

Wired Tubes

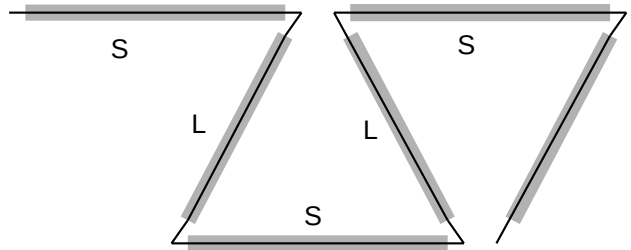
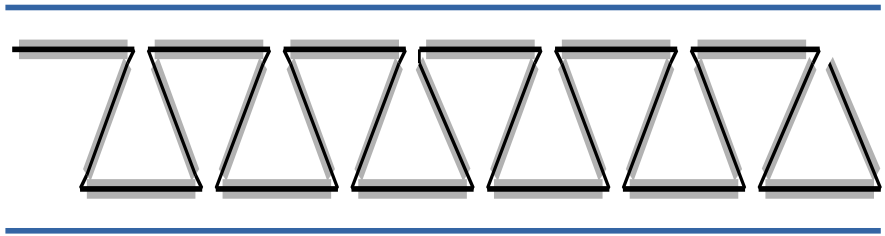
How could a person with only a hacksaw and pliers build useful structures out of metal tubes?

The challenge was to create a way to build structures out of metal tubes, that could be achieved in homeless camps with a minimum of cost and tools.

The technique proposed here requires only a hacksaw and heavy pliers for tools, and metal electrical conduit, and heavy galvanized wire for materials.

The prototype project was to be a table support in which wire was threaded through cut lengths of tubing. If the horizontal zig zag pattern below was stabilized by running additional wires (blue) through the top and bottom rows, the ends could be connected to form a hexagonal tube of triangles.

When four pairs of triangles were thus circled and connected, a basic table support structure was achieved. Granted, this would not be as strong as structures of this material that had their ends been flattened and drilled to accommodate bolts, but it would serve for some purposes.



As a further vision, consider again the hexagonal enclosure. If you wired in six tubes of adequate lengths to a point in the center you could create a roof frame for the encircling triangles. Note that these six tubes would need to be longer than the tubes of the surrounding hexagon, or the surface would remain flat. So a minimum of two tube lengths will be needed for this



structure.

In order to avoid waste, make a single cut on a 10' length to provide both the required lengths. By this means the long pieces could provide the vertical elements, while the short ones would secure the top and bottom perimeters.

You would need 12-10' lengths to build the perimeter of triangles, plus six more long lengths to meet in the middle – 18-10' pieces in all.

If you cut the 10' lengths at 63-9/16" from one end, you would develop a structure 9.4 feet in diameter by 6'1" at the top, having an area of 69 square feet.

I am suggesting this measurement for a very sneaky reason: By the time you build two of these, you would be just five pieces shy of being able to recycle and combine both of them to build a bolt-together geodesic dome 16'8" in diameter by 8'4" high, with 213 square feet of floor space. The bolt-together form of this structure was strong enough that it has already been used a couple of times as a form for troweled-on cement!

