Arena Footing

BASICS

MARTIN COLLINS
EQUINE SURFACES

EQUESTRIAN PROFESSIONAL
WHERE THE PRO'S GO!
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Building Your Arena’s Foundation

Next to the arena footing, your base is the most important part of your arena, and often something that gets overlooked during construction. Here are a few things to consider before starting any new construction.
Cut and Fill

• Cut and Fill is the process of cutting in to a bank, and re-laying the material lower down the bank to create a "level formation" for your outdoor equine arena. The banks/slopes must be created correctly to support the new formation.

Build at the Right Time of Year

• The best time to build a new arena is during a dry period, preferably in the summer.

• Clay in particular needs to be carefully managed, especially during earthworks, such as "cut and fill", so "clay heave" does not occur. (This is most likely to occur when wet and under pressure, which causes it "bubble up", this can move the stone layer and membranes, leading to contamination of the surface and poor drainage. Should this occur, remedial works will be required).
Pay Attention to Drainage

- There should be at least one drain across the school and one on the perimeter, on all sides
- If the ground is heavy clay, additional cross drains should be installed and the diameter of the exterior drains increased
- It is important that the drain runs have a consistent fall
- If the drainage runs (trenches) are up and down (like a dog's hind leg), do not lay the pipe with pea shingle (fine small pebbles, that are "hard")
• The tops of all the trenches should be covered with a fine grade (eg 4 oz) non-woven geotextile membrane, which will allow the water to pass into the drains, but prevent silt/sediment.
• Avoid purchasing unwashed sand for the equestrian surface.
• It is important to include drainage trenches on the outside of the arena. These external drains will stop the "run off" from adjacent paddocks - so this is especially important if an arena has been cut into the slope. They are also important because the outside track typically has the heaviest "foot fall."
Use Quality Stone for your Base

• For the base layer (stone drainage layer), it is VITAL that clean, hard, angular stone is used.

• Clean: means the stone has been washed so stone dust/fine soil is not washed straight in to your drains, causing reduced flow of surplus water. We recommend granite or a hard limestone (not soft limestone).

• The stone layer should be 5" (150mm) compacted depth when laid, ideally the stone layer should extend 50cm beyond the fence/kick boards so the perimeter drain is laid outside the school.

• Be cautious if your contractor does not specify the grade/quantity or depth of the materials being laid. Clearly if less stone is used, it will be cheaper and some contractors will reduce the specification and price in order to win the work.

• Hard - means the stones are frost resistant, i.e. will not break down after successive winters, or fracture due to the weight of maintenance machinery.

• The quarry can provide 'technical data sheets' if in any doubt. A good test - take two stones and bang them together, they should not dust, crack or break - if they do, they are not frost resistant.

• Angular stones must inter-link together, so they need to be of similar size, typically 1 3/4 to 2 3/4. (If the stone is rounded it will never "knit" together, so the surface will never be correctly compacted if the base layer moves).
CHAPTER 2

Choosing The Right Surface

Well kept turf is the ideal surface for training and equestrian competitions, it is the traditional footing for all equestrian sports. However, in situations where turf cannot be sustained, all-weather surfaces for horses allow them to train and compete in different situations and weather conditions.
There are four main types of surfaces for horses available in the US - sand, dirt, wood products, rubber, wax coated (often referred to as all-weather). These days PVC and rubber are less popular choices as they tend to “ride deep” in dry periods and disposal legislation is becoming restrictive; so structural fibers are becoming the norm.

**Wax Coated equestrian surfaces**

- Choosing the right equestrian surface Wax-coated equestrian surfaces will give you the closest equivalent to turf, without the need for “managed rain fall”.

**Advantages – these equestrian surface solutions:**

- Function in a wide range of temperatures (-12 to + 40 Celsius)
- Provide consistency
- Provide a safe surface in all conditions
- Are easy to care for
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**But, remember:**
- These will incur higher capital costs (in excess of US $30,000 for a 40m x 20m school) but they are the obvious choice due to high performance and greatest durability. They are well worth the outlay expense if you have the budget available
- Correct maintenance is important to ensure optimal performance and durability
- The durability of the surface is dependent upon the purity of the
coating. Make sure you use premium surfaces where the wax is molecularly bonded to the raw ingredients and suitable for your specific use and micro-climate.

• Other, less costly coatings are available – such as wax blends, gels or oils - but these require more frequent regeneration (in terms of adding more material and/or more coating more frequently), leading to higher future costs

**Dry, Sand-Based Surfaces**

Dry, sand-based surfaces refer to equestrian surfaces made up of sand, mixed or topped with another material such as PVC, rubber or synthetic fibers. This addition of fibers to sand is becoming the most commonly used equestrian surface in the 21st century.

**Advantages:**

• The fiber provides a root structure which allows the horse to work on top of the surface and also improves the moisture retention properties
• The capital investment required is less, making it the most affordable solution for a surface offering year round use.

**But, remember:**

• This surface will be more susceptible to freezing
• Consistent and regular maintenance is required
• If the surface is allowed to dry out or become deep, horses are at increased risk from soft tissue damage
• It is more difficult to manage the “going” as these surfaces are more affected by changes in the moisture content and maintenance levels
Wood-Chip equestrian surfaces

Advantages:

- It is the least expensive of all the ‘man-made’ equestrian surfaces

But, remember:

- Nowadays the wood fiber available is invariably a soft wood which means frequent costly top-ups are required. These costs will, in a short space of time, outweigh the higher initial costs of a dry sand and fiber surface

- The biggest concern is safety, as the chips are prone to slide, especially on corners, and when making tight turns, for example when in a jump off. Furthermore the surface will not provide any limb support, so larger, big movers, ie dressage horses, are at an increased risk of injury.

- It does not wear well and replacement is needed every 2-3 years

- For the reasons above, a wood-chip surface is not usually favored other than for walk back tracks (on training gallops) or where the budget is very restricted
<table>
<thead>
<tr>
<th>COMPARISON</th>
<th>DRY EQUESTRIAN SURFACES</th>
<th>WAXED EQUESTRIAN SURFACES</th>
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<tbody>
<tr>
<td>Cost</td>
<td>• Lower financial outlay.</td>
<td>• Normally around twice the price of a non waxed blended surface.</td>
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<td>• Up to 50% less than blended non waxed surface, if you lay fibre and blend at site.</td>
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<td>Performance</td>
<td>• Requires more management/maintenance, particularly in a dry or windy spell.</td>
<td>• Less management/maintenance required.</td>
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<td></td>
<td>• Will freeze.</td>
<td>• Adaptable eg can be managed to give exactly the “going” required for the particular discipline, age and level of the horse.</td>
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<td>• The surface will repel water/frost.</td>
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<td>• Will perform at -10, (however “tighter surfaces” may need to be eased a little to ensure surplus water does not form ice crystals).</td>
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<td>Cost of ownership</td>
<td>• It is not possible to add wax to a non waxed surface once it has been laid.</td>
<td>• When considering the cost of watering, it is clear that a wax coated surface saves you time and increases performance</td>
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<td></td>
<td>• If you select a non coated surface, expect to have to capture rain water/drill a bore hole etc, so you can irrigate the surface.</td>
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<td>• During a warm spell (UK) a 40m x 20m arena may need to be watered every other day with circa 1,000 litres. (Note: watering at night is more effective as there is less evaporation and wind drift).</td>
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<td>Durability</td>
<td>• A sand based surface that is not coated is more likely to break down to dust, due to abrasion.</td>
<td>• A wax coated surface has an increased lifespan (as the horses do not displace the surface as much ie they “toe in” less)</td>
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<td>• Once the sand has lost its “angular” corners, the surface is more likely to “move”, especially on corners and the outside track.</td>
<td>• There is less wear to the sand particles and less abrasion to the feet.</td>
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<td></td>
<td>• If you cannot afford to replace the entire surface, an alternative may be to re-grade, eg level, wet roll and compact and lay a min 3” top up of new angular (industrial glass making) sand, which will stabilise more under the horses hooves. The addition of fibre improves the “root structure” of the surface, which mimics turf.</td>
<td>• A waxed surface will dry with age and so the wax content may need topping up. The lifespan of the surface will depend on the:</td>
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<td>• Number of horses using it</td>
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<td>• The duration /frequency of use</td>
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<td>• The Size/weight of the horse using it – larger moving/heavier horses are more likely to displace more surface than smaller ponies and “daisy cutters”.</td>
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Upgrading Your Arena Surface

Extreme weather conditions inevitably put added pressure on your arena surface. Common problems are that surfaces become too deep, and – in the case of sand-based surfaces – dry and dusty. If your surface is suffering, don’t automatically assume that it’s a case of facing the expense of entire replacement.

Replacing the whole equestrian ménage surface, is of course always an option, although you will still need to check your base is in good
condition before doing so. However, it is not always essential and certainly not always within an individual’s budget. What you may be able to look at, instead, is equestrian ménage surface enhancement or refurbishment.

Your surface enhancement options:

- **Topping up a sand-based surface.** This is an option if your surface is sand-based but does not have a coating. If you can’t afford to replace the entire surface and the base of the school drains freely, it may prove cost effective to:
  - Re-grade and level
  - Wet roll and compact and
  - Lay a minimum 3” top up of new angular (industrial glass making) sand. This should give a minimum compacted depth of 5”, which will stabilize more under the horses’ hooves. However, you will also find that the surface would benefit from the addition of CLOPF structural fibers, (as below*).

- **Rewaxing** - if your surface is waxed, it may be an option to re-wax. However, you will need a specialist consultation and the surface may require lab analysis before specific recommendations can be made. There are two re waxing options available:
  - You can lift and return the entire surface to the factory to re-blend with more wax and materials. Martin Collins can advise on the most affordable haulage options for this.
  - Lift and re-wax at site. However, it is worth noting that this option may only be commercially viable for larger surfaces such as training gallops and racecourses.
Introduce Additives: Adding fiber will further improve the “root structure” of the surface, thereby mimicking turf. If your current surface is sand-based, Martin Collins Enterprises have developed a new, cost-effective, long lasting, original, performance fiber which is the perfect solution for surface enhancements. It’s called CLOPF.

It is worthwhile considering adding CLOPF to your surface because it:

- provides root structure (acting in a similar to grass roots in turf)
- enhances the surface stability, allowing the horse to work 'on top' of the surface rather than 'through' it.
- improves surface performance.
- adds energy to the equestrian ménage surface.
- increases water retention.
- provides excellent value for money.
- is laboratory proven to be environmentally sound.
- will last longer if maintained correctly. Every CLOPF surface we sell comes with free ongoing aftercare support and a DVD which explains how you can ensure your surface continues to offer optimal performance.
The amount and type of arena grooming often depends on what type of surface you have. Some surfaces require more water or grooming than others.
Waxed coated

- Waxed-coated riding surfaces are dust free and have an excellent climactic tolerance and so will not require an irrigation system and have an excellent climatic tolerance. It is worth noting that Martin Collins synthetic horse riding surface are NOT coated with oils or petroleum jellies, as most others, for two important reasons.
- Some oils can wash through the surface and clog up the underlying base.
- Neither oils nor petroleum jellies have the same lifespan as a wax coated surface and will therefore require re-coating much sooner.
Non-Coated

- Non-coated riding surfaces require significantly more maintenance than those with a waxed coating. For optimum performance, an irrigation system is required. Once a surface has dried out it will ride “deep” and can quickly become unleveled.

Care advice for all synthetic riding surfaces

- Our surfaces are sold to provide an average COMPACTED depth of approximately 5” when laid. Some others are sold UNCOMPACTED, so when laid, the depth can be reduced by 2" (50mm). The following advice applies to all surfaces
- It is important that your new surface is kept both level and evenly compacted. If any hollows, dips or tracking appear, these should be corrected by hand raking, prior to grooming the surface.
- Horses must have clean feet and legs prior to being worked in the school, likewise when grooming the surface, it is very important that the tractor has clean tires so contamination is not bought in to the school.
- Horses should have their feet picked out prior to leaving the arena.
- Fences should be moved frequently, and take off and landing pads hand raked before the stands are put away.
- It is important that any organic matter (droppings, leaves etc) are not allowed to remain on the surface. It will cause the wax to dry out prematurely – if waxed; the surface to become dusty and the drainage ability of the school could be reduced.
- If you lunge on the surface, we suggest that you "walk lunge", as this helps to prevent a "doughnut" appearing on the surface. Lunging or liberty work is likely to require additional surface maintenance.
• We do not recommend using the school as a turn out area. Should this be necessary all feedstuffs must be fed off the ground and droppings, hay and spilt feed must be removed as often as possible.
• Care should be taken when using a maintenance machine with deep tines as these could cause the separation layer and drainage blanket to be damaged.

Making Your Riding Surface Last
The life span of a correctly installed and high performance riding surface will be determined by a range of factors, which include:

The number and type of horses that use the riding arena
Large horses are likely to track the surface more than little ponies

The size of the school
If you have a very small school, you may find the surface wears a little more quickly, as the horses are working “on the turn”.

Whether it is an indoor riding school or outdoor riding arena
Typically the wax coating on an indoor surface may not last quite as long as the same surface outside. This is due to the higher residue summer temperature, which means the wax is warmer and therefore more liable to wear.

How well you maintain the riding surface
If you groom the surface so the horses are working “on top” rather than “into” the surface, your horses hooves will be less affected by sand abrasion. This is particularly the case for non-waxed surfaces.
Caring For Your Riding Surface in the Snow

When maintaining your riding arena, it is always important to keep an eye on the weather forecast; and, if snow or frost is expected then your riding surface will require slightly different care and maintenance:

If a surface is slightly over compacted, then any surplus water will not drain through the material as easily. This causes a ‘backlog’ of moisture in the surface which can then freeze. This will apply to wax coated surfaces as well as dry materials.
• Ideally you should maintain the surface with the tines of the maintenance machine ¼-½ inch deeper than usual. This will help any excess water disperse. It is more beneficial if this additional maintenance can be carried out at the time when the frost is catching.

• The following morning, start by checking the surface. It may well be ready for a gentle maintenance pass to ease any ice crystals that may be in the surface.

• Ideally any snow should be allowed to melt, however if necessity means that you have to use the arena when snow is present, common sense should prevail. If it is a light 'dusting' then work very carefully, taking care not to work the snow deeper into the riding surface.

• If there is a heavy cover of snow over the riding arena, then remove as much as you can carefully with a shovel. If your equestrian surface was installed by Martin Collins, you might like to contact us when the weather has improved, and if required, arrange to get your arena inspected by a member of our team.

• Do not use your maintenance equipment to break up any snow or ice in or on the surface. This will cause your surface to become uneven in depth and compaction as well as increasing the likelihood of future freezing. It may also be detrimental to the components in the surface.
What’s Next?

Installing an equestrian surface is a significant investment and it is important to make the right decision. The team at Martin Collins can help you select the surface best suited to your needs and budget, you can discuss your options with the specialist surface manufacturers and can help you identify existing sites in your area for you to visit.

Call (859) 321 3751 or email us GlynnieWalford@martincollins.com for a free consultation.