

# Working with MILS modules



*Text and Pictures by Ludo Soete*

My name is Ludo Soete, born on 22 October 1958, and father of two sons aged 23 and 21. My first contact with LEGO® bricks was in my childhood and started with a shoebox full of bricks, windows and roof tiles when on holiday with my grandparents on my mother's side. While growing up we had our own bricks and I shared them with my four younger sisters. As with most among us, I entered my dark age at a certain time, but then renewed my interest at the age of 30 and have been buying ever since.

I'm one of the six founding fathers of BeLUG, and was chairman for the first five years. I was also the LEGO® Ambassador for BeLUG and participated as a BeLUG member in the first ten editions of LEGOWORLD in Holland.

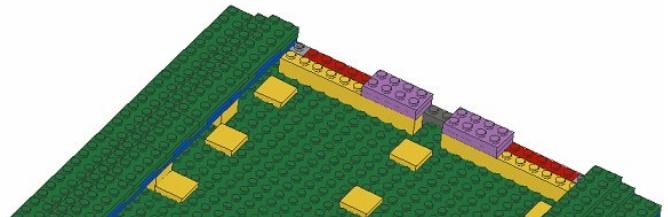
My main interest is in trains and station buildings, and recently I have started with MILS modules. For some pictures of my constructions see my BrickShelf page at: <http://www.brickshelf.com/cgi-bin/gallery.cgi?m=ludo-soete>

## MILS

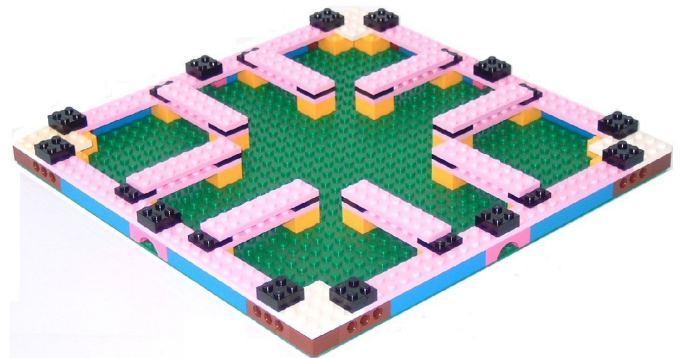
If you are an AFOL who enjoys building collaborative layouts or dioramas, you may have already come across the mysterious term 'MILS'. Don't worry if you haven't, because this article will hopefully de-mystify MILS as we explore this exciting modular layout system.

The abbreviation MILS has become more common among AFOLs, and a quick internet search will reveal many people and communities using it. My first contact with MILS was through articles in HispaBrick Magazine, and later through some pictures on the internet. Those displays were great but I hesitated to build my own because the modules described in HispaBrick Magazine focused mainly on terrain/landscape-based modules. Once I discovered the MILS Multi-Road Modules from Michael Gale (CCM = Compatible City Module), my MILS building adventure began. Now I could build a MILS city AND combine it with MILS terrain modules like the HispaBrick Magazine BTM and CTM modules.

So I started building modules of many different types and continued building an inventory of almost 100 modules. In the meantime, I made some improvements to my MILS City Road modules compared to the original building instructions. The expensive 32x32-stud baseplate in the original City Road modules bends due to the weight of the walkway. The improvement consists of placing a 1x10 brick (or a 1x8 + 1x2) adjacent to the existing red 1x8 bricks, and adding eight supplementary 2x4 plates to strengthen the construction. By using the additional 2x4 plates, you make an extra connection to the road tiles, and hold the original (red) 1x8 brick together with the additional 1x10 brick. See the yellow 1x10 bricks and purple 2x4 plates in the picture below.

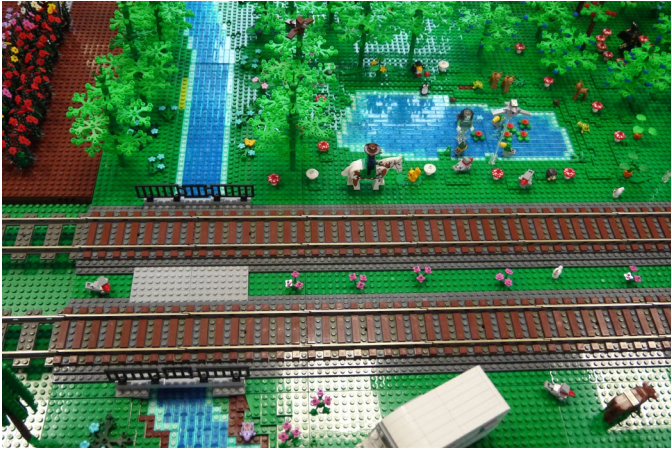


While talking about the expensive 32x32 base plate, I was thinking of replacing the 'MILS MultiRoad Modular Building Adapter Base 32' with a wooden support. It could be cheaper and the released baseplate could then be used in another BTM, CTM or CCM MILS module. The height of the Building Adaptor Base is 22.25mm.

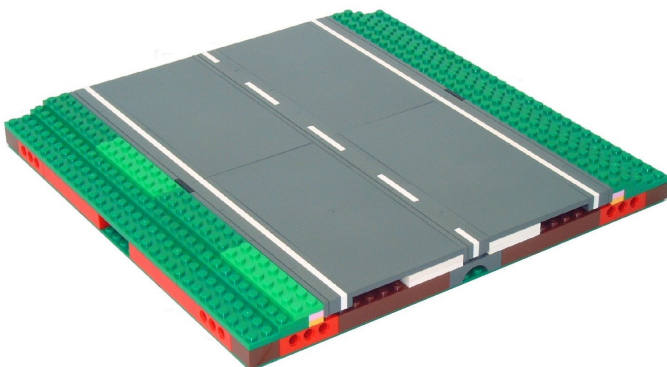
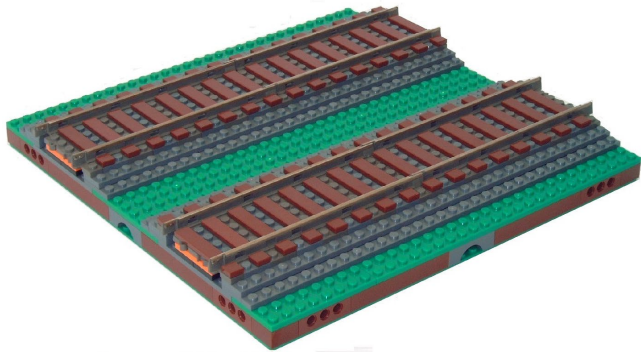


The cobblestone road you can find on [L-Gauge.org](http://L-Gauge.org) is one of the MILS modules I contributed to the community. The parking modules are also ready, and will be published soon. People are more than welcome to contribute MILS modules to L-Gauge.org by contacting Michael via the site.

Recently, I participated for the first time in a small display (2 by 6 meters) with some of my MILS modules. Because we were exhibiting in a train station, the main theme was obviously trains. However, a train layout can also be a wonderful showcase for scenes and details beyond the railway. I always try to add a small forest with a pond and some hidden mini figures (Little Red Riding Hood, Wolf, Witch, Scouts & animals). This is always a success, especially with the children! Due to some problems with the available space, we needed to improvise part of the display and here is where MILS modules become incredibly useful and adaptable. When you have enough modules and can't follow the plan anymore, MILS modules allow you to improvise new arrangements easily and seamlessly.



The display consisted of some MILS modules and the 'old' style of layout building, placing the baseplates on the table and placing the track, trees, flowers and buildings on them. The two work together, but the MILS modules offer something more due to their increased height – four plates for the terrain BTM & CTM modules, while the Multi-Road City modules walkways are eight plates high and the streets six plates high. This additional height makes it possible to create 'negative' relief landscape features, such as a small river or ditch. These features are nearly impossible using the old method of flat baseplates, unless you can tolerate the inconvenience of placing the supporting tables at different relative heights. I like the MILS concept, and the AFOLs who participated on the layout were also interested. Who knows? Perhaps they will be tempted to build their own MILS modules!



While experimenting with the modules I noticed when connecting the modules together that the light grey Technic pins function better than the black Technic pins with friction. The grey pins connect much easier, and are also easier to remove.

For storage, I searched for some plastic boxes with lids. This wasn't so easy because most boxes I found were either too low or too wide. Eventually, I did find some suitable boxes which were also easy to stack. They are handy both for home storage and for transporting by car.

## BlueBrick: Preparing the layout

BlueBrick is a familiar and useful software tool for designing layouts among the community. It also has the added advantage of expanding its libraries. I started building my different MILS modules with MLCad and generated the needed GIF files for BlueBrick using Paint and IrfanView (<http://www.irfanview.com/>). The latter is freeware and very handy for resizing pictures and converting to GIF format. Unfortunately, MLCad does not have the ability to create top view pictures of modules (Save Image(s)...), so I make the top view window as large as possible, copy it into Paint using the Snipping tool in Windows 10 and save it. I open this file using IrfanView, crop the borders and resize to 256 x 256 pixels for a 32 x 32 MILS module (BlueBrick uses images scaled 1 mm : 1 pixel).

Once ready, it's easy to distribute the files among participating people so they can use them too if they need to make some changes.

At the moment of writing this article, I'm also working on the BlueBrick pictures and accompanying xml files for the MILS MultiRoad Modules, which will also be hosted on L-Gauge.org, thanks to Michael Gale.

## Standardization

I recently browsed the internet for some pictures regarding MILS-compatible or lookalike systems and noticed that there are different versions of road modules which are not compatible in width or connection points. Some use a walkway from five studs (Michael Gale), others use four studs (Ostman el Sullusta & SweBrick). The SweBrick road modules have different connection point locations, the walkway is seven plates from the bottom, and they don't use a baseplate. As you can see, there's no standard between modules, and this makes it difficult to build large dioramas in a joint venture of clubs from different countries. The only standard I know of that mostly every train fan follows is 4-8-8-8-4 studs.

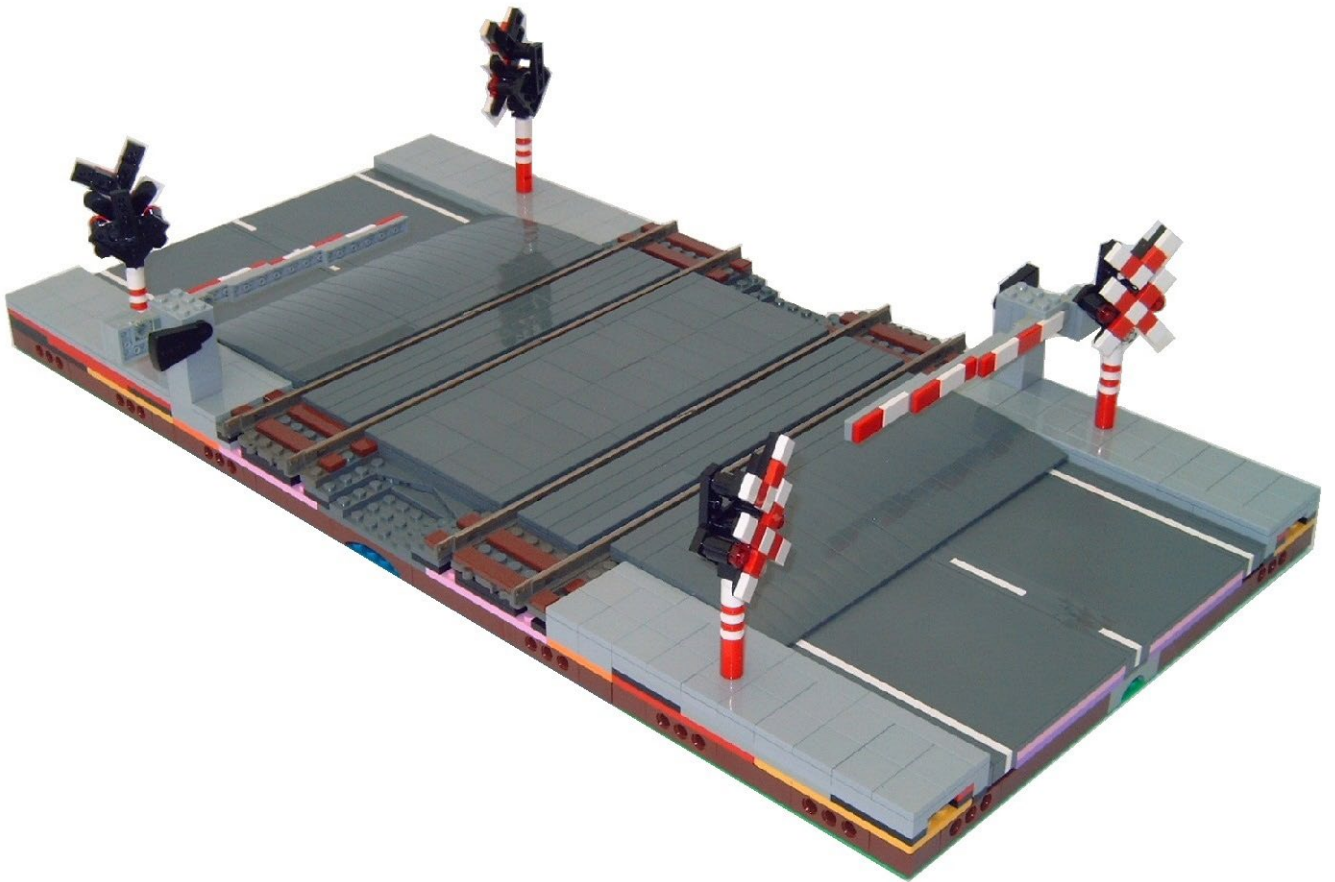
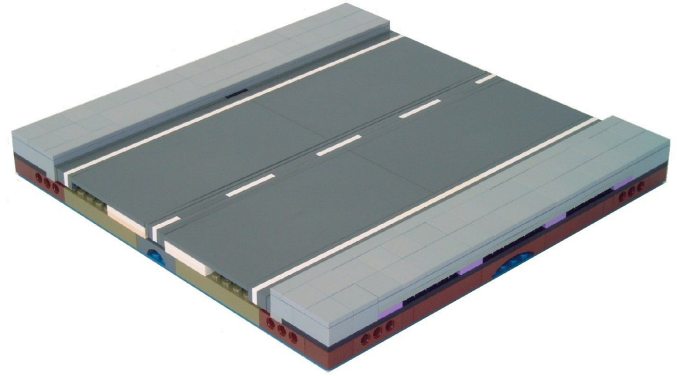
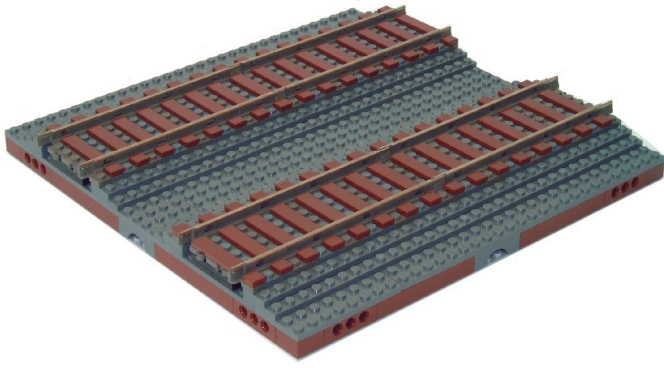
## Availability of pieces

As we all know, LEGO® is an expensive toy and costs even more if the needed pieces become rare on the aftermarket, not forgetting the increasing high shipping costs too. Therefore, if someone from TLC reads this article, I would like to ask them to keep the needed pieces available in enough sets so it stays financially affordable for everyone to build MILS modules, which consume a lot of pieces. Once certain needed pieces reach a sky-high price, it will be over and done. This would be a shame as you can build very nice scenery with them.

## Next step

The next step in this story is to develop a cheap but easy to use and implement system for distributing electricity for railroad crossings, traffic lights, ...

I know some people are already exploring these ideas. I'm also looking for a solution. I do have some ideas, but I will need to make some prototypes and test them out.



## Credits

I wish to thank Michael Gale for hosting the MILS building instructions and reviewing this article, and Antonio Bellón for asking me to write it.

## MILS resources

<http://www.abellon.net/MILS/>

[http://l-gauge.org/wiki/index.php/Reference\\_Instructions](http://l-gauge.org/wiki/index.php/Reference_Instructions)

<https://www.flickr.com/photos/sullusta/albums/72157663013172655>

<http://www.swebrick.se/index.php?topic=6350.0>

<https://www.flickr.com/groups/mils/>

#