

# Rotary Centennial Plaza Public Art Madison, Wisconsin

David Boyer

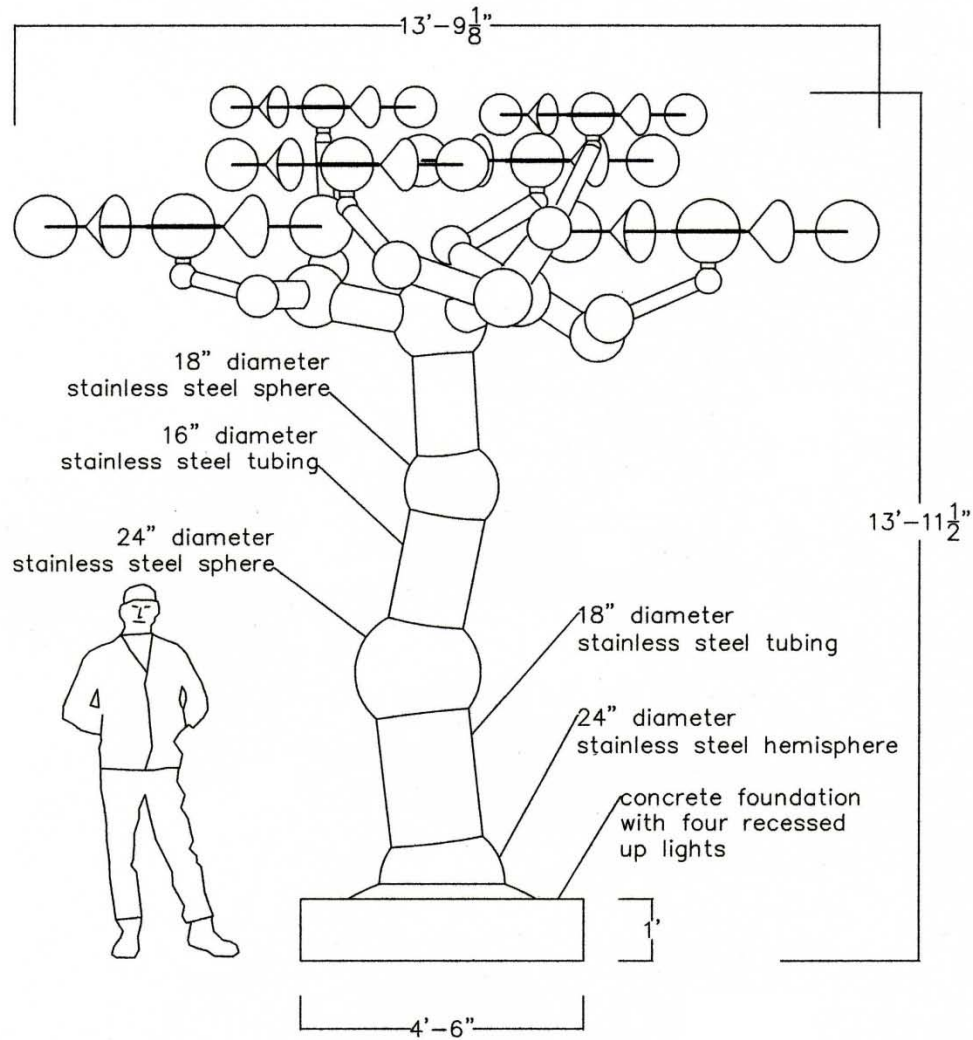
October 2011

# Sustainabilitytree

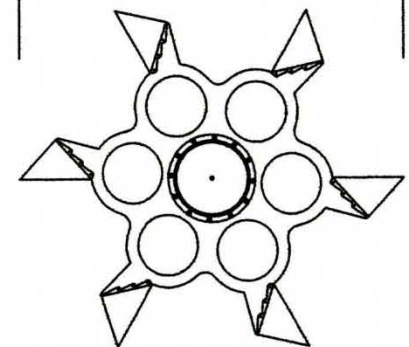
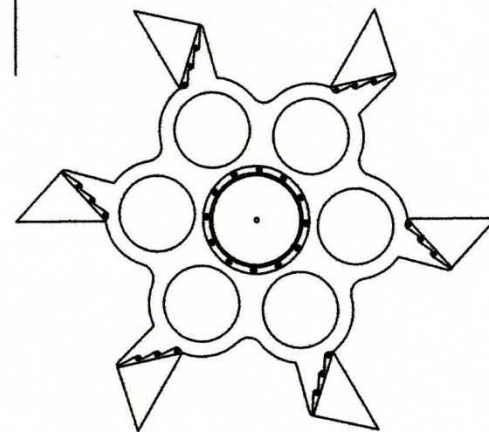
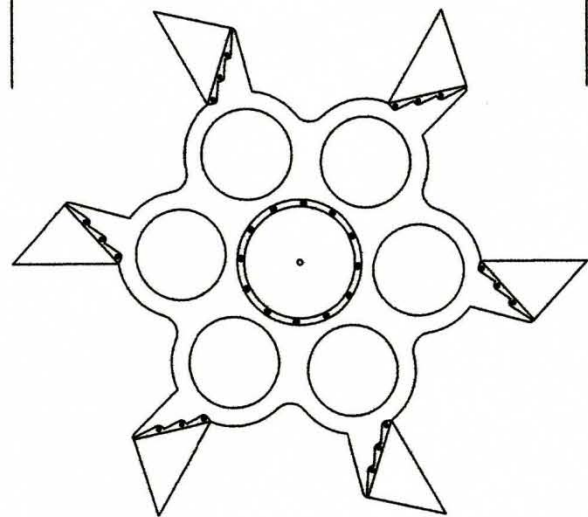
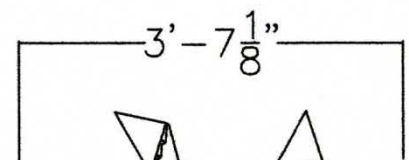
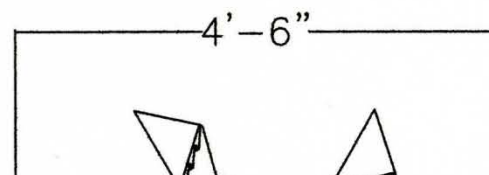
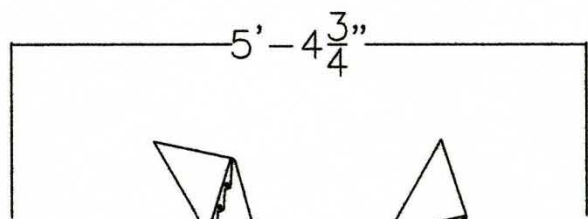
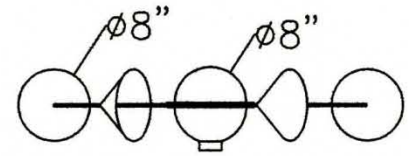
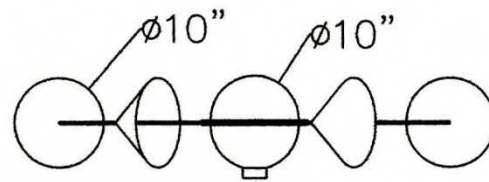
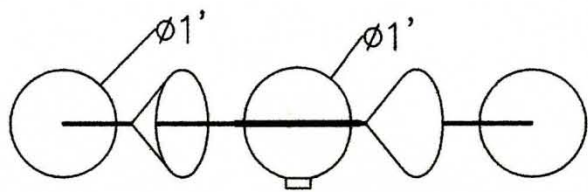


# Stage Area

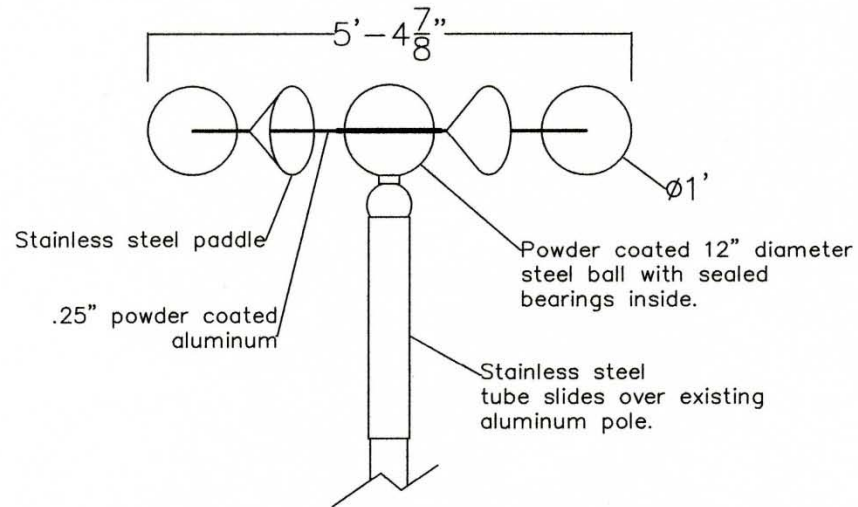
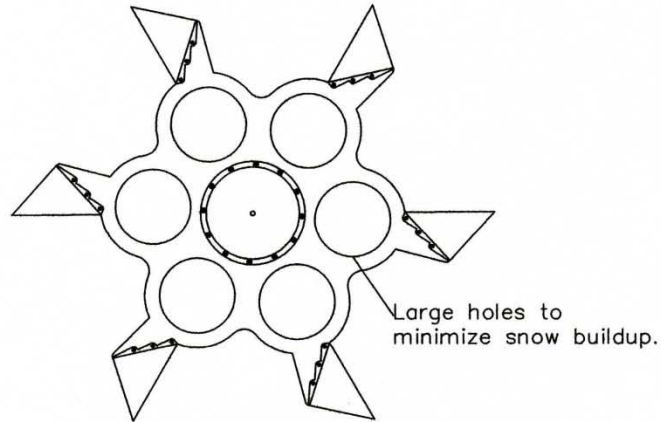




Sustainabilitytree details



Sustainabilitree paddle wheel dims



Stage area paddle wheel details  
(same materials as tree)



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**Madison, Wisconsin, Rotary Centennial Plaza, Public Art**

**October, 2011**

What I am proposing for the main Rotary Centennial Plaza circular area is a large tree-like kinetic wind sculpture. Additionally, there will be three wind-driven paddlewheels similar to those used on the tree that will top the three blank poles that now stand on the plaza stage across the street. The tree-like sculpture will be titled "Sustainabilitree". Combining the tree form with wind-driven mechanical elements is meant to be a metaphor for the need to use renewable and sustainable resources in our pursuit for a better future. With the Plaza's close proximity to the Children's Museum, it is my hope that this sculpture will inspire and give a sense of fun and wonderment to the children and families that visit the museum. It is also my hope that this sculpture will provide an anchor for that location and create a space where people will gather to relax and contemplate.

**Structure**

The trunk and branches of Sustainabilitree are constructed of stainless steel tubing and stainless steel balls, kind of like a giant Tinker Toy construct. Tig welding will be used to join these various parts. At the ends of the high branches are wind-driven paddlewheels. These are constructed using steel hemispheres, an aluminum disk-like structure, and cupped stainless steel scoops. The steel and aluminum are powder coated to add color and protect against corrosion. Inside the paddlewheel spheres are sealed bearings. Sustainabilitree will be mounted on a cement foundation that will be raised about one foot above the plaza surface. Embedded in the top surface of the foundation will be four "up" lights. Sustainabilitree will stand almost 14 feet tall. Though the structure will have a sizable overhead spread (over 13 feet), the footprint at the base is only 4.5 feet. The three paddlewheel sculptures that will top the stage poles are the same as large paddlewheels on Sustainabilitree and are mounted on stainless steel tubes that slide over the stage poles.

**Movement**

The paddlewheels of these sculptures use low friction sealed ball bearings. This combined with the omnidirectional design on the paddlewheels means that these sculptures will be in almost constant motion.

## **Safety**

As a structure, Sustainabilitree will be extremely robust. The trunk has been designed such that climbing will be almost impossible. All of the various moving parts are high and well out of reach. Because the footprint of this sculpture is relatively small and placement is off the main sidewalk, it should not create a hazard for those using the sidewalks, even those that are sight impaired. While individuals may be inspired to physically interact with the moving shadows that are given off by this sculpture, no unsafe play should be encountered from these interactions. The three paddlewheels at the stage area are similarly robust and out of reach.

## **Maintenance**

Madison has extreme weather, especially in the winter months. Heavy snow and salted sidewalks demand robust structures and corrosion resistant materials. Sustainabilitree has a trunk that is robust and is constructed from corrosion resistant stainless steel. I do not anticipate snow or salt being an issue. Additionally, graffiti will not damage the stainless steel surface of these sculptures and thus should be easy to remove. As for lubrication, this sculpture will use sealed bearings, so lubrication will not be required.

## **Installation**

Installation should be simple. Because this sculpture is large and tall, a cement foundation will have to be poured. A structural engineer will calculate the exact size and depth. Into that foundation, will be embedded large bolts. The half-inch steel plate on the bottom of “Tree” will be fastened to those bolts. Because the various parts of this sculpture are extremely heavy, I will hire a small crane for the day of the install. For the three pole sculptures, installation will be a simple matter of sliding these over the existing poles.

## **Timeline** (approximate)

**Month 1:** Contract signed and go-ahead authorized, design finalized and approved, structural engineering completed, funds issued so that materials can be ordered and the project started.

**Month 2 through 5:** Trunk and branches fabricated, stainless steel and steel parts cut and formed, bearing housings machined, etc., etc., etc.

**Month 6:** Sculpture parts trucked to Madison for assembly and installation.



## **Fabrication and Installation Budget (estimated)**

<b>Labor</b> Six months of my labor (960 hours x \$25/hr)	<b>\$24,000</b>
<b>Artist Fee</b>	<b>\$10,000</b>
<b>Materials</b>	
Stainless steel	\$10,000
Mild steel	1,500
Aluminum	4,000
Fastners	1,000
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Total Materials	<b>\$16,500</b>
<b>Outside Processes</b>	
TIG welding (tube to ball)	\$3,273
Water jet cutting of steel and stainless steel (various parts)	5,000
Powder coating	3,000
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Total Outside Processes	<b>\$11,273</b>
<b>Overhead</b>	
Studio payment (\$500/mo x 6)	\$3,000
Studio insurance (\$100/mo x 6)	600
Utilities (\$268/mo x 6)	1,608
Studio property tax (\$183/mo x 6)	1,098
Vehicle insurance (\$62/mo x 6)	372
Gasoline usage (\$96/mo x 6)	576
Liability insurance	273
Consumables (welding wire & gas, surfacing supplies, cutters, tools, etc.)	1,000
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Total Overhead	<b>\$8,527</b>
<b>Installation</b>	
Gasoline (4,000 miles ÷ 8 miles per gallon x \$4.50)	\$2,250
Hotel (21 days)	2,100
Per Diem (\$50/day x 21)	1,050
Crane rental (\$125/hr x 2 days)	2,000
Additional labor (\$200/day x 4)	800
Misc. expenses (rags, ropes, cleaning, foundation grout, etc.)	500
Facility rental (for "tree" assembly and storage)	1,000
Foundation and lighting	10,000
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Total Installation Expenses	<b>\$19,700</b>
<b>Contingency</b> 10% of the total manufacturing budget	<b>\$10,000</b>
<b>Fabrication and Installation Total</b>	<b>\$100,000</b>