

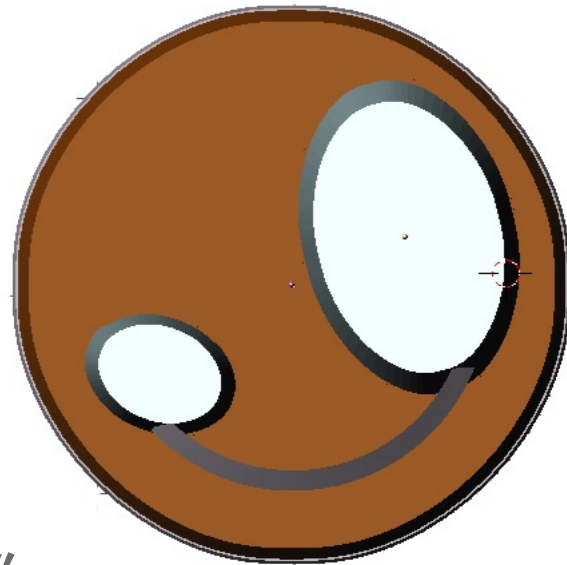
Jayhawk on Parade in Eaton Hall Base Design Submission

Prepared for the KU Engineering Department students, faculty, staff, and alumni

Mark Roland

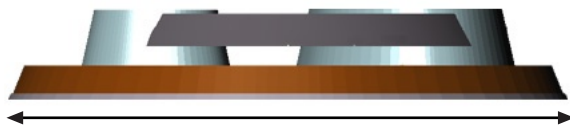


Preliminary Image Submission

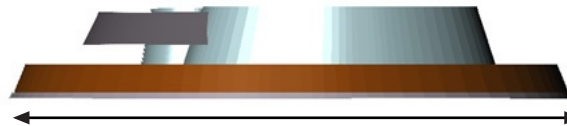


FRONT

18"



58"

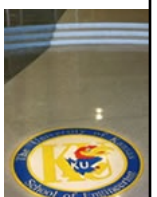
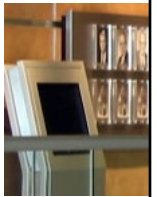
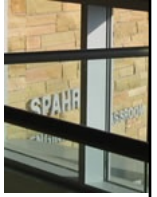
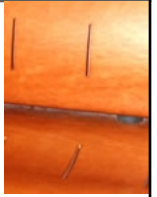


58"

Eaton Hall and Locke Atrium are beautifully designed spaces that utilize a variety of eye-catching materials. The space is unique in its use of curved surfaces and an abundance of glass.

In order for the jayhawk to assimilate into this space it must share its design characteristics.

My design proposal includes only materials already found in Locke Atrium and mirrors the curvacious forms that characterize the space.



Design Brief

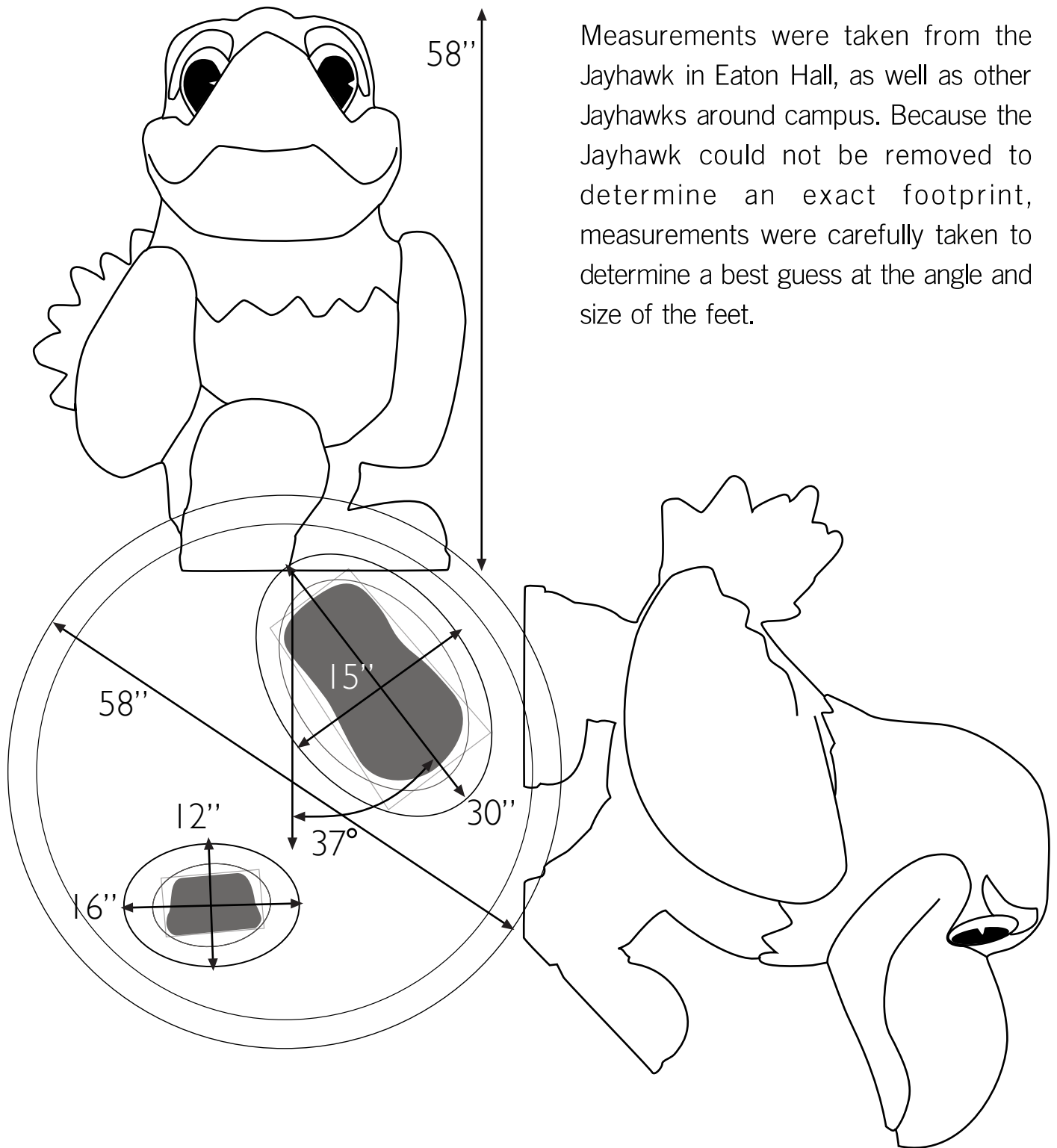
The preliminary image addressed the importance of the design elements that are incorporated into this base, however this design follows through to deliver functionality as well.

When developing this design it was important that the base be mobile, yet possess a distinguished presence in its environment. Mobility is achieved by using light materials and including recessed casters. It was a design goal to keep the overall structure, 90-pound jayhawk included, under 300-pounds. In addition, with a diameter of approximately 58 inches, the jayhawk will not be parading through any 36-inch doorways.

Second, the budget was a major concern. A change in materials was immediately needed once the price of acrylic was discovered to be so high (approximately \$3,000 for the desired pieces). After speaking with Tucker Trotter, Vice President of Dimensional Innovations, a design firm in Kansas City specializing in architectural signage and custom fabrication (<http://www.dimin.com>), we decided that their specialization in hard-coated foams could serve to keep the weight down, as well as the price. Dimensional Innovations has an outstanding portfolio that specializes in faux-painting installations in museums and stadiums.



Dimension Study

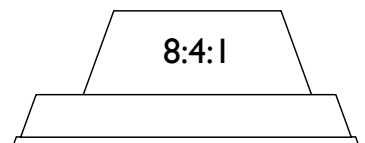
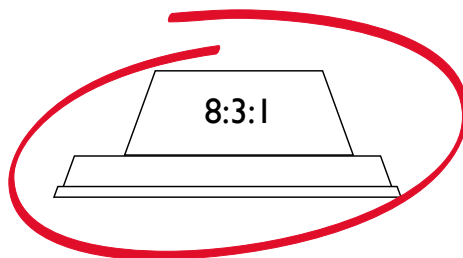
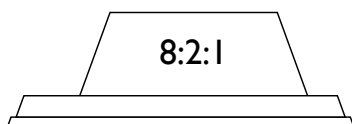
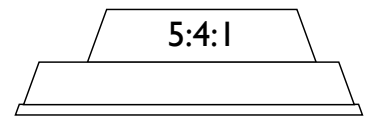
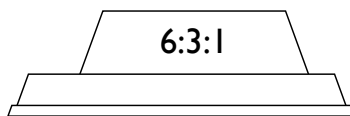
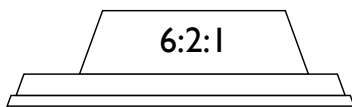
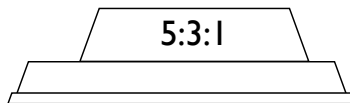
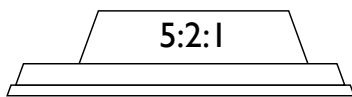
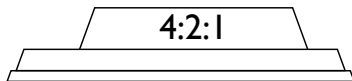


Measurements were taken from the Jayhawk in Eaton Hall, as well as other Jayhawks around campus. Because the Jayhawk could not be removed to determine an exact footprint, measurements were carefully taken to determine a best guess at the angle and size of the feet.

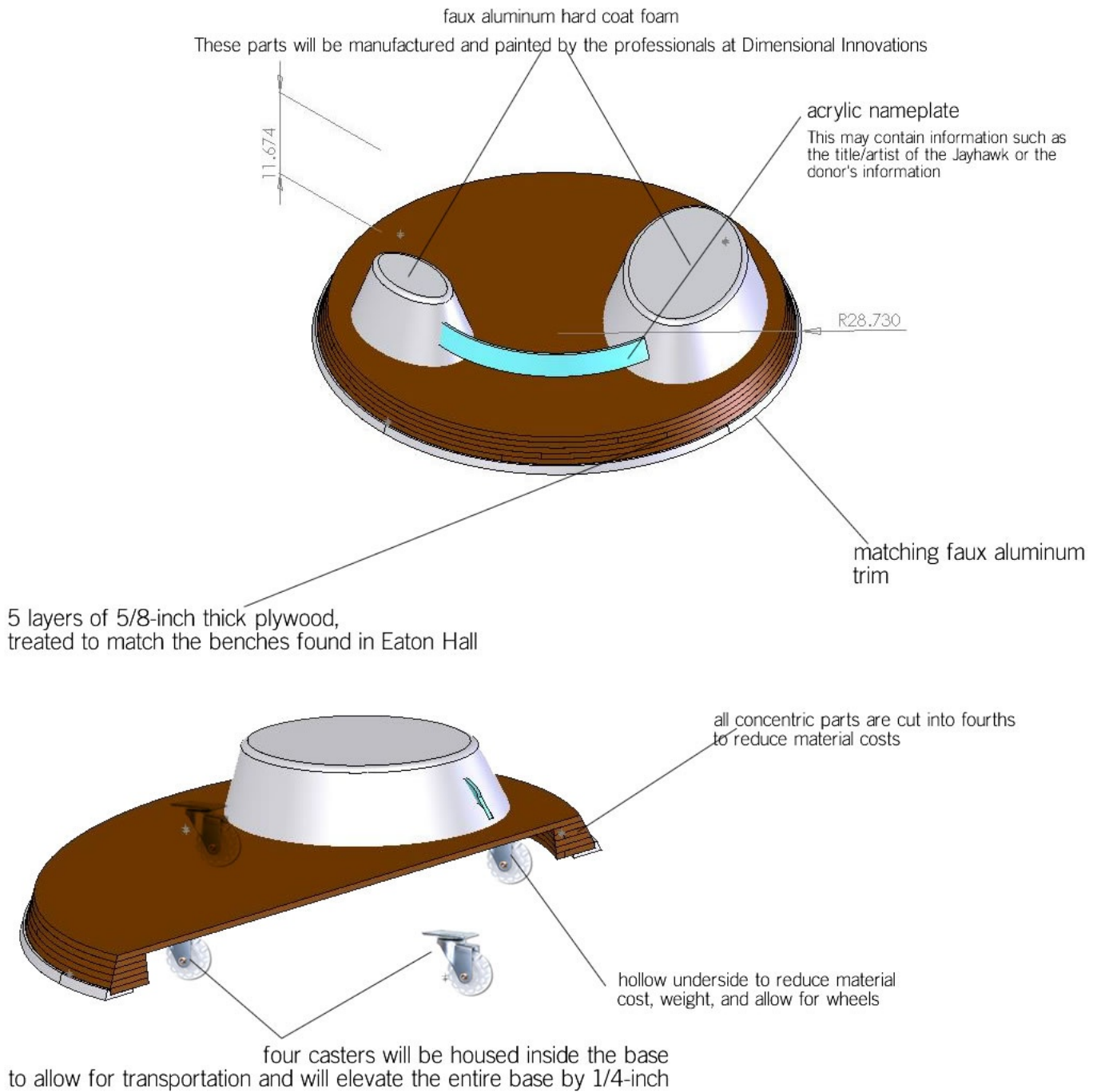
Proportion Studies

I determined early on that the base would be composed of three elements: a bottom trim piece, a wooden base, and upper pedestals for each foot. This page contains proportion studies to investigate how the elements look in relation to one another.

In all cases the components have a draft angle of 20 degrees, which is a subtle, yet noticeable proportion.

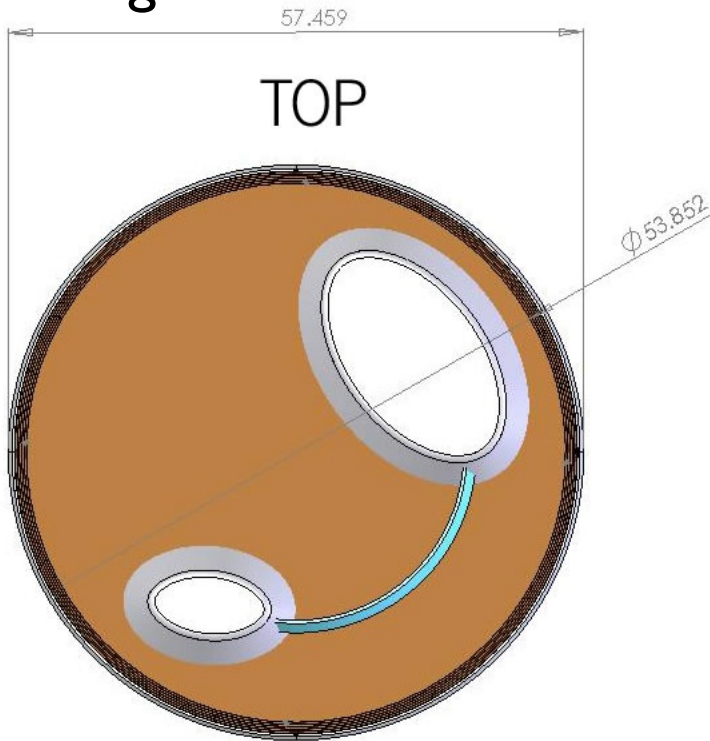


Design Overview

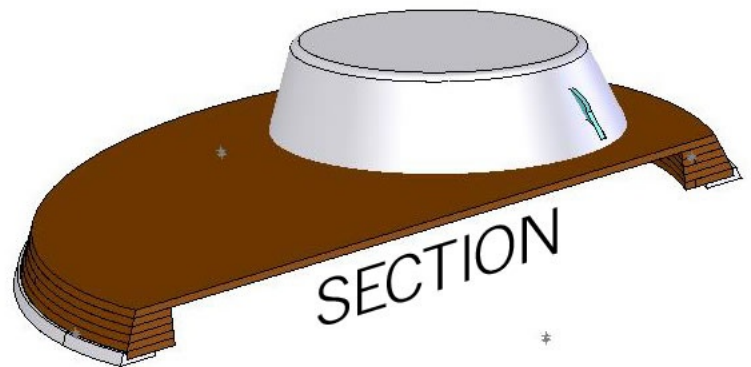
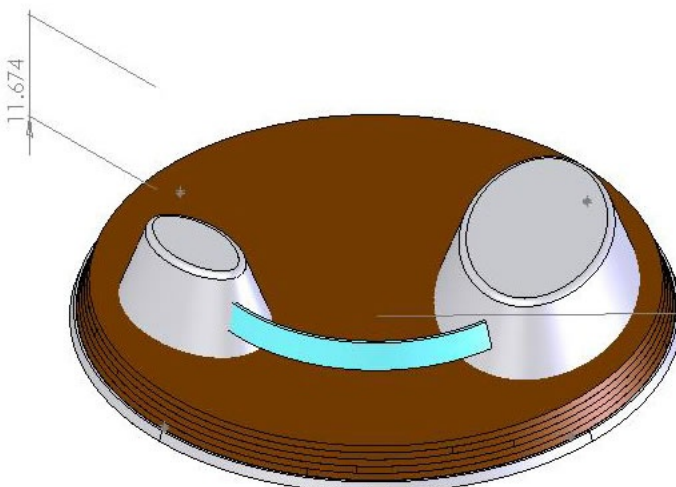
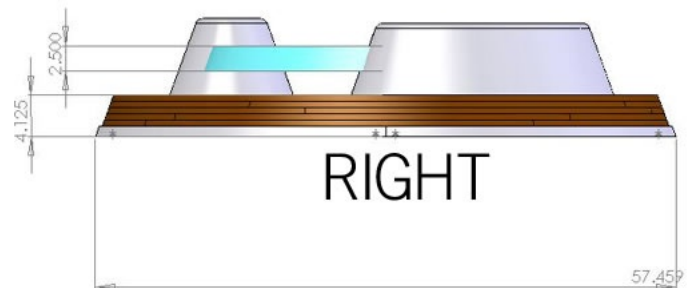
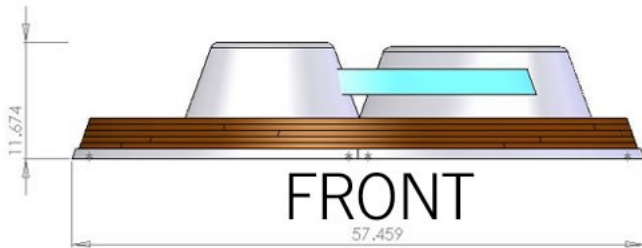


measurements specified in inches

Design Dimensions



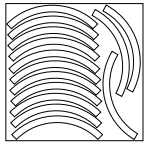
These drawings were made in SolidWorks, a 3D modeling software tool used in the manufacturing industry to build precise parts using CNC machinery. SolidWorks is used by the primary budget resource on this estimate, Dimensional Innovations. By providing ready-to-go shop drawings the engineering required by the manufacturer is greatly reduced. General measurements are shown in these images, however measurements are fully defined for every part in the software model.



Materials

WOOD

5/8-inch thick maple plywood, stained to match the appearance of the bent plywood benches found throughout Eaton Hall. Commonly available in 60-inch by 60-inch sheets



<http://www.bd-international.com/Flat%20plywood.htm>

ESTIMATED COST:
3 X \$55.75 = \$ 167.25

ESTIMATED WEIGHT:
@ .015 lb/sq inch ~ 90 LBS

HARD COAT FOAM (FAUX ALUMINUM)

Originally, the design called for pedestals made of acrylic, however acrylic is very expensive and would have exceeded the budget for these parts alone. Dimensional Innovations suggested using their hard coated foam painted in a faux aluminum.

ESTIMATED COST:
included in the Dimensional
Innovations bid.

ESTIMATED WEIGHT:
20 LBS

ACRYLIC

The original design called for acrylic pedestals and an aluminum band to connect them, however, due to budget restrictions the materials have been switched so that the nameplate will be made from acrylic. The price has been estimated using the following formula from Reynolds Polymer (jfritz@reynoldspolymer.com):
Price = (Th X W X H X .043) X \$12/LB

ESTIMATED COST:
Approx. \$120

ESTIMATED WEIGHT:
5 LBS

CASTERS

One of the special features of this design is that the base will be lightweight and mobile.

http://www.coolknobsandpulls.com/moreinfo.cfm?Product_ID=90



ESTIMATED COST:
4 X \$6.25 = \$25

ESTIMATED WEIGHT:
5 LBS

MISCELLANEOUS HARDWARE

In order to connect all of the pieces, various hardware will be needed from local hardware stores.

ESTIMATED COST:
\$20

ESTIMATED WEIGHT:
5 LBS

Dimensional Innovations Estimate

April 11, 2005

Mark Roland

Re: Pricing for providing specific materials and limited labor for the Jayhawk on Parade custom base.

Mark,

Thanks you for giving Dimensional Innovations, Inc. the opportunity to provide you with this pricing. Our pricing is itemized for your convenience and includes the cost to develop shop drawings necessary for producing the parts. Pricing below outlines what parts we are providing and the labor we will perform on this project. We will provide you with a set of drawings to assist you with the final assembly. All product outlined in this pricing will be F.O.B. our dock, and all pieces will be wrapped for protection.

Description	Qty	Unit	Extended
Provide (3) sheets of plywood and the labor to rout out the necessary shapes on our CNC Router. {Assembly and finish by others}	3	208.00	624.00
Provide the aluminum decorative trim for the perimeter of the wood base and the labor to rout out the necessary shapes on our CNC Router. {Assembly and finish by others}	1		492.00
Provide the two foam shapes in 2-pound density foam, and the hard coated surface, which will fully encapsulate the foam shapes. The foam shapes will have some internal blocking, for fastening to the top of the wood base. {All prepping, sanding and painted finish is to be by others}	1 Set		1,020.00
Provide the acrylic material for the nameplate and the labor to engrave the name into the face of this nameplate. {The painted finish and assembly for this nameplate is by others}	1		116.00
Provide the four casters for mounting to the underside of the wood base and the necessary blocking and hardware for mounting to the wood base. {Assembly by others}	4	51.00	204.00
Total: {Less Tax}			2,456.00

Estimate prepared by Mike Trio for Dimensional Innovations

Summary

Budget:

This budget is based upon the materials on the previous page and conversations with Dimensional Innovations about their production process. Dimensional Innovations estimated the original design image at \$2,900 excluding assembly, which can be done by the designer. After redesigning the new specifications, Dimensional Innovations estimated the price to manufacture the piece from supplied shop drawings and without assembly at \$2,450. With tax and assembly by designer added, the final budget estimate is below.

TOTAL BUDGET: \$ 3,000.00

Weight:

The approximate weight will be 250 pounds, which should be movable across flat surfaces fairly easy.


Conclusion:

As the designer, I feel that this proposal meets and exceed all of the design requirements. The aesthetics of the design is a derivative of its surroundings, echoing the key features found throughout Eaton Hall, and specifically Locke Atrium. Furthermore, the base has been designed for mobility through the use of lightweight materials and a hidden wheel system.

The dimensions of the base have been carefully considered to meet the specification that it cannot easily fit through a single doorway and the height of the overall structure is approximately 5-foot 8-inches, allowing the Jayhawk to stand tall without overshadowing the viewer. It should be noted that the common concrete bases for the Jayhawks on Parade elevate them 9 inches, while this design elevates them by nearly 12 inches.

Finally, the budget has been designed to fall within the \$3,500 cap. The original material parameters fell well outside the budget so some very appropriate and economical alternatives were chosen.

Thank you for considering my design.



Jayhawk Pedestal

Designer: Mark Roland - Electrical Engineering

Design Process Images

