Extendable Towel Rack
Ryan Neillo, Jeff Kohn, David Pain, John Emoto-Tisdale, Moazzam Khan  June 3, 2011
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Abstract
Isla Vista is a small college community residing along the California coast. With a population of over 17,000 and a land area of slightly over 2 square miles, residences are densely populated. Given the nature of Isla Vista, space usage must be maximized. Space shortages are often most prevalent in Isla Vista bathrooms, which are commonly shared by three or more people. Bathroom commodities must be crammed into small areas. This problem is further accentuated by Isla Vista's proximity to the beach, as towels, wetsuits, and swimwear are used in excess of the norm.

Problem Definition
The high density of Isla Vista residents results in the need for multiple bath towels to be hung from a single towel rack. Factor in the additional need to dry beach towels, swim wear, and wetsuits, and overlapping on standard towel racks becomes unavoidable. This overlapping, coupled with the humid climate of Isla Vista, results in excessive drying times.

Design Development
In an attempt to fulfill established performance requirements, we generated several alternative solutions before reaching the final design concept.

Benchmarking
Benchmarking was performed on the Best Value brand towel rack, Model # E8500A-30, mounted with Best Value brand mounting posts, Model # E8500P.

Results
• Capacity allows for 4 unfolded towels, or 8 towels folded in half with drying arms fully extended
• Allows the user to suspend 2 standard clothes hangers from mount for drying of additional items without interference
• Reduces drying time for 4 standard bath towels by 77% (from 26 hours to 6 hours), and reduces max deflection due to 60lb distributed load by 96% (from .75 inches to .03 inches) in comparison to benchmark

References
(1) AmericanFactFinder (http://factfinder.census.gov/home/saff/main.html?_lang=en)
(2) US Patent Numbers: 2825469, 7806281, 5833083