



## What's the Buzz at the Zoo?

Mattson Macdonald Young recently finished work on part of the new *Woodland Adventures Play Area* at the Minnesota Zoo. MMY worked with Landscape Architects Damon Farber Associates to provide the structure to several of parts of the play area that they designed with the Zoo. It is themed as a Minnesota nature-based play area, complete with a bear den, ranger tower, spider's web climber, tree house and a mosquito to climb. The company doing a majority of the construction and artistry was Themescapes, whose staff did an amazing job and had a number of valuable suggestions and ideas on how some of these pieces would end up being constructed.

## Engineering an Insect

We'll admit that most of our work falls into a traditional building category; however we do get to work on a number of unique and challenging projects, in and out of buildings. The play area falls into that category. The mosquito climber absorbed many engineering hours and caused a few odd dreams for the engineer working on it.

Like any project, the mosquito had its own requirements for design. But a play structure isn't as clearly codified as an office building. There is a document for the testing of play structures that became the guide for our design. However, a majority of it came down to engineering judgment and, as a parent, a little understanding of how kids play – and their dads too!



A mosquito traditionally has an exoskeleton, its bones on the outside. Our mosquito has a steel pipe frame inside a sculpted epoxy finish. This is often the analogy we use to describe our portion of a building project – structural engineers design the skeleton of the building while architects design the form (or skin) of a building. The splayed legs made a challenge of keeping the body of the mosquito and the kids on it from moving too much. The body was designed as a series of pipe rings, tied

together to give shape to the body and to provide the stiffness needed. At the suggestion of Themescapes, the body was re-analyzed using a steel plate down the middle of the body, with additional plates welded out of it to create the shape of the mosquito body.



Above is an image created by MMY, using the 3D analysis model as a starting point. The photo to the left is the nearly complete mosquito, standing almost 6 feet tall, waiting for kids to start climbing.