



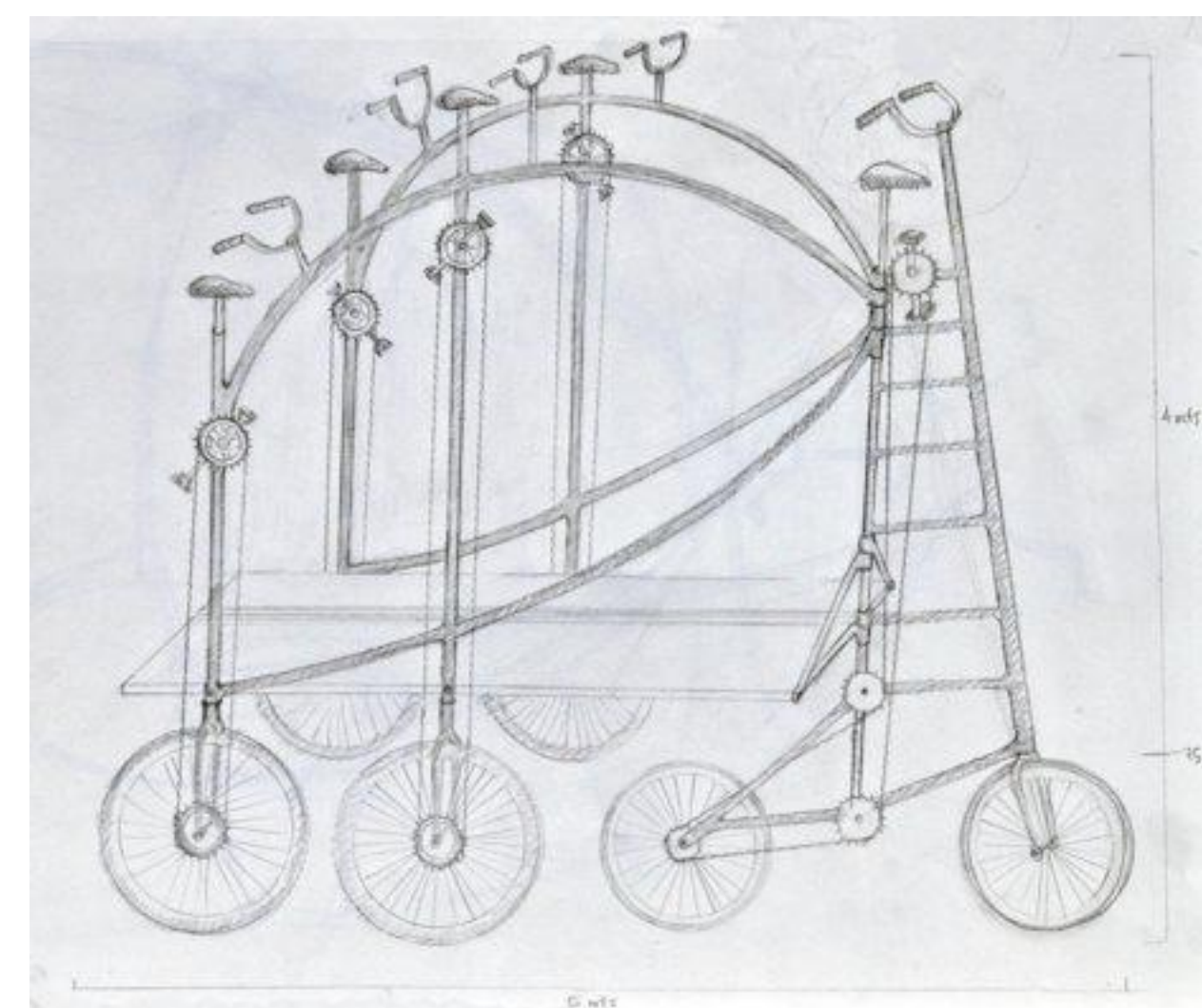
Something Collective Artrike

Art for Social Change

Problem

Client Abstract

"Artrike is a bicycle-powered puppet theatre and a multi-functional stage we plan to construct with the vision to engage diverse community members, (including youth, homeless, ethnic groups and seniors) in a variety of possible interdisciplinary productions."



Initial Client Sketch

The focus of our project is to create a piece of art that is totally emissions free through "pedal power".

The space allows for collaboration, innovation, and education. The radical act of collective art making will connect and impact the creators and audience of the art, enabling social change.

The Artrike's vision is to be an active piece of mobile art, cutting its way through the streets of Vancouver. It will be a symbol that inspires people to envision new models of sustainable living. Artrike serves a valuable cultural need in our community.

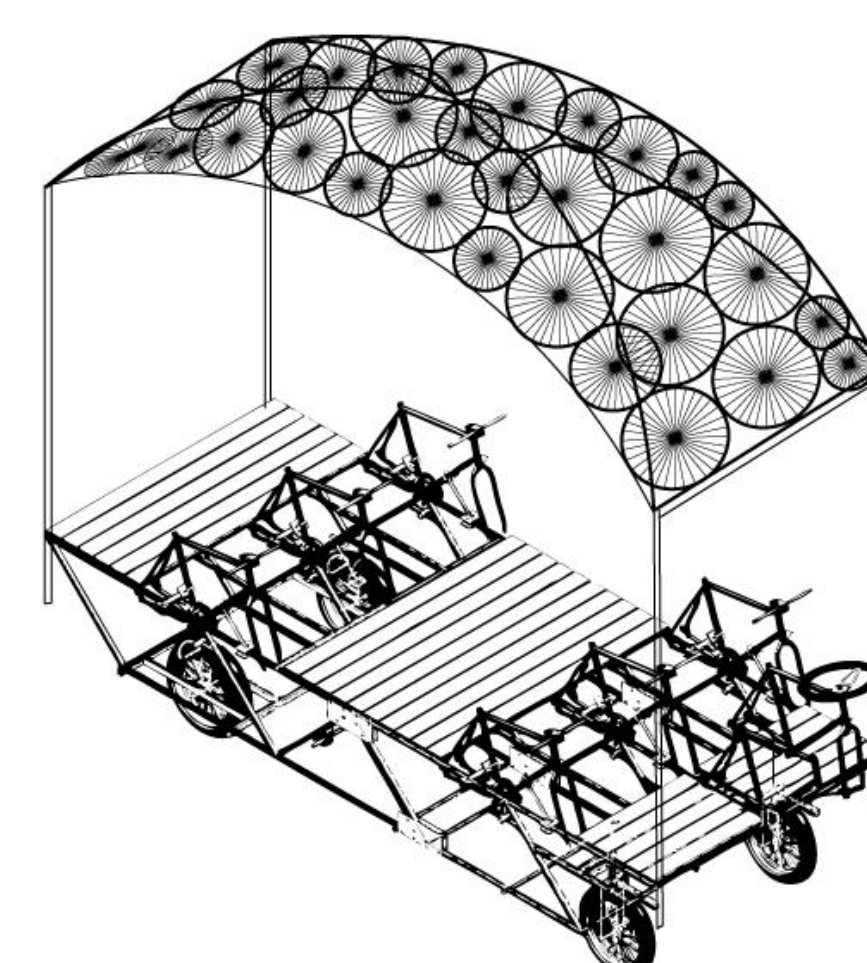
Requirements and Specifications

Requirements

In the initial stages of the Artrike Project a list of requirements and evaluation criteria were determined through regular meetings with our clients.

Safety Requirements	Metric
Performer safety	All Code/standards met. Adequate supporting calculations
Stability during Transportation/performance	Remains stable and does not flip during cornering and performance. Deflection less than 12mm
Structural Requirements	Metric
Multi - purpose platform	Difference performance style capabilities
Size Constraint	Fits into a standard car length (8ft wide)
% Recycled and Local materials	At Least 50% recycled and local
Low Weight	Weight less than 1200lbs
Support multiple people	Minimum 10 people
Single Unit	Pass/Fail
Mechanical Requirements	Metric
Pedal Power Mobility	Pass/Fail
Zero Emission Operation	Pass/Fail
Use on multiple terrains	Pass/Fail
Sustain constant speed	At Least 5Km/hr (walking speed)
Few people required to transport	Maximum 10 people
Turning Radius	14 feet
Cost Requirements	Metric
Low Cost	Less than \$5750

Our specifications are focused on performance and creating a device that can become a canvas for our clients. Our contribution to the Artrike is the engineering innovation and our clients will add the aesthetic appeal they desire.

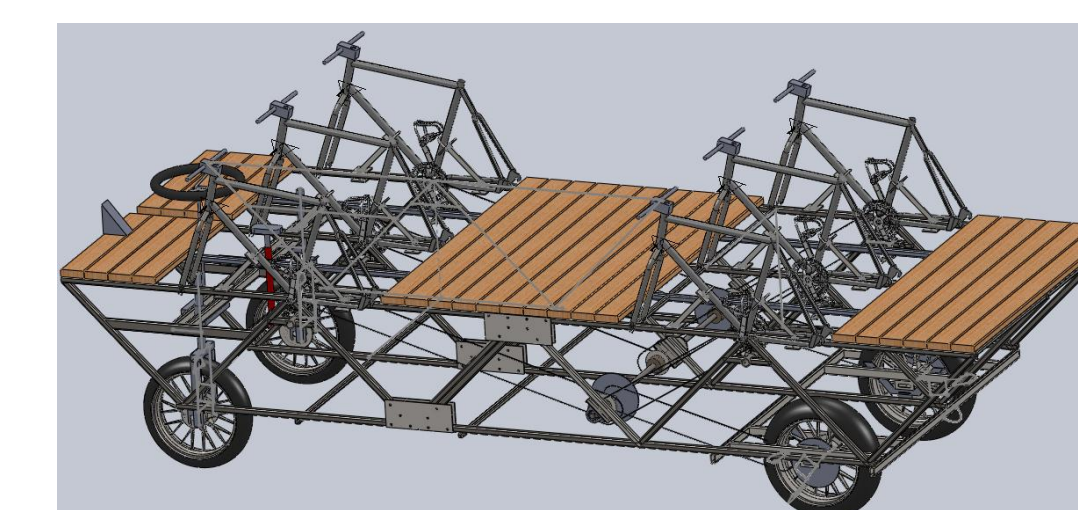
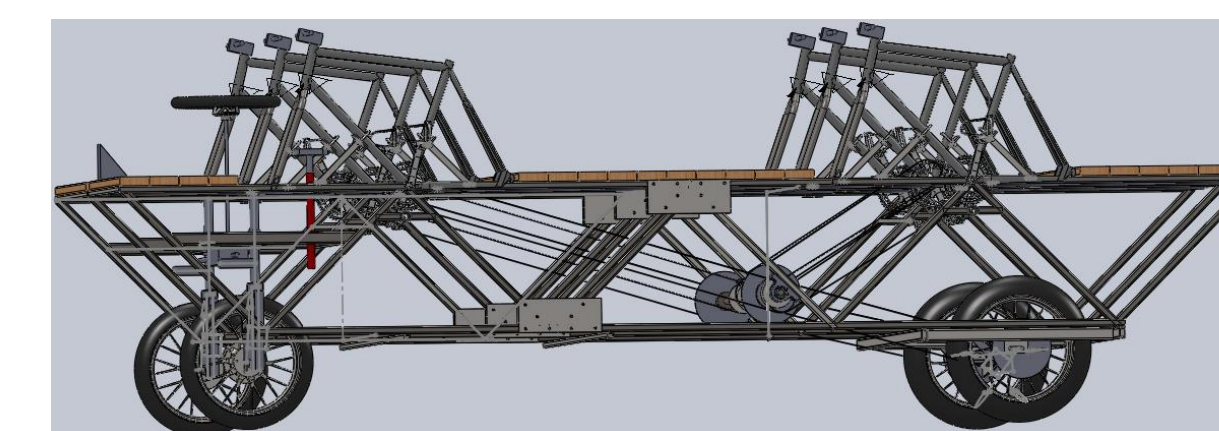


Clients Vision for a Roof Structure

Design

Final Design

- A-36 Welded Steel Truss
- 4 used Kawasaki Motorcycle Wheels and calipers
- 6 vintage bicycle to transport
- Wood decking
- 12:1 rack and pinion steering
- 6:1 MA pedal assembly
- Independent front and back brakes
- Drive train value of 1.42



Prototype Construction

Fabrication: 600+ hours in the Machine Shop.

Construction started with the fabrication of the three load bearing trusses. These were then welded by one of the shop technician. Holes were drilled into the members for the bolted joint. Cross members were then welded into the structure to gives its stage appearance. Steering, braking, and drive train systems were then built and assembled.

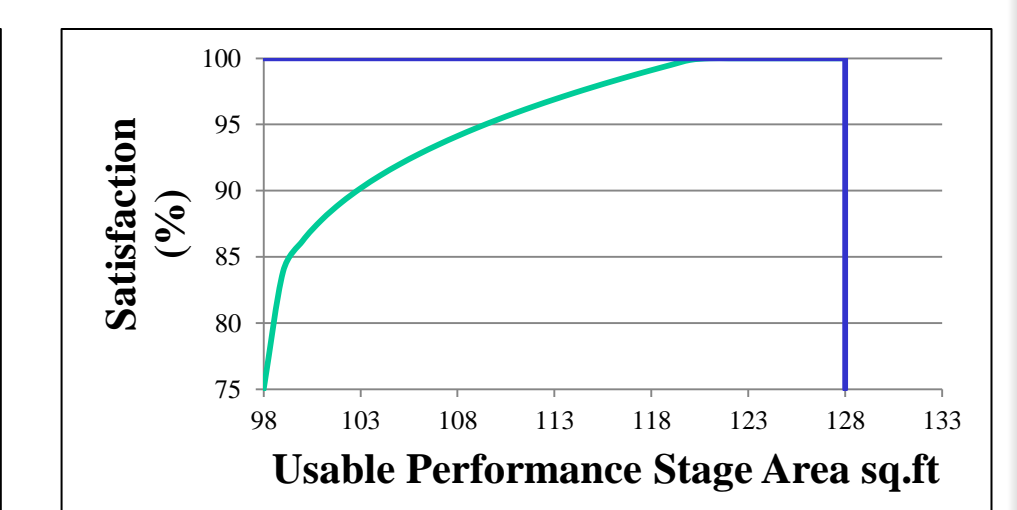
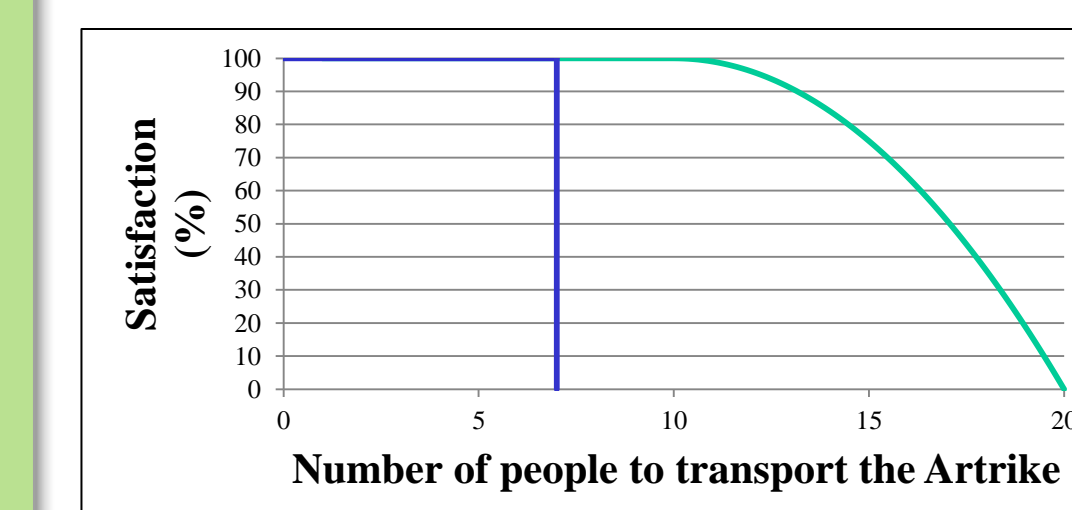
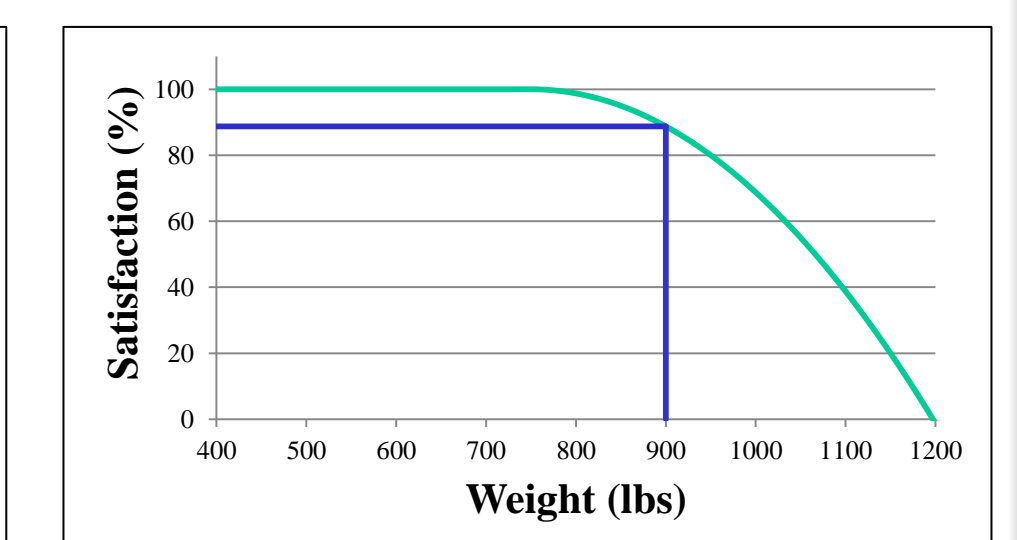
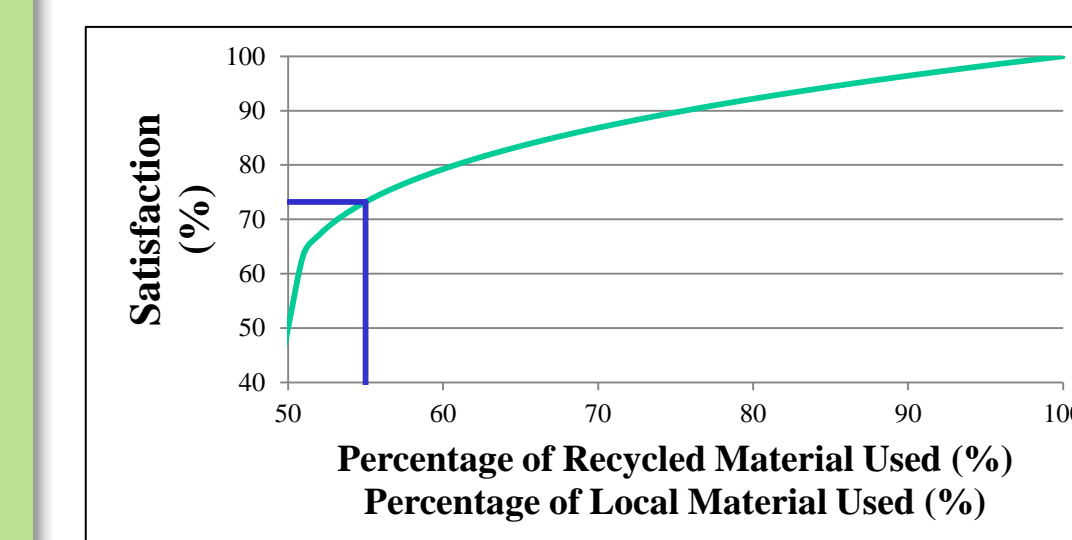


Results / Evaluation

Prototype Results

Below is a table of requirements and Evaluation Criteria used to measure the success of the Artrike. Along with them is the test results of the finished product.

Safety Requirements	Test Results
Performer safety	No injuries to date
Stability during Transportation/performance	Initial testing shows device is stable during transportation and performances
Structural Requirements	Test Results
Multi - purpose platform	8' x 16' stage allows for multi-purpose performances
Size Constraint	Fits into a standard car length (8ft wide)
% Recycled and Local materials	55% recycled and local by system
Low Weight	Weights approximately 900lbs
Support multiple people	Capable of supporting 12 people
Single Unit	Pass
Mechanical Requirements	Test Results
Pedal Power Mobility	Pass
Zero Emission Operation	Pass
Use on multiple terrains	Further Testing needed
Sustain constant speed	Can sustain 5 Km/hr with 6 cyclists
Few people required to transport	6 to cycle and 1 to steer/brake
Turning Radius	14 feet
Cost Requirements	Test Results
Low Cost	\$5000 to date



Recommendations

We recommend that a new design is made for the front forks as well as new bike support mounts. Chain tensioner will also be required. These modifications will allow the Artrike to operate at its highest potential.