

Umkhulu Modules (this is a slightly edited version of an article which originally appeared in 'Steam in the Garden Volume 18 no 3 – May/June 2008

“Ex Africa semper aliquid novi” Pliny the Elder AD 23-79 would have us believe. Roughly translated this means there is always something new from Africa. Well, not in this case. It has all been done before, many times and probably better but this is how I planned and built a portable (?!) modular layout to run live steam on 32mm and 45mm tracks. The layout is called Umkhulu Modules.

It all started when my wife went out to buy a loaf of bread and returned with a townhouse. My dearly beloved had run in to an estate agent at the shop who asked if we were thinking of moving house as she had this divine townhouse for sale. WE were certainly not thinking of moving. WE had a 'rondavel' in the garden which had been custom built as a billiard room. It was 28 feet in diameter and had a high thatched roof. The previous owners of the house had kindly sold the billiard table leaving the room empty but it did not stay that way for long. After a short spell as an exercise studio, the room had accommodated Durban Modular Railroaders (DMR), an HO/Hon3 portable modular layout for 15 years (it started off as portable doing shows in shopping centres but eventually transporting, erecting and dismantling became too much like hard work). In addition I had a 45mm track running around our swimming pool so you could say that I was happily ensconced on the property. But to be fair, our lives were changing. Our children had flown the nest and maintaining a large, thatched property for just the two of us began to make little sense so after humming and hawing over the townhouse a decision was made to move. This obviously involved dismantling the HO/Hon3 layout (still in storage 14 years after our move!) and digging up the track around the swimming pool. That was quite a traumatic process.

The new house did not have a suitable room to accommodate the DMR modules. Several possibilities for creating one were investigated but nothing gelled.

(Something has been done at last – watch this space!) In the meantime I had become increasingly interested in live steam. Unfortunately, apart from the larger gauges (mainly three and a half and five inch) there was nobody else in the Durban area whose interest in live steam had extended to building a 32mm or 45mm track so if one was to eventuate it was a case of do it yourself.

After reading widely on the subject and holding a number of planning meetings with former members of Durban Modular Railroaders the following broad criteria were compiled:

- Portable, so that the layout could be exhibited to the public, in particular at the Durban Society of Model Engineers
- Robust construction. DMR modules lasted for over 20 years. (I am now 71 so if Umkhulu Modules do the same that will see out my remaining time on this planet!
- As weatherproof as reasonably possible
- Where ever possible use left over wood arising from the dismantling of the DMR layout so saving costs
- Incorporate easements (transitions) on curves so that speeding locos did not derail and fly off the boards
- Radii of curves to be as large as possible (2.1m in the case of 45mm and 1.9m for 32mm)
- Separate tracks to enable both 32mm and 45mm gauge locos to be run

The modules baseboards comprise 18mm, 9 ply shutterboard and 2x1 and 3x1 pine. As the name suggests shutterboard is used in the building industry for concrete shuttering. This material was chosen for the baseboards because of its robustness and weatherproof nature as it has already been treated to resist water. It is supplied in 1220mm x 610mm sections (4'x2'). There are 18 boards in total, 3 on each side which are straight and thus are 1220mm x 610mm and 2 lots of 6 rhombic shaped boards which were cut to 15 degrees at the end of each board by the supplier giving a length of 1220mm on the outside and approximately 900mm on the inside.

Underside of baseboards showing 'T' bracing



The boards were braced with 2x1 'T' beams down the centre which are secured into 3x1 end pieces running crosswise (refer photograph below of corner board)

The 3x1 crosspieces at the ends of the boards are recessed sufficiently so that when the boards are joined the trestles sit in between them and are interlocked with carriage bolts and butterfly nuts. A jig was used to drill the holes for the carriage bolts so that any trestle can be used for any two boards.

The trestles



There are two types of trestles. The first, uses 2x1 pine for the legs and cross bracing with two 3x1 cross members back to back at the top. The second comprised two 3x1 cross members back to back and a single 3x1 leg.

All legs are adjustable via an extension with a central slot which slides up and down two securing screws at the end of the legs. Baseboard and trestle construction involved the use of over 600 screws. Thank goodness for "pozidrive" screws and an electric screwdriver!

A weatherproof acrylic paint, 'Wall and All' was used to coat the trestles and baseboards after priming with wood pink primer.

Turning now to the track, fortunately despite already having spent several years outside, the 45mm track was still in fairly good condition and could thus be reused. I should perhaps explain that this track had been produced in South Africa. The rail had the same profile as LGB and so could be used with LGB points. However unlike LGB which uses brass, the locally produced product was made of copper. There are

advantages and disadvantages with copper but in this instance the former prevailed, mainly that the use of a rail bender was unnecessary.

32mm track and points are Peco SM32 nickel silver. The only problem with this track is that insulating joiners are not available so that for the foreseeable future it will not be possible to run electric locos other than battery powered ones on the 32mm track. The technique used to lay and secure the track was the result of trial and error. A friend kindly worked out the geometry on his computer and a trammel was used to draw the approximate position of the track on the boards. Some articles on the subject recommend using a piece of string at the end of which is tied a pencil for this purpose but I prefer a trammel made of a long piece of wood with a nail as the pivot and a pencil fixed in a drilled hole at the other end. This gives greater accuracy. Having drawn the curves on the baseboards, easements were incorporated by visually sighting along the track gradually decreasing the curvature as the straight track was neared. This is not a scientific approach but it worked for me. Those who wish to obtain insight to the geometry of curves are referred to three articles on the subject in Garden Railways by Christopher Mills (December 1995, February and April 1996). Harold Fuller's article in the October 1996 Garden Railways on "Easy Easements" is also a useful reference.

Tracklaying



Having decided on the track location, styrene "locators" were placed under the sleepers to hold the track in position (refer photograph alongside).

The styrene locators were fixed to the baseboards with brass cabinetmakers pins and then the track was pinned through the sleepers into the locators. The result is a robust system which stands up to a fair amount of punishment experienced with erecting/dismantling/ transport. When the modules have been erected and joined together and the baseboards levelled using a spirit level, the track is joined by sliding rail joiners, retracted into a neighbouring rail, into the adjacent rail.

One final feature visible from the photographs is that each baseboard has four short legs located at the corners which facilitate vertical stacking of the modules.

I hope those who suffer from the problem of not having a readily available permanent track on which to run their locos will find a useful idea or two in the foregoing.

Please contact me at northstarrailway@gmail.com if you want any further explanation of how I built Umkhulu Modules. By the way, Umkhulu is Zulu for old men.....

Set out prior to set up at Wings Wheels and Whistles (Pietermaritzburg Model Engineers public exhibition 2013)



The Finished product (The late Sheldon McGlone on the right)

