Non-Turf Cricket Wickets

A non-turf cricket pitch generally consists of the following elements:

- Base
- Shock pad or backing
- Playing Surface

Base

The most fundamental and critical element that will have the greatest bearing on the performance and maintenance requirements of the wicket is the type of base construction. This typically falls into one of three categories:

- Dynamic base (Unbound hard-porous aggregate)
- Solid bound base (Dense concrete of tarmac)
- Direct lay onto consolidated ground.

Dynamic Base

This comprises a 40mm-50mm thick layer of a compacted fine aggregate specially graded through a series of sieves at the quarry to a specification designed for this purpose. Particles range from around 5mm down to dust and the stone has to be of a type that is not frost susceptible to ensure it does not degrade over the winter.

Where ground conditions are suitable, typically level sites where the turf is well established and the ground has been well rolled such as on the edge of the cricket square or a well maintained outfield, the dynamic base can be installed over a geo-textile after cutting out the turf. Where these conditions do not exist such as uneven sites, rough unmaintained grass, of soft ground it would be necessary to consider carrying out a deeper excavation to allow a stone raft to be installed on which to lay the dynamic base.

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Non-Turf Cricket Wickets (Continued)

This type of base functions by the moisture retained in the stone from the surrounding ground binding the fine particles of aggregate together, and when the base is rolled under the correct conditions it results in a hard, level, porous layer which dictates the playing characteristics of the pitch.

It is essential with this type of wicket that the base is properly maintained otherwise the performance will quickly deteriorate. During winter when the wicket is unused, freezing conditions will loosen the particles in the base, so a pre season rolling regime similar to that on a natural turf wicket is required to re consolidate the dynamic layer and develop the pace of the pitch. Further rolling during the season may be required to maintain the pace of the wicket as the action of the ball and the players on the surface will loosen the base aggregate below. This is best carried out shortly after rain, or after prolonged periods of dry weather it may be necessary to apply water from a sprinkler prior to rolling. In addition, the wicket may also require weed, moss, and worm treatments as necessary.

The main selling point of this type of installation is that it will offer playing characteristics for practice similar to the natural turf wicket on which matches are played. The pace can be varied and adjusted by the amount of rolling carried out, and also like a natural turf wicket, the pace will vary according to the ground conditions.

Because of the ongoing maintenance it is essential that the requirements are properly explained to the client and understood as performance will deteriorate and can become unpredictable if this is neglected. Generally it will be sports clubs, Colleges, Universities, and private schools that have the necessary equipment and expertise to properly maintain the base.

Periodically, and particularly if maintenance has been lacking, it may prove necessary to remove the playing surface to service the base. This involves re grading the hard-porous base material and topping up with additional new aggregate of the correct type if required. The aggregate would then be levelled and re compacted before refitting or replacing with a new playing surface.

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Solid Bases

These bases offer fixed playing characteristics and therefore tend to be found where cricket is played at a lower level. Because the base is hard, the wickets produced tend to be fast and high bouncing although providing the base has been properly finished it will be consistent and predictable. They would generally not be found where higher standard cricket is played as when used for practice would not replicate the play found on the natural grass wicket.

Dense concrete bases are by far the most common and if laid correctly will last for many years with little maintenance, and can be resurfaced many times, quickly and economically with roll up/roll down surfaces, or surfaces bonded to the concrete with a weatherproof adhesive.

As well as the non adjustable performance, a further draw back comes from poor drainage. Over the years following installation the surrounding ground unless rolled, rises around the slab causing the surface to sit in a “Well” and hold water. This is accentuated as the concrete does not allow the water to drain through. These conditions are ideal for the growth of moss and algae on the surface which would need to be treated before it becomes slippery.

In an attempt to overcome this drainage problem, occasionally porous tarmac bases are installed rather than concrete. These generally use a base pad and edge fixed playing surface as on a dynamic base however the playing characteristics are fixed and non adjustable as with concrete.

Solid bases are generally very low maintenance compared to dynamic bases and as such require no specialised knowledge or equipment to keep up performance. A concrete base with stuck down surface is resistant to vandalism and easy to repair making them most suitable for unsupervised areas.

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Direct lay

There are at least two manufacturers of wicket that market a product that is laid directly onto suitable ground without a base. The ground needs to be firm and level and the grass shaved very short. Any minor undulations are levelled with sharp sand.

A special stiff base pad is laid onto the ground and pegged down and comprises a sandwich of expanded foam between two polyester fibre pads. It is this pad that dictates the pace of the wicket, and therefore this is not adjustable.

When installed, this type of wicket looks identical to one with a dynamic base, but they cannot be serviced in the same manner as it is the ground below the pad that becomes uneven over time. For this reason care should be taken when inspecting a wicket for refurbishment to identify if it is on a dynamic base or not.

This type of wicket is generally marketed as a temporary facility where perhaps it is known it is likely to require relocating after one or two seasons use.

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Shock pad or backing

This is either a separate layer, or coating applied to the back of the playing surface to isolate the bounce of the ball and the player's action from the base.

Polyester pad

This is a purpose designed separate pad installed usually over a dynamic base prior to installing the playing surface. The pad is heavily needled and latexed to make it stiff.

The pad is designed to control the bounce of the ball on the base and also reduces the amount of rolling required as it lessens the disturbance of the hard porous aggregate fro the action of the ball and players.

The pad is designed to be stable and not move in all weather conditions.

Rubber pads

These tend no longer to be used for new installations, but were commonly in use and there are many older wickets that still have them in place. The rubber was either in tiles or narrow rolls with taped joints. 8mm thick pads were used under bowlers run ups, and sometimes 4mm pads under the middle section of the wicket between the stumps.

An inherent problem with rubber pads is that they expand and contract according to the amount of moisture in the base causing the taped joints to fail. Gaps can often be seen between the pads as ridges below the playing surface. It is usually necessary to renew the rubber pads with polyester when refurbishing an old wicket.

Attached backing

Playing surfaces designed for roll up/ roll down use often have a backing applied to the reverse surface which can either be a continuous coating of rubber or PVC, or just intermittent "Knops" of PVC rather than a complete backing.

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These are generally applied to add weight to the carpet so that when rolled out it lays flatter sooner than un-backed material. They may marginally reduce the bounce when used on a solid base and offer slight resilience to the user. They do present manual handling problems due to the weight if regularly moved, and some backings are non porous causing the surface to hold water when used outdoors.

Playing Surface

Woven Surface

These products are produced by the traditional Wilton weaving method on a loom.

The fibre tufts are locked into the backing in the weaving process by warp and weft threads, all of which are manufactured fro 100% UV stabilised polypropylene. After weaving a latex backing is sprayed on for further strength although the surface remains fully porous.

This product is the highest quality surface available and can last for 10 years of more depending on use and correct maintenance. The manufacturing process is very slow and labour intensive resulting in an expensive product.

This type of surface is only manufactured 2.74m wide, and is mainly installed on dynamic bases with a polyester pad.

Needle-punched Surface

Also known as fibre bonded, this surface is made on a much faster production line process and offers a cheaper but acceptable alternative to the woven product although with generally a reduced life expectancy.

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The surface comprised a blend of 100% UV stable polypropylene fibres which are passed through a series of fine vibrating needle combs which “Knit” the fibres together to form a dense mat. In some products, the fibres are needled through a thin polyester fabric scrim to make them dimensionally stable enough to be edge fixed without stretching in use. Other products without the scrim are less stable and only suitable for sticking down of for roll up/roll down use. In both types latex is applied to the underside of the mat to hold the fibres in place and add strength.

A wider range of widths is generally available with these products, typically 2m, 2.74m, and 4m.

Tufted Surface

These surfaces are similar in appearance to a woven surface but instead of being made on a loom, the tufts are punched through a pre fabricated backing cloth. The tufts are then glued in place with an SBR adhesive applied to the reverse side of the backing cloth.

Drawbacks with this type of product are that in use, particularly in the batting crease or bowling crease areas the tufts can pull out of the backing leading to “bald” patches and in general does not last as long as the woven or needle-punched surfaces.

The backing cloth is quite weak making it difficult to tension the wicket on dynamic bases although with care it can be used on this type or bonded to solid type bases.

The adhesive coating holding the tufts in place seals the back of the product making it impermeable. Holes are made in the backing during production so there is some drainage but it is not fully porous unlike the woven and needle-punched surfaces.

Tufted surfaces are generally produced in 2m, 2.74m, and 4m widths.

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