

structurally  
sound

## VITAL FLUID



**METAL SCRAP'S** most recognized sustainability characteristic is its ability to be infinitely melted down for new metal products.

But sometimes, instead of being melted down, it becomes art.

Of course, all metal has been melted down and repurposed at some point along the line, and the sculpture *Our Friend Fluid Metal* incorporates multiple “generations” of metal.

“I accumulated mass quantities of these dense aluminum children’s playground toys over several years and got the idea for *Our Friend Fluid Metal*,” explains the sculpture’s artist, Nancy Rubins. “These objects were first produced in the late ’40s and early ’50s. In past sculptures, I’ve used tens of thousands of pounds of airplane parts that I purchased from an airplane parts scrap dealer—and at a certain point I realized that these aluminum children’s toys were recycled from airplanes that were melted down after World War II. As these aluminum objects are presently being removed from children’s playgrounds, I’ve managed to catch them before they are to be melted down yet again. Though my work is well engineered, made of strong materials and built to last, I’m highly conscious of the transience of the elements.”

Designed by Jaime Garza, vice president of structural engineering firm Nabih Youssef Associates in Los Angeles, the framing for the sculpture employs another infinitely recyclable metal. The system is a series of five hollow structural section (HSS) tapered steel box truss segments connected together, with an additional five single-member HSS segments nested together to create the central spinal support. The truss chord members are 3 in. square (reinforced with 2-in. pipe) and the single segments taper from a 5-in. square steel tube to a 2-in. square tube at the end. The curved cantilever is accomplished by connecting the five truss segments with post-tensioned cables within the chord members and connecting the remaining single segments with thru-bolts through their core. This post-tensioning and steel combination allowed for the smallest possible truss dimension of 18 in. square at the support, tapering to a 12-in. square truss at the end, as well as the ability to meet all strength and deflection requirements.

The 17-ft × 42-ft × 24-ft sculpture was exhibited at New York’s Gagosian Gallery from July to September and is currently on display at Rubins’ studio in Topanga, Calif. ■