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DESIGN AND ENGINEERING NEWSLETTER

## One of our master industrial designers explains why products are better these days.



In the past, we discussed the expanded role of industrial designers in the world of product development. It became evident we depend on them for much more than designing functional and attractive objects. Bob Mayercheck, one of our most experienced ID team members, has agreed to discuss

how industrial design has changed over the years, and the importance of a broad education to design better medical devices.

First some background. Bob has been an industrial designer for almost 30 years, and carries two design degrees, Product Design and Industrial Design. My first question was, *Why two degrees, isn't one enough?* Mayercheck said, "At first, product design seemed like a good fit for me. As it's taught in school, the courses focus on creating useful objects that are somewhere between art and everyday products. It wasn't until my junior year at UCLA that I realized if I wanted to design products for mass production, I would need an industrial design degree, and knew that Cal State Long Beach had the best overall program."

This education gave Bob a good understanding of what it takes to be an industrial designer. Bob states, "You can teach someone to draw because it involves understood and well-defined methods. Designing is a different story - it encompasses instinct, synthesis, and interpretation, things that cannot be taught with a formula. You can't teach someone how to make wise decisions where small changes can have a profound effect on the rest of the design. These days industrial designers are responsible for satisfying the end user, the client, the marketing department, the manufacturer, and the accountant. It's very complex. Either you have the innate ability to weigh the importance of a lot of variables or you don't."

*I'm assuming you aren't only talking about how well a device works. Compared to overall functionality, how important is the appearance or "look" of a product?* Bob explains, "For medical devices, basic functional aspects are primary, but appearance is also very important. People respond a lot more to the way a product looks than you might imagine. As a designer, I have to think like an early adopter and

appreciate that medical devices have to look cutting edge. For one, marketing won't greenlight a product that doesn't fulfill their idea of state-of-the-art quality. People do judge books by their covers, and wines by their labels, for instance. The little non-functional details you see, some subconsciously, are part of the way people perceive quality."

Over the years Mayercheck has experienced changes in the way products are developed. Perhaps the one that has been most wide-reaching is the transition of drafting to CAD - Computer Aided Design. He has spent his share of time designing with a set of French curves, markers, and a sharp pencil. The curves and markers are gone, but the sharp pencil is still around.

"Designers still sketch a lot to gain a direction and establish a theme. All of our designers are accomplished sketchers. It is the preferred method of choice to get ideas on paper as quickly as possible," said Bob. He continues, explaining that the key is to get the theme in the first place and then explore the concept variations with a CAD program. "We try to get things done fast by making quick decisions. The only danger is jumping to CAD too quickly and getting locked into a certain direction too early in the concepting process."

Another big change for industrial design in the last ten years is the transition from foam core, urethane foam and clay models to 3D rapid prototyping (RP). Rapid prototyping with stereolithography, Fusion Deposition Modeling (FDM), and others, have given designers the same latitude to explore variations on a theme in three dimensions the way CAD has with two dimensional drawings and sketches. "It is such a luxury to transfer files to an RP machine and have a robust and dimensionally accurate model in a few hours. When I can make working parts to verify fits and interferences it really speeds the process. It's much faster than it used to be," adds Mayercheck.

Finally we asked Bob to comment on whether today's tools allow designers to execute better designs. Bob replies, "3D and CAD allow us to design tighter tolerances for panels and internal parts. There are fewer 'gotchas' like interferences and components that won't go together. The result, is the products we design now are more technically correct. There is no question that they are much higher quality than ever before."