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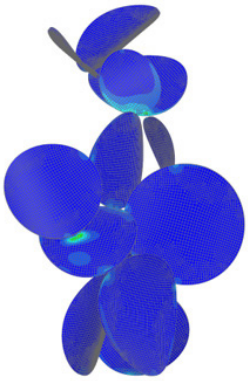
Sculpture Stress Analysis and Design Support

Image courtesy Matt Devine, Inc.

Case Study

OVERVIEW

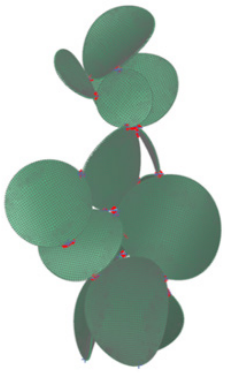
Internationally renowned sculptor Matt Devine produced a large art piece for the front courtyard of the corporate headquarters of a San Francisco Bay Area company. At about fifteen feet tall, the freestanding welded steel art installation required analysis to ensure that, as installed, it does not pose a risk to the viewing public. ATA assessed the structural integrity of the sculpture through the use of simulation and worked with the artist to ground the design in good structural practice while preserving the original design intent.



Von Mises stress

TASKS PERFORMED & KEY INNOVATIONS

- Developed a representative finite element model using physical measurements of a scale model for computer simulation of the loading environment.
- Performed analysis to determine the structure's response to wind, seismic, and handling loads.
- Performed iterative analyses to size the baseplate, anchor bolts, disks, and welds appropriately to alleviate all identified high stresses.
- Worked with the artist to ensure that the original design intent was preserved.
- Provided documentation suitable for review by a public agency.



Finite element mesh model