1 Introduction

The idea for the TikZbricks package was born at the TUG’21 conference, at which one of the interviewees had a very cool collection of brick models in the background.

The package allows to draw bricks with TikZ. The user can modify their colour, shape and change the viewpoint. Internally the tikz-3dplot package is used for the 3D rendering.

The package is included in both TeXLive and MiKTeX and available from CTAN (https://ctan.org/pkg/tikzbricks). The development version of this package is located on github at https://github.com/samcarter/TikZbricks. If you have any problems, ideas or other feedback, please make constructive use of its bug tracker.

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2 Basic usage

An individual TikZbrick can be drawn with

\begin{tikzpicture}
  \brick{4}{2}
\end{tikzpicture}

in which the first argument specifies the length of the block and the second argument its width.
In addition to this basic block, the user can customise the block via the following optional arguments (the value in parenthesis denotes the default value):

<table>
<thead>
<tr>
<th>Optional Argument</th>
<th>LaTeX Code</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick colour (red)</td>
<td>\begin{tikzpicture} \brick[color=blue]{1}{3} \end{tikzpicture}</td>
<td><img src="image" alt="Red Brick" /></td>
</tr>
<tr>
<td>Front colour (color!60)</td>
<td>\begin{tikzpicture} \brick[frontcolor=blue]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Front Colour" /></td>
</tr>
<tr>
<td>Top colour (color!40)</td>
<td>\begin{tikzpicture} \brick[topcolor=blue]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Top Colour" /></td>
</tr>
<tr>
<td>Side colour (color)</td>
<td>\begin{tikzpicture} \brick[sidecolor=blue]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Side Colour" /></td>
</tr>
<tr>
<td>Stud colour (color)</td>
<td>\begin{tikzpicture} \brick[studcolor=blue]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Stud Colour" /></td>
</tr>
<tr>
<td>Brick height (1.3)</td>
<td>\begin{tikzpicture} \brick[brickheight=0.3]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Brick Height" /></td>
</tr>
<tr>
<td>Brick length (1)</td>
<td>\begin{tikzpicture} \brick[bricklength=1.5]{2}{1} \end{tikzpicture}</td>
<td><img src="image" alt="Brick Length" /></td>
</tr>
</tbody>
</table>
Brick width (1)

\begin{tikzpicture}
\brick[brickwidth=2]{2}{1}
\end{tikzpicture}

Stud radius (0.35)

\begin{tikzpicture}
\brick[studradius=0.2]{2}{1}
\end{tikzpicture}

Stud height (5)

\begin{tikzpicture}
\brick[studheight=8]{2}{1}
\end{tikzpicture}

Stud text ()

\begin{tikzpicture}
\brick[studtext={TikZ}]{2}{3}
\end{tikzpicture}

To change the viewpoint, one can make use of the fact, that the tikz-3dplot package is used internally. By default, the TikZbricks package uses \tdplotsetmaincoords{70}{160}, but this can be adjusted as desired:

Viewport

\tdplotsetmaincoords{70}{110}
\begin{tikzpicture}
\brick{4}{2}
\end{tikzpicture}

In addition to these TikZbrick specific options, one can also use all normal TikZ options:

TikZ options

\begin{tikzpicture}
\brick[draw=red,fill=blue,scale=1.5]{1}{1}
\brick[xshift=3cm]{2}{2}
\end{tikzpicture}
3 Wall building

So what to do with the Ti\texttt{kZ}bricks? Like with any other building blocks, they are made to build things. Using the \texttt{wall} environment one can place \texttt{\wallbrick} besides each other.

Due to the perspective and order of drawing, the wall is build from bottom to top and from right to left. To leave gaps or change into another layer, one can add to the \texttt{brickx}, \texttt{bricky} and \texttt{brickz} counters.

Inside the \texttt{wall} environment one can use \texttt{\newrow} as a shortcut to go one row up and back to the start at the right hand side.

4 Example

One example inspired by the documentation of the \texttt{pxpic} package:

\begin{wall}[scale=0.5]
    \addtocounter{brickx}{3}
    \wallbrick[color=yellow!80!orange]{6}{2}
    \newrow
\end{wall}