**10 x 1 in a cube**

For G4GX I designed a puzzle that honors the theme (10) of this gathering for Gardner. The puzzle consists of 10 pieces shaped like the digit 1. This shape tiles the plane; thus it can be cut efficiently from planar material. Written together like 1111111111 gives the representation of the number 10 in unary.

The pieces can be assembled into a cube in 4 different ways, shown below. Each row of 4x4 squares in the image below represents the four layers of a solution. Please try to solve the puzzle before looking at the solutions. Although the puzzle is not trivial; it is certainly possible to solve it manually.

![Solution 1](image1.png)

![Solution 2](image2.png)

![Solution 3](image3.png)

![Solution 4](image4.png)

The pieces were laser-cut from 5mm sand-blasted blue acrylic (PMMA). This material has the problem that the thickness can vary quite a bit. The *unit size* of the pieces was adjusted for the actual thickness of the material. The pieces in each set use, of course, the same *unit size*. If you combine pieces from different sets you may encounter problems.

This puzzle was designed with BurrTools; see http://burrtools.sourceforge.net/