

Eden Prairie Grass Proposal

By Remo Campopiano & Lisa Roy



Eden Prairie Grass is a 28-foot-tall kinetic sculpture designed to mimic the movement of live tall grass.



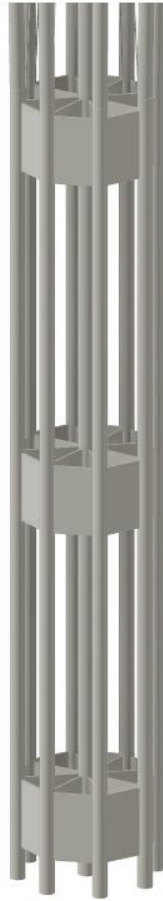
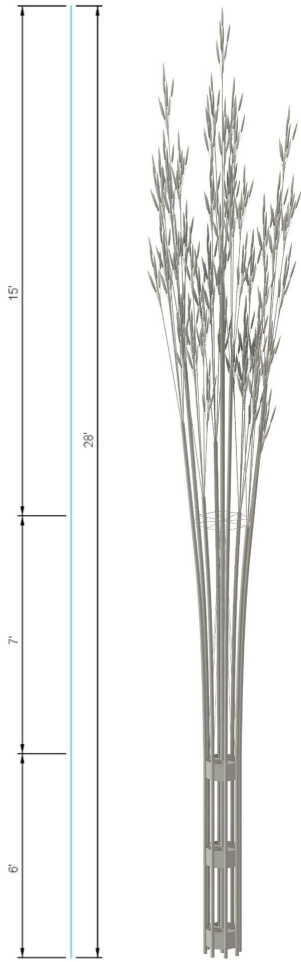
The Paravel art commission has a built-in problem to solve. The sculpture must be tall enough to create a strong visual impact, given that it is at the center of a large open space. We are approaching this issue with height and movement.

Eden Prairie Grass is 28 feet tall and designed to be in constant motion. It is lightweight by design and engineered to hold up to high winds as per Minnesota Building Code.

The center stalk is a stainless-steel pipe, 2" inside diameter, SCH80 and 20' feet tall. The eight stalks circling the center are also stainless-steel, 1.25" inside diameter, SCH40 and vary in length from 16 feet down to 14 feet. We are looking into adding an extra degree of stiffness to the pipes by filling them with concrete.

The top nine feet of each of the nine stalks are constructed from stainless steel rods. Much thought and experimentation has gone into this engineering process. It's not a simple matter to create a tall, yet flexible sculpture that can withstand harsh Minnesota climates.

See below for a detailed outline of how *Eden Prairie Grass* will be constructed.





The Rigid Base

The bottom 6 feet of all pipes are welded together to form a rigid base.

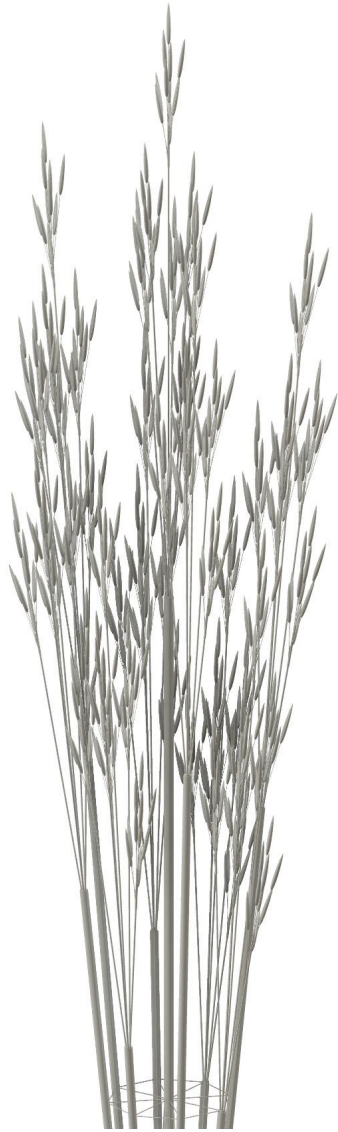
They will penetrate the finished grade by 8 inches and securely attach to the existing concrete slab.

Live grass circling the sculpture will be planted to hide the base of the sculpture..

The Semi-flexible Guy Wire System

		<p>The next seven feet allow for a small degree of flexibility, with guy wires holding the sculpture together.</p> <p>We have consulted our engineer and he agrees that by using a guy-wire system above a rigid bottom, we will be able to create a flexible and stable sculpture.</p> <p>If we are awarded this commission, all the structural engineering will be carefully worked out and detailed plans provided for your approval, before the fabrication stage.</p> <p>Note: all 3d-printed parts will be made from ASA filament, which is recommended for its resistance to UV light damage. The filament color will be white.</p>
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The First Branching Stage



The first branching stage begins with a 3d-printed plug inserted into the tops of each of the 9 stalks.

The plug is six inches tall with holes to accommodate the stainless steel rods. The three rod diameters are 1/4", 3/16" and 3/8".



The Second Branching Stage

The next branching system uses another 3d-printed element, a collar that slides down over the stainless steel rods.



The 1/16 inch stainless wires are inserted and epoxied into the collar. We've experimented with a variety of wire branching methods and found this method to be the most durable.

The grass seed pods, also 3d printed, are slid down over the wires and epoxied into place. The wire traverses 6 inches into the 7-inch seed pod.



This is a photograph of one of the seed pods on a stainless-steel wire.

We know this system works because we have spent the last 9 months experimenting with various sizes of rods and wires to create a robust yet flexible combination of materials to mimic the movement of tall prairie grass.

As I write this proposal, I am looking out my studio window at a 18 foot version of this sculpture that uses less robust materials, yet it has held up quite well during this brutal Minnesota winter.

Below is our 3rd and latest prototype, the one outside our studio windows.



Click the image below to view our 2nd prototype in motion.



Budget for Paravel Proposal

	Size	Number	Cost/pre	Cost
Materials		Note: 9 stalks x 6 rods x 10 wires = 540 pods		
	SS Pipe 2" ID	1	378	378
	SS Pipe 1.25" ID	6	310	1860
	SS Rods			
	1/4"	36	14	504
	5/16"	9	\$25	225
	3/8"	9	\$36	324
	SS Wire (Note: 1 - 10 lb box yields 1000 wires)			
	1/16"	540	1 box	\$80
	ASA Filament			
	1.75mm	10	\$25	\$250
	Miscellaneous Materials			\$500
Equipment				
	3d Printer Enclosure			\$379
Contractors				
	Engineering			\$3,000
	Fabrication (Metal)			\$3,000
	Fabrication (3d Printing)			\$2,000
	Fabrication (Assembly)			\$2,000
	Installation			\$1,000
Management/Development				
	Planning			\$2,000
Overhead				
	Studio Rent			\$1,500
	Insurance			\$1,500
	Bookkeeping			\$500
Contingency				
				\$2,000
Artists Fee				
	Remo Campopiano			\$1,000
	Lisa Roy			\$1,000
				\$25,000