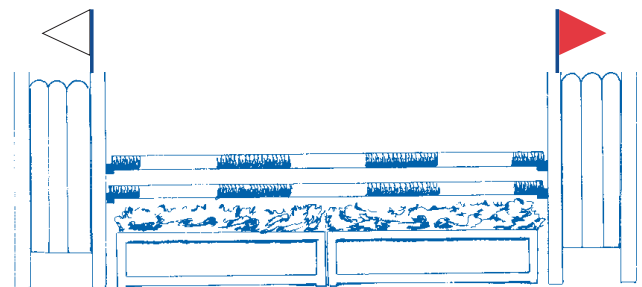


FIGURE 5 AIRY JUMP



FILLED JUMP

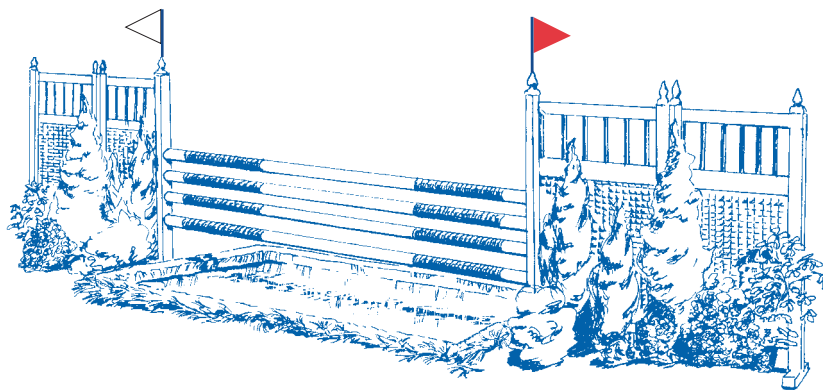


FIGURE 6 LIVERPOOL WITH PORTABLE VINYL WATER JUMP AND RAILS

Liverpools can be used at the Training level and up. However, when used at Training level, the liverpool must be centered under the poles, and an option must be provided.

Use care in their presentation especially at Training, to ensure as natural an appearance as possible (see figure 6). The easiest is always poles over the center of the liverpool. Poles used over the center or at the back of the liverpool makes this a spread obstacle; therefore ALL poles must be set in safety cups. In addition, poles over a Liverpool must be a minimum of 12' long.

While rarely used, Swedish oxers may be used in locations where the course designer wishes to test the rider's ability to keep his horse on a specific track; e.g. the front right side will be the "high side" after a short left-handed turn. They should be avoided at the lower levels, and at all levels do not have to be built with more than 1' difference between the high/low sides (see figure 7). An added benefit to using this criteria is that it

creates an easy way to determine the height of the jump – the high side is 4', the low side is 3', the height of the jump is 3'6". Note also that two thirds of the face of the jump must be within the maximum height for that level.

So that the course is equal for every horse that comes into the arena, each jump should require the same force to lower it. Poles have varying weights and diameters, blocks for walls also vary in size and weight, and jump cups have different depths. Cups for top poles should have an ideal depth of 25 mm (1"); in any case the minimum depth is 20 mm ($\frac{3}{4}$ ") and maximum depth of 30mm ($1\frac{1}{4}$ "). If possible, course designers should take this into consideration when choosing equipment for individual jumps. Avoid the use of too many "careful" jumps (planks, gates, and other equipment requiring the use of flat cups).

Combinations

Do not use combinations too early in the course. If there is one combination, it should appear in the second half of the course. However, if a double and a triple, two doubles, or three doubles (if permitted) are used, the first combination may be used earlier.

USEF Rules are now quite specific about combinations at the various levels. Be sure and refer to them when considering what to include in your course."

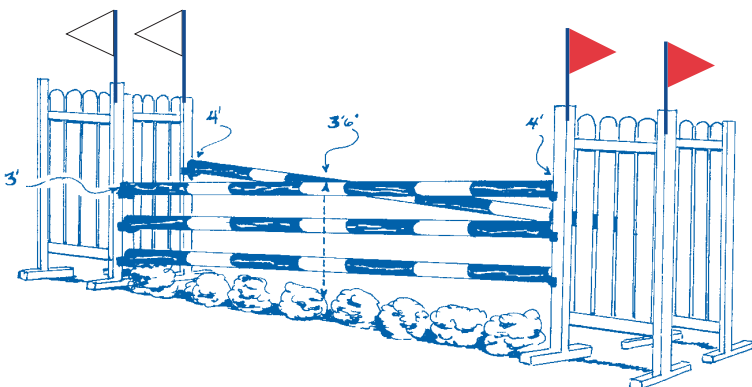


FIGURE 7 SWEDISH OXER

Building the Course

Before the design can actually begin, you will need to learn the following:

1. Dimensions of the arena (preferably a scale drawing), including type of footing and any outstanding physical features (trees, banks, type of terrain, etc.).
2. Orientation, including the location of the in/out gate, position of the Jury, any sun factors to be considered, etc
3. Inventory of equipment available, including the number of standards (color and type - wing, column), rails and planks (how many in each color), gates and walls (color and height), and cups (including flat and safety).

Work out your course in draft form (easier if the arena has been drawn to scale), and then make a “working diagram.” This diagram will include the location of the jumps, their type (including dimensions) and direction, the equipment used, with any related distances noted. Having extra copies available for your crew to use while putting the course up will insure that this sometimes lengthy job can be completed with dispatch.

When assigning equipment to each jump, be sure that the dimensions of the larger pieces (walls, brush boxes, gates, etc.) will be appropriate for all divisions offered. All jumps must have a “knock factor” – a 2’11” wall with no blocks on top is not appropriate for the novice level, as it cannot be knocked down, and adding a pole above the wall will make the height of the jump too large for the division.

Similarly, be aware of the rules when assigning equipment; for example, the minimum length of a pole at any level is 8ft and triple combinations are not allowed at the Novice level. Remember to measure the distance from the start to the first fence and the last fence to the finish.

Don’t forget to ask what help will be available both for set-up and on the day of competition.

The building of the course will proceed most quickly if the

precise location of each jump is marked first, using rails on the ground. Distances between two fences are measured from the back of the first fence to the front of the next fence (see figure 8). Equipment can then be brought exactly to the spot, with no time wasted. Decoration will be done last.

Once the course is up, the actual length must be measured. Using a wheel or GPS, walk the track as if you were riding. Remember, as on cross-country, being able to jump the course at the specified speed is part of the test; the posted length must be as accurate as possible; don’t add additional length by making very, very wide turns. Don’t hesitate to ask the Technical Delegate’s assistance in this task, if you do not feel qualified to complete it. At important competitions, it is not unusual for several experienced people to measure the course to insure the greatest accuracy.

Once the course has been measured, the Time Allowed can be determined by dividing the speed into the distance. The Time Limit is double the Time Allowed.

After all the jumps are in place, walk around your course one more time, checking that the fences are all built as you’d planned, that all dimensions are within the rules, and that flags (including for start/finish) and numbers are in correct position.

The Technical Delegate and Ground Jury must approve your course when it has been built. Supply diagrams to all these individuals. Check in your rulebook to make sure that you have met all the requirements for this document (noting the length, speed, Time Allowed, Time Limit, location of Start and Finish, etc.). A diagram must also be posted at the in-gate after the Ground Jury has approved the course to be opened. Orienting this diagram (which does not have to be large) as if you were a rider standing in the in-gate will make it much easier for competitors to interpret

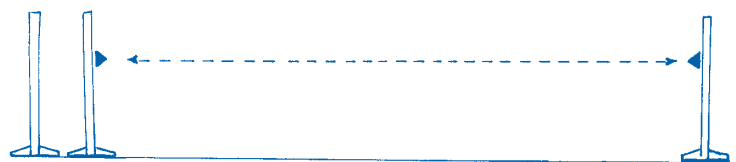


FIGURE 8 MEASURING DISTANCES BETWEEN FENCES

Guidelines for Each Level of Competition

From the *USEF Rules for Eventing*

	Beginner Novice	Novice	Training	Modified	Preliminary	Intermediate	Advanced
Length	Maximum 600m	Maximum 600m	Maximum 600m	Maximum 600m	Maximum 600m	Maximum 600m	Maximum 600m
Speed	300mpm	320mpm	325mpm	325mpm	350mpm	350mpm	375mpm
Efforts	9-11	9-11	10-12	10-13	11-13	12-14	13-15
Height	.79m (2'7")	.90m (2'11")	1.0m (3'3")	1.05 (3'5")	1.10m (3'7")	1.20m (3'11")	1.25m (4'11")
Spread for Oxers	1.00m (3'3")	1.10m (3'7")	1.20m (3'11")	1.25 (4'1")	1.30m (4'3")	1.40m (4.7")	1.45m (4'9")
Spread for Triple Bars	1.20m (3'11")	1.30m (4'3")	1.40m (4'7")	1.45m (4'9")	1.50m (4'11")	1.60m (5'3")	1.65m (5'5")

Beginner Novice

The jumping course should be inviting and straightforward, preferably with lines of 82 feet or more and may include only one double set on two strides, a minimum of 34 feet, which may include only one oxer at the a) part of the combination.

Novice

The jumping course should be inviting and straightforward, preferably with lines of 82 feet or more and shall include only one or two doubles, set on two strides of a minimum of 34 feet. Each combination may include only one oxer at the a) part of the combination.

Training

The jumping course must include either (i) two doubles; or (ii) simple triple combination in the second part of the course with only one oxer.

1. If the oxer is at the “b” or “c” parts of any combination it should be set on two strides at a minimum of 35 feet.
2. The course should introduce simple technical questions with some related jumps set at a minimum of 70 feet.
3. If a liverpool is used it must be built as a vertical over the center of the liverpool tray and a straight forward alternative jump must be offered.

Modified

The show jumping course shall include two doubles, or a double and a triple combination.

1. If a triple combination is used, it should be in the second part of the course and with only one oxer.
2. It should be more technical than the training level with any related jumps, set at a minimum of 70 feet.

Preliminary

The jumping course must include either (i) two or three doubles; or (ii) a double and a triple combination.

1. The jumping course should be more technical than the Training Level and may require lengthening or shortening of stride.

Intermediate

The jumping course must include either (i) a double and a triple combination; or (ii) three doubles, with more related distances, and technical questions than the preliminary.

Advanced

The jumping course must include either (i) a double and a triple combination; or (ii) three doubles. The jumping course must be the most technical Division of the national competition.

Safety Considerations

In addition to the above guidelines for each level, the following are safety concerns, which remain constant for all levels:

1. Safety must come first; know your competitors.
2. Do not use heavy poles together with deep cups.
3. Remove extra cups from standards.
4. Rest poles in the center of the cup, not on the lip, not locked in, or resting on another element.
5. Use discretion in your use of wide oxers. It will rarely be necessary to use the widest jump allowed according to the rules, especially at the upper levels.
6. Safety cups must be used on the back pole of all oxers and on the middle and back poles of triple bars.
7. Support equipment such as planks or gates with flat cups.
8. Use only one rail on the back of oxers and triple bars.
9. Build hanging elements (gates, etc.) to be true, i.e. angled neither forward or backwards. In addition, the gate/plank should not touch the arena surface.
10. Do not hesitate to make adjustments to fence dimensions if there is bad weather/footing.
11. Do not use rails for ground lines. If, in the course of a refusal a rail is moved, there is a possibility for injury, as well as the necessity for the judge(s) to stop the clock and have the equipment returned to its original location before the competitor can continue.
12. If using cups with pins, make sure all pins are through the standard in the direction the horse is jumping. If equipment is shifted in the course of a knockdown or refusal, the cups will stay in their original location on the standard, and the jump can be replaced much more quickly.

As course designer, your greatest pleasure is to see your course successfully ridden by riders who have understood the questions you have posed, and with all others coming away better horses and riders for having competed. Good luck!!!

About the Author

Sally Ike

United States Equestrian Federation,
Managing Director of Education and Licensed Officials

Sally Ike competed internationally and was on the eventing squad for the 1968 Olympic Games. She has worked for what is now the U.S. Equestrian Federation since 1989, starting out as the Director of Eventing and Jumping Programs for the US Equestrian Team. From 1993-2013, Sally devoted her energy at USEF to jumping. As Managing Director, she was responsible for all aspects of the Federation's Jumping activities. In this role, she also served as the Jumping Team Leader for five Olympic Games, five World Equestrian Games, multiple Pan American Games, and 20+ World Cup Finals.

Sally now serves as USEF's Managing Director of Education and Licensed Officials overseeing the 150+ licenses for the 2,500 plus USEF licensed officials.

Sally has been a USEF Eventing Judge and Technical Delegate since 1993, and in addition, designed jumping courses primarily for eventing from the mid-1970s-2017, including Olympic and Pan American Games Selection Trials, Fair Hill, Jersey Fresh, etc.