

Professional  
Portfolio  
of  
**Bill**  
**Dresselhaus**



# Professional Portfolio of Bill Dresselhaus

This is a sampling of the design, management, art, consulting, photography, education, and training work of Bill Dresselhaus.

**Portfolio Content.** The content contains specific portfolio topical pages with a brief introduction to the project or work, plus related images. These pages reflect a sampling of many years of Bill's real-world experience. The design pages contain Bill's work primarily in product design and development, but also in graphic design, visual communication, and information/presentation design.

**Product Design and Engineering.** Bill's work, training, and experience in product design is focused toward a comprehensive and integrated approach that includes industrial design and appearance/form design, usability and utility design, mechanical and structure/configuration design, and design for manufacturing and production. This is essentially the entire product design and development process from early innovation, concept ideation, and total experience design to engineering, manufacturing, and production.

Bill's product design and design management projects have primarily been in the high-technology, computer, peripherals, and scientific and medical/laboratory areas of commerce with a few excursions into consumer-based products and business products. In nearly all of the design work shown, Bill was a lead designer, product engineer, and/or design contributor, as well as often the project manager and/or innovation facilitator/director.

**Graphic and Visual Design.** The focus of Bill's graphic and visual design work is highly practical and focused to clearly communicate concepts, ideas, information, and principles that are often complex and difficult to understand and present. This work is primarily in the business, technology, presentation, education, training, and information design areas.

**Management, Education, and Training.** Several pages are devoted to showing examples of Bill's design and innovation management work and his training and educational courses and workshops. Bill's philosophy of management and training is to support, facilitate, encourage, and inspire his audiences to do great work, plus adding his appropriate help in direct design execution and support as needed. His management and training work has been international in scope.

**Drawing, Art, Photography, and Modeling.** There are several sample pages of representations of Bill's capabilities in art, drawing, sketching, photography, and modeling to show a breadth and depth of visual, artistic, and manual skills.

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## **Product Design Projects**

## Design Clients

### **Bill's Clients:** *Breadth and Depth in Industry, Business, and Education*

Bill and his company have provided business innovation strategies and tactics, product design and development services, and innovation and design training and intelligence to a variety of international corporations, institutions, and organizations in both commerce and education. Below is a partial list of those clients and some of their logos that span many years of experience and design service.



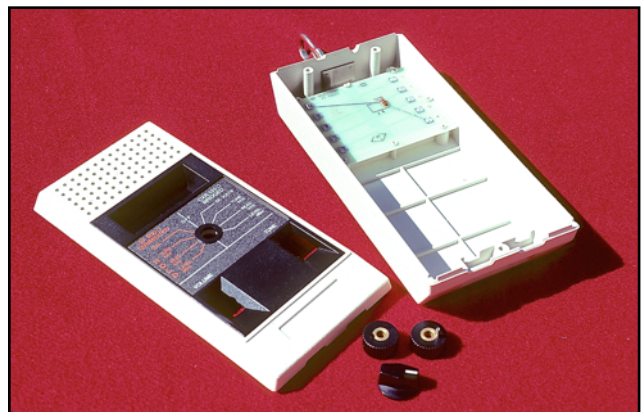
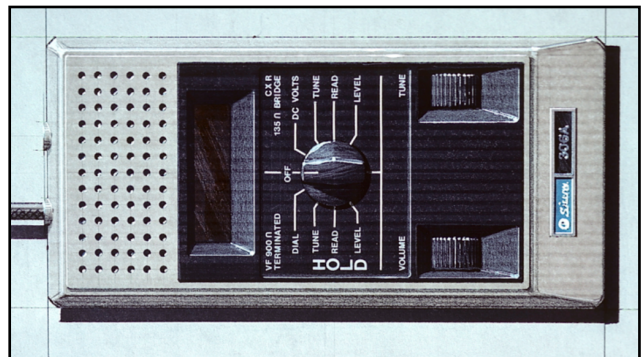
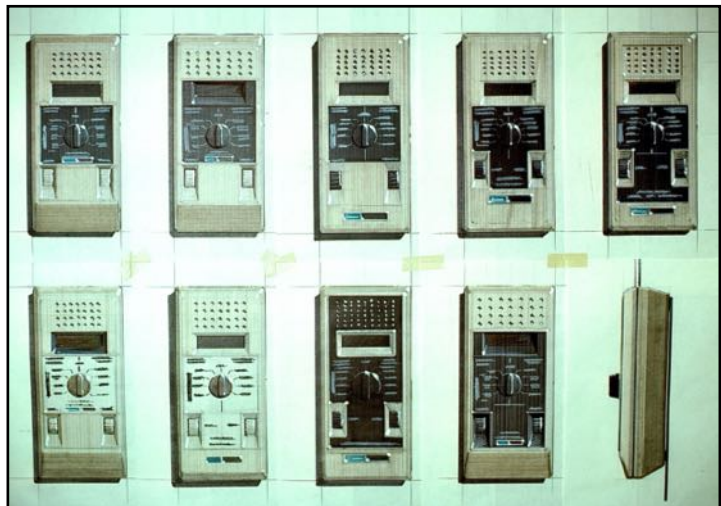
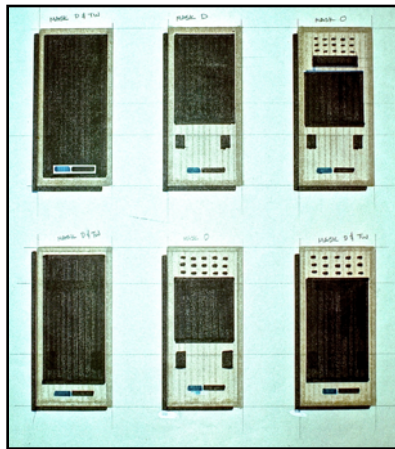
**Apple Computer, Inc.**  
**InFocus Corporation**  
**Hewlett-Packard Corporation**  
**Sun Microsystems, Inc.**  
**Walter Landor Associates**  
**EDS (UGS and Solid Edge)**  
**Silicon Graphics, Inc.**  
**Hasbro Electronics, Inc.**  
**Sharp Electronics**  
**Wharton School of Business**  
**The Engineering Department, Inc.**  
**Metheus Corporation**  
**Industrial Designers Society of America**  
**Parametric Technologies Corporation**  
**Alias|Wavefront Corporation**  
**Center for Design and Business**  
**Voysys Corporation**  
**Oregon Graduate Institute**  
**Structural Dynamics Research Corp.**  
**National Semiconductor Corporation**  
**University of California, Irvine**  
**IDEO Product Development**  
**T'emogique LLC**  
**Institute for Industrial Policy Studies (Korea)**

**Intel Corporation**  
**State University of New York (SUNY)**  
**Zycad Corporation**  
**Institute for Software Research**  
**Acuity Incorporated**  
**Rhode Island School of Design**  
**TransFRESH Corporation**  
**Telechips Corporation**  
**LG Electronics Corporation (Korea)**  
**Helsinki School of Economics (Finland)**  
**Oregon Society of Association Mgt.**  
**Design Dept., Cal. State Long Beach**  
**Lunar Design, Inc.**  
**Wyse Technology, Inc.**  
**Zitel Corporation**  
**Information Appliance, Inc.**  
**Thomas Alva Edison High School**  
**Althin CD Medical, Inc.**  
**Oregon3D, Inc.**  
**PSC Scanning, Inc.**  
**Red Rock Revival**  
**The Apple Store (USA and Korea)**  
**Pantech Co. Ltd. (Korea)**  
**Daewoo Shipbuilding (Korea)**  
**Leatherman Tool Group, Inc.**

## Handheld Instrument Product Design

### Sierra Electronics Lineman's Test Unit: *Styling, Ergonomics, and Usability*

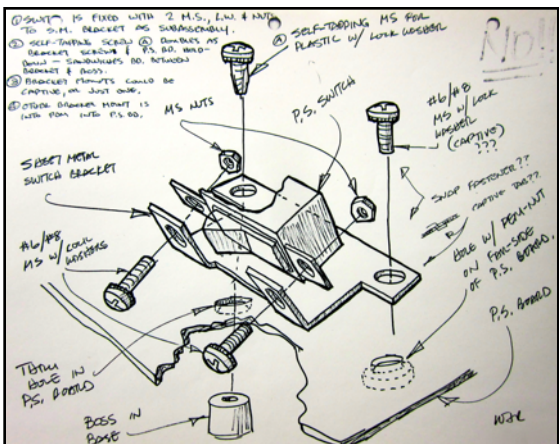
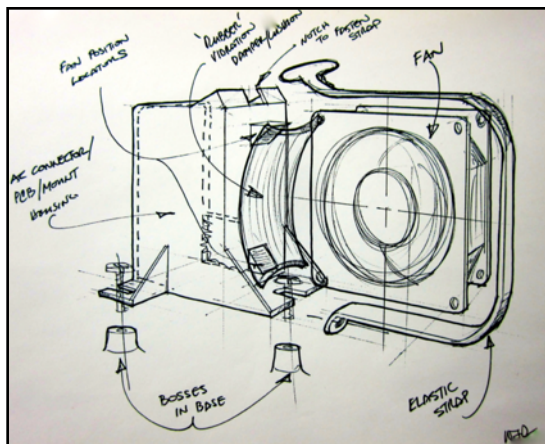
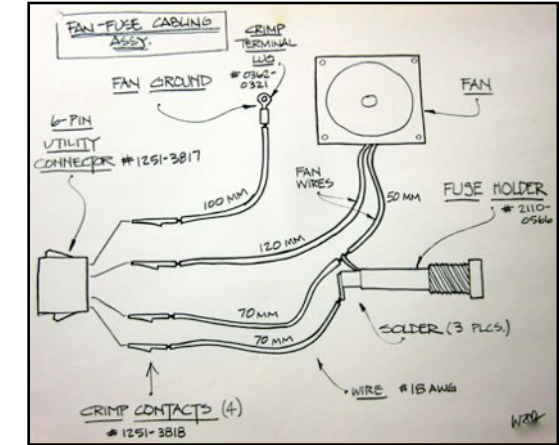
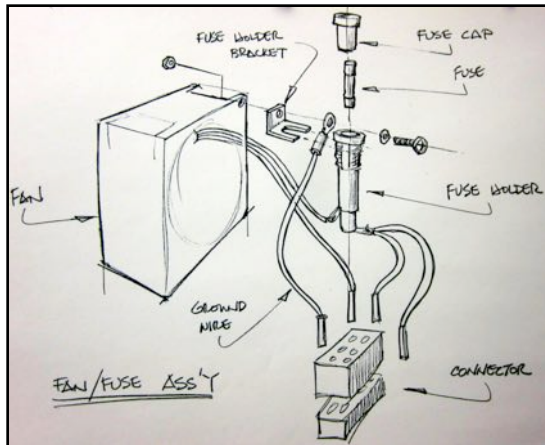
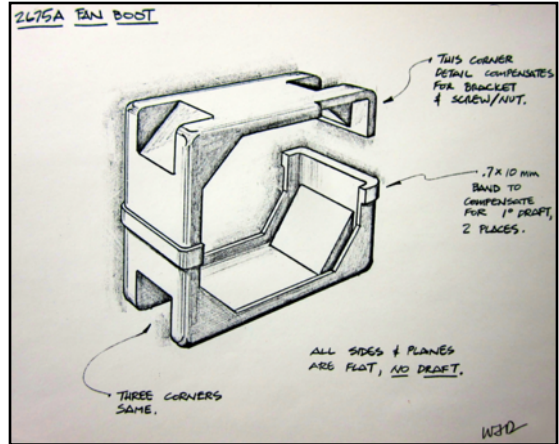
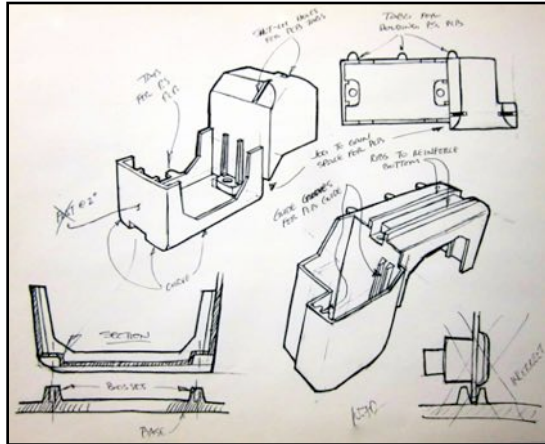
In Bill's early product design career he worked as a contract product designer for Clement Laboratories, a major Silicon Valley high-technology product design firm. One of their client projects was a utility lineman's test unit that would be clipped to the belt and taken up the power pole for testing purposes. Bill executed the industrial design styling and the mechanical enclosure design for this product from concept sketches to final production drawings for plastic part injection tooling and manufacturing.



# Thermal Printer Fan Assembly Design

## Hewlett-Packard Thermal Fan Mount: *Integrated Mechanical Assembly*

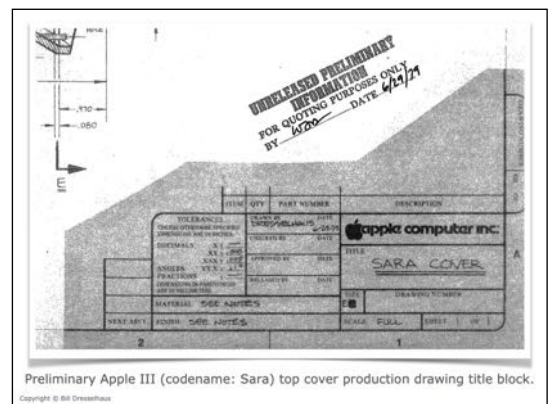
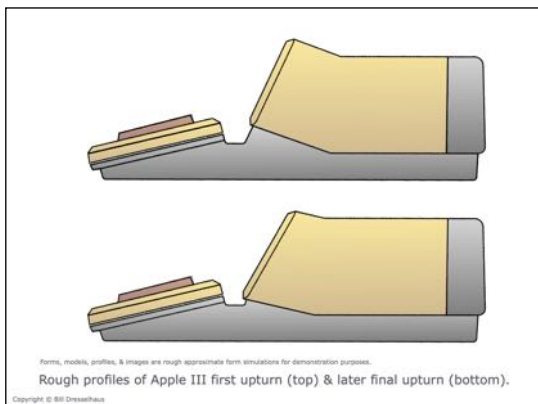
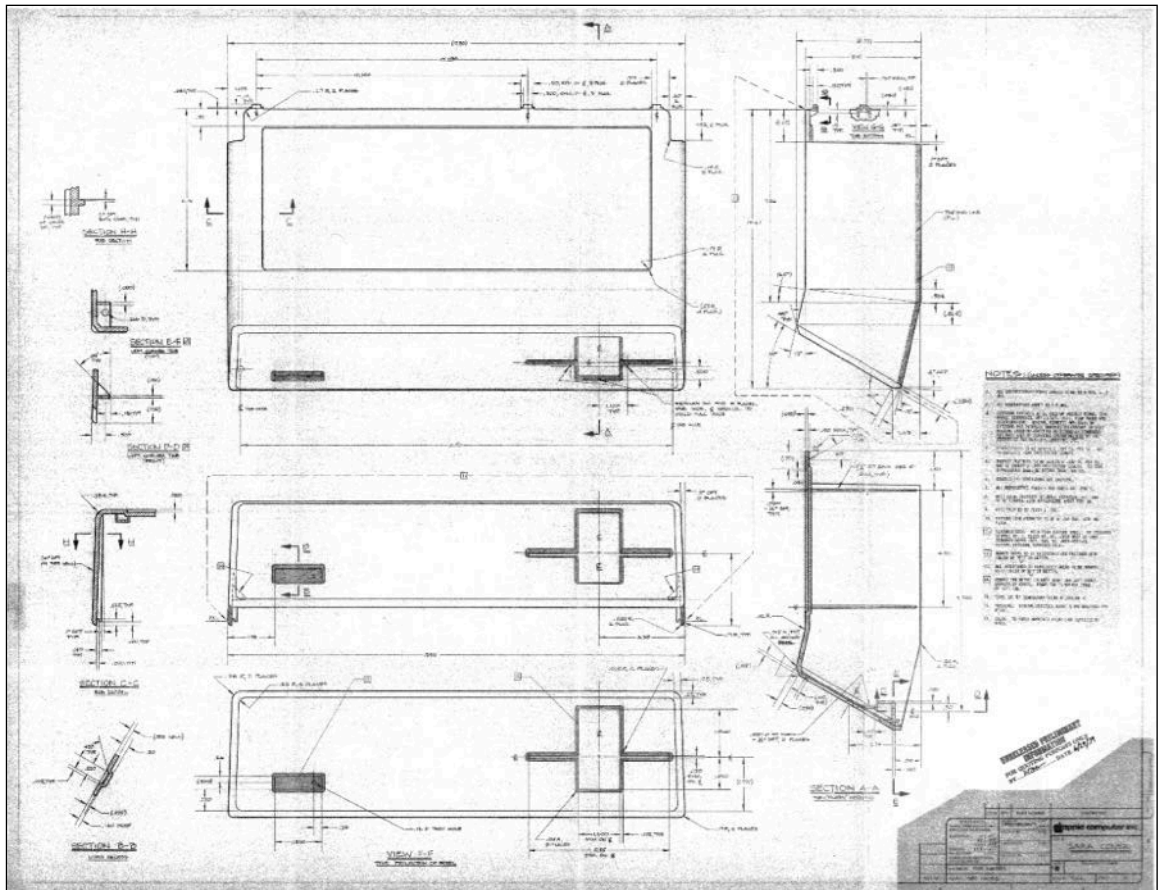
Bill was a Product Designer at Hewlett-Packard's Data Terminals Division in Cupertino—just before he was hired at Apple Computer, and in the beginning of the Silicon Valley boom in the mid-1970s. At H-P, Bill was assigned to design an integrated, easy to assemble fan assembly: mount, printed circuit board, and switch for an early thermal printer called the Thermal.



## Apple III Plastic Part Design

### Apple III Cover Design: Designing and Refining the Next Apple Computer

Bill was first hired at Apple specifically to lead the product design of the new Apple Lisa, originally designated the Apple IV, and Steve Jobs' dream machine. However, before that got much underway, Bill was asked to help out with the Apple III (code named "Sara") design by his boss, Jerry Manock, where the product design was behind schedule. He not only designed the main plastic top cover for the Apple III (Bill's drawing shown below), but also convinced Steve Jobs to modify the existing upturn aesthetic form of the product (image below).



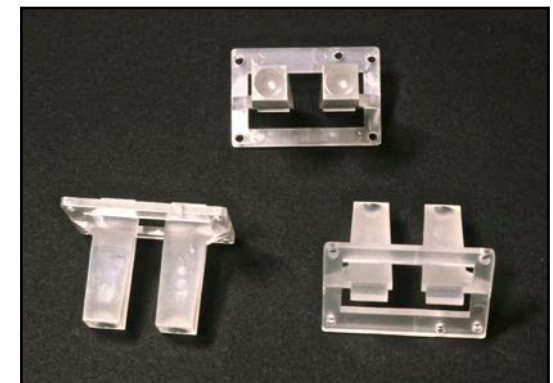
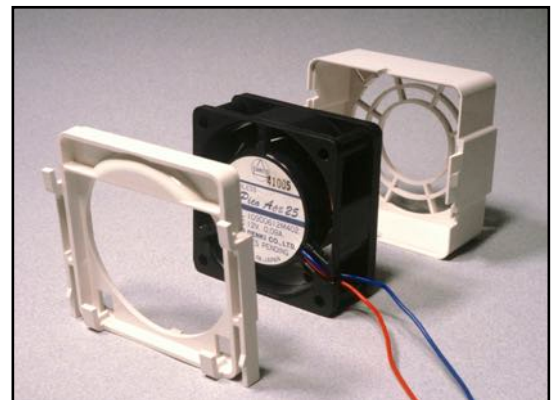
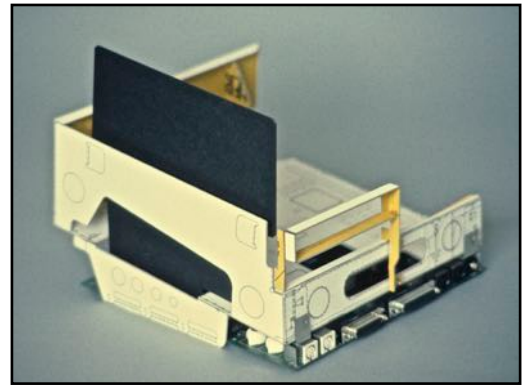




## Miscellaneous Apple Work

### Apple Computer Consulting: *An Ongoing Relationship*

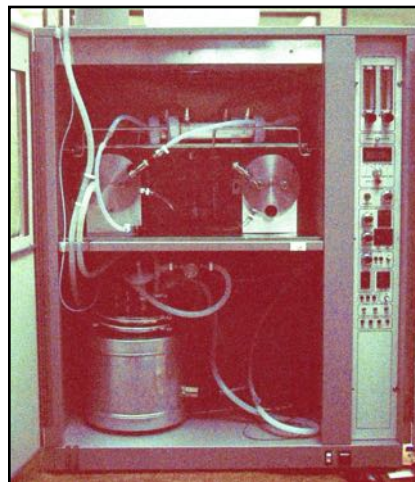
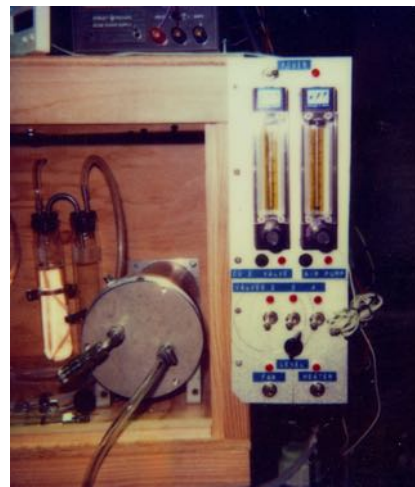
After Bill left Apple as the Principal Product Designer of the Lisa Computer, (the forerunner and mother of the Mac), and as a Lisa Division Product Design Manager, he continued design consulting for Apple on many projects for about ten years thereafter. Below are just a few examples of the miscellaneous many Apple projects and computers that he worked on in some way during that consulting period.



## Early Biotech Product Design

### **Eldex Corporation BioReactor:** *In the Early Days of BioTech Products*

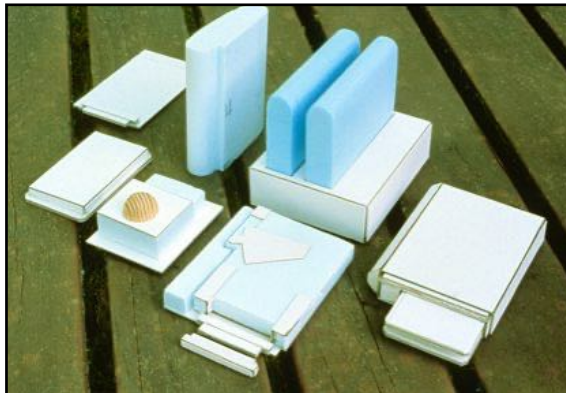
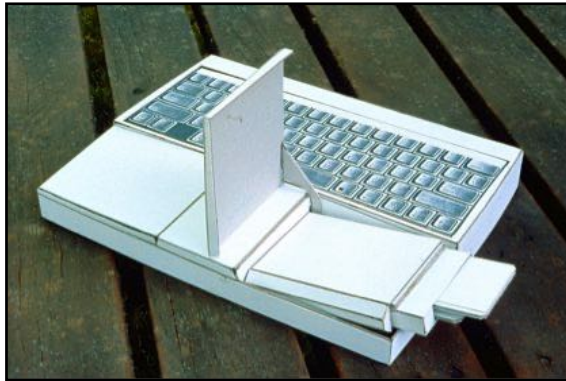
When biotechnology was in its infancy in Silicon Valley, Bill and his team were engaged to design the enclosure for a new bio-reactor for Eldex Corporation. They went from concept sketches and renderings to detailed form factors to final fabricated enclosure design based on a laboratory functional test prototype unit.



## Laptop Concept Design & Modeling

### **Apple Blackbird Laptop Concept Design:** *New Modules for Expanded Features*

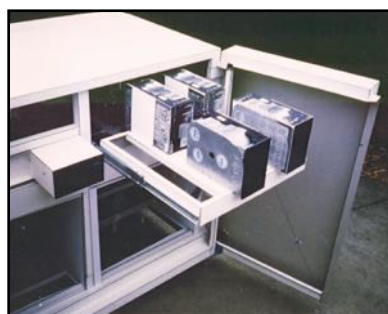
Bill and his team were contracted by Apple Computer to develop concepts and hard precision machined models of three different technology module concepts for Apple's new PowerBook laptop. The modules included concepts for GPS units, extra batteries, mass storage, and other technologies, as well as certain accessories. Bill's team also explored various mounting, assembly, and access configurations, including pop-up "gull-wing" doors and front and side sliding insertion and fastening methods. All were detailed in mechanical CAD and hard prototyped in ABS for design evaluation. A number of both soft and precision hard models were developed and functionally tested, including all internal components and modules.



## Simulator Design & Project Management

### **Zycad IC Simulation Unit:** *Emphasis on Hi-Tech Style and Serviceability*

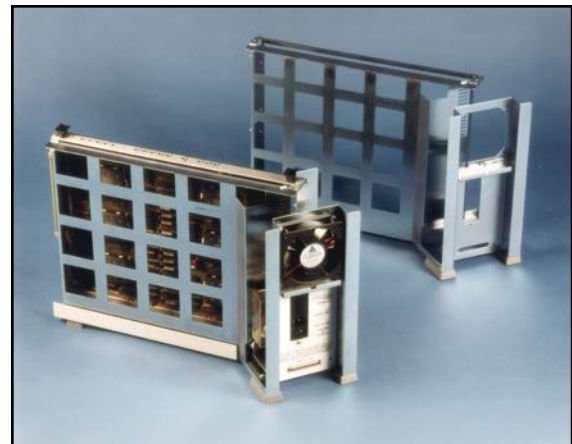
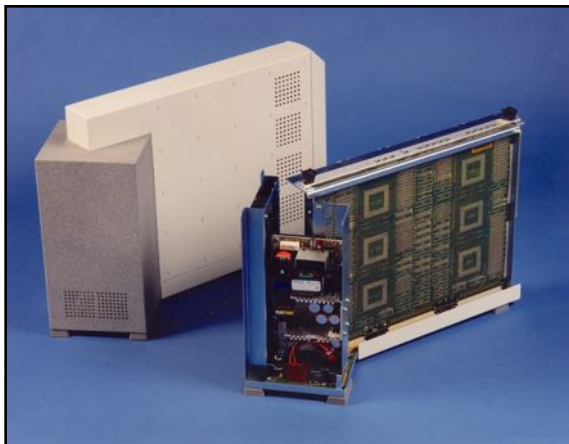
Bill, with his senior designer, Gary Gehrke, developed the product design for this massive IC simulation unit for Zycad Corporation in Silicon Valley. The system was designed from initial aesthetic form concept renderings through all mechanical configuration and structural/assembly design to manufacturing fabrication of low-production units. The system was designed for easy access to all internal components, especially with a unique fold-down power supply in the rear. A full-size soft mockup of the entire unit and components was made to test the assembly and maintenance before final detailed design and full production.



## Desktop Simulator Design & Management

### **Zycad Desktop IC Simulator:** *Junior Version of Big Floor Model*

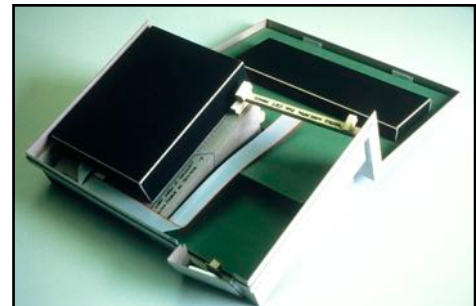
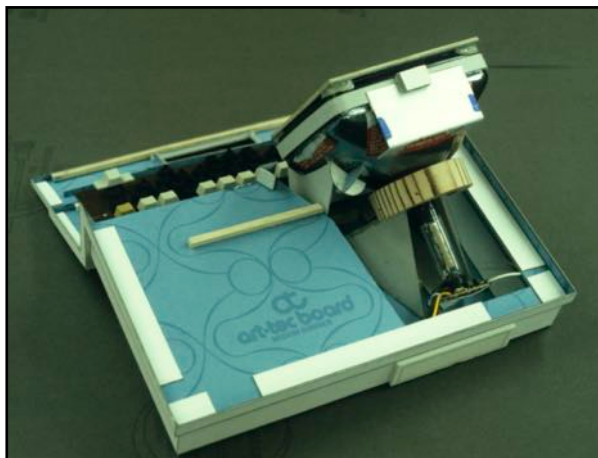
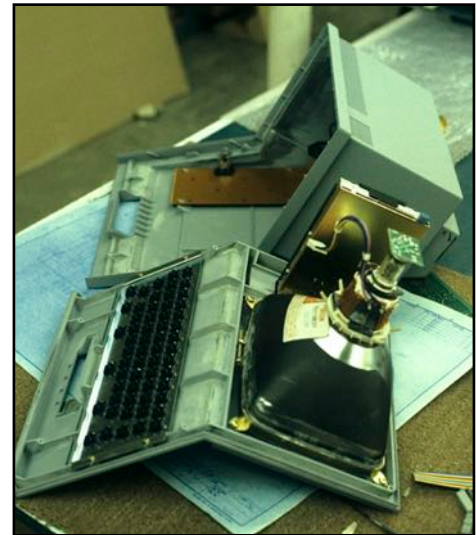
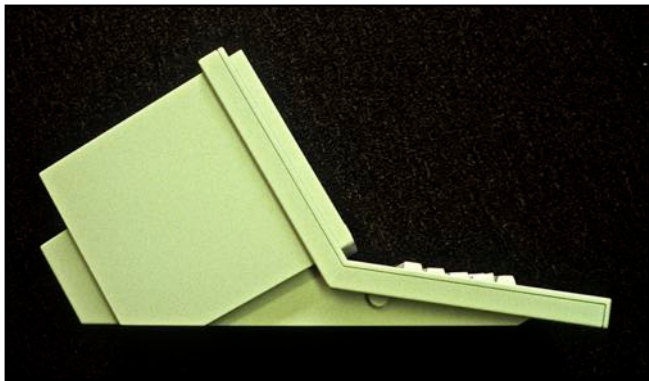
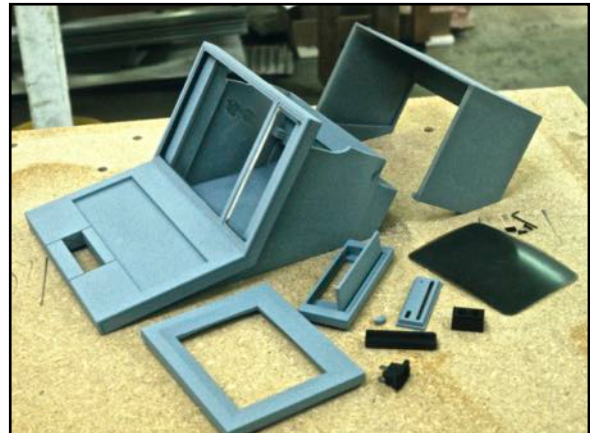
Just as with Zycad's big floor model simulator, Bill and his chief designer, Gary Gehrke, again designed a new simulator for the company, but this time it was a smaller, more compact desktop model. The design was developed from concept ideation and aesthetic form renderings through mechanical and structural enclosure mockups to detailed manufacturing documentation and functional physical prototypes.



## Portable Computer Design

### **Information Appliance Portable Computer:** *Competition to the Mac*

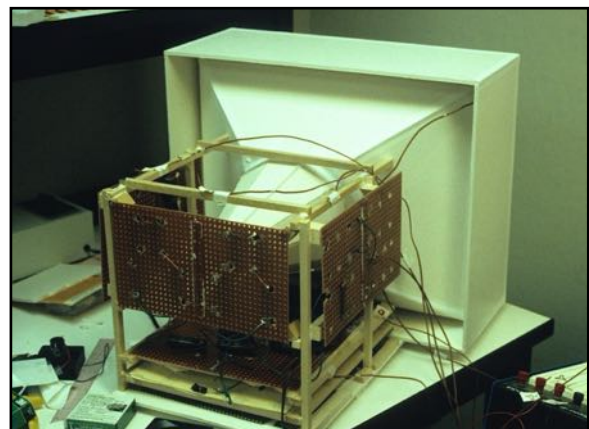
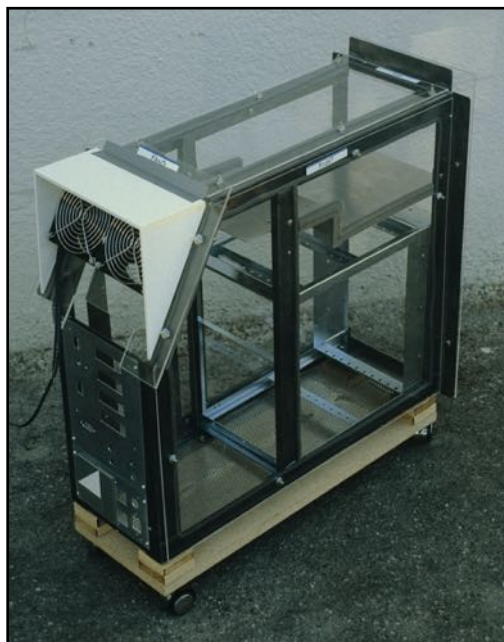
When Jef Raskin left Apple Computer after working on the first Macintosh, he started a company called Information Appliance in Silicon Valley. Bill was engaged by David Kelley Design (forerunner of IDEO) to work with Mike Nuttal of Matrix Product Design (industrial design) to do the complete mechanical package design from concept to production of Jef's first product: a portable computer with an integrated handle.



## Computer System Product Design

### **Silicon Graphics IRIS 1300 Workstation:** *High-Technology System Design*

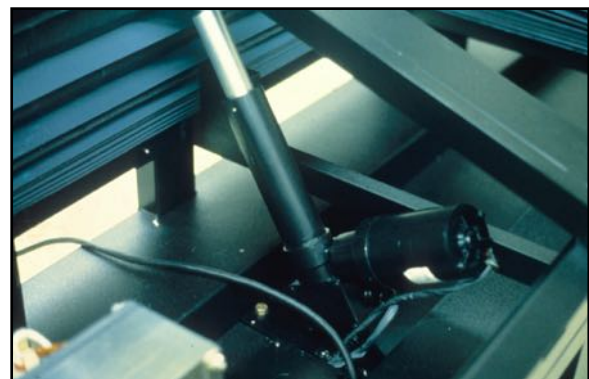
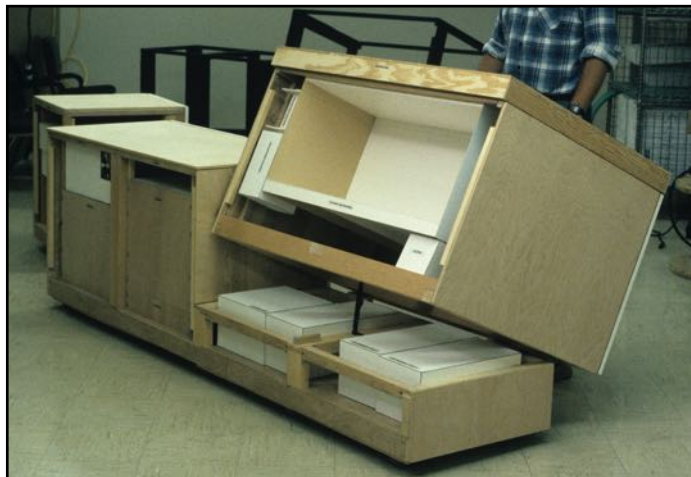
Bill was engaged by David Kelley Design (the forerunner of IDEO) during the early days of SGI to design a new high-end desktop computer graphics workstation for them. Besides the appearance and aesthetic enclosure design of the system (CRT display, keyboard, and CPU), Bill had to also insure that this "hot" new machine would cool properly by doing thermal analysis using CPU and display enclosure test mockups.



## Testing Unit Mechanical Design

### **Zentel Circuit Tester:** *Massive Product for High-Tech Analysis*

Bill was engaged by Lunar Design (industrial design) to execute the overall mechanical design of this large testbed processing unit for Zentel Corporation. Bill went from precision mechanical layouts of the entire unit to building a full-scale, detailed mockup of the mechanical components and frame to final manufacturing documentation and functional prototype fabrication.

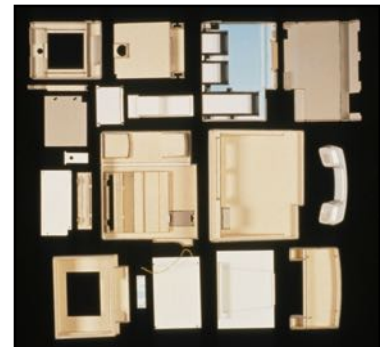




## Video Phone Design & Project Management

### **Telechips MMX:** *A State-of-the-Art Video Phone with Modular Technology*

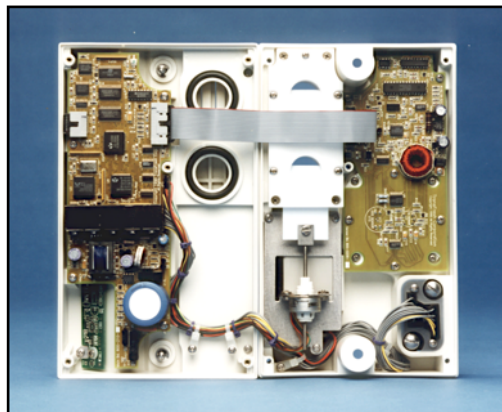
The Telechips challenge for Bill and his team was to design a revolutionary new video telephone system that had many unique features: adjustable and replaceable digital screen, custom-designed modular PCMCIA card units, an ergonomic keyboard and user interface, among others. The project involved every aspect of product design and development, including aesthetics and form design, mechanisms, hardware, usability, interconnection, manufacturing, tooling, prototyping, testing, thermal management, and assembly. Bill and his team were responsible as a turn-key total product design project consultant to make this product successful in every way for the client from concept development to final production.



## Controller Design & Project Management

### **TransFRESH Atmosphere Controller: *High-Technology Shipping Monitor***

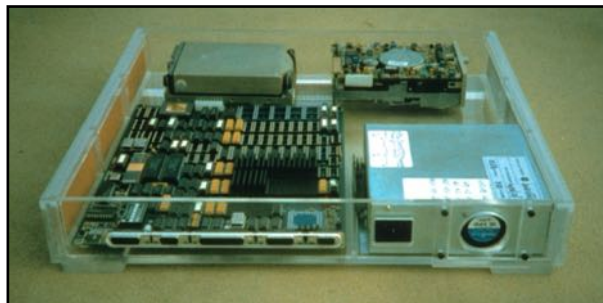
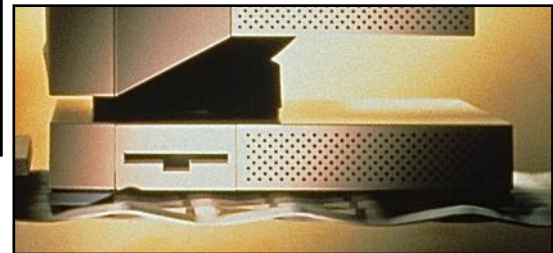
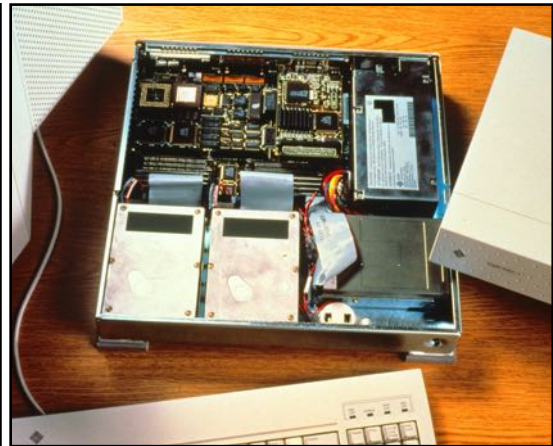
TransFRESH Corporation was the premier agricultural produce atmosphere monitoring firm in the shipping world. Bill and his team were contracted to design and develop a revolutionary atmosphere monitor/controller for shipping produce across the Pacific Ocean safely and securely. The challenges were many, including tight spaces, multiple shipping containers, sensitive environments, and tricky physical and chemical constraints. Bill managed the product design from concept through to production execution of all physical product mechanical, aesthetic, and usability issues and elements.



## Computer System Design

### Sun Microsystems "Pizza Box" CPU: *Super Thin with Precise Styling*

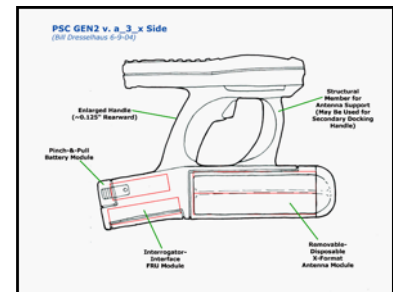
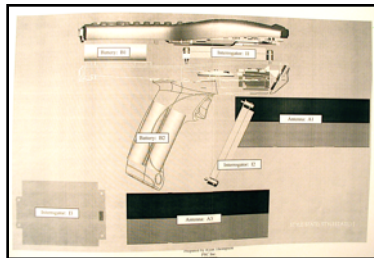
Bill and his design team were engaged by Sun Microsystems to work with Frog Design (industrial design) to develop the mechanical package and enclosure design for their new super thin CPU box. Bill worked closely with Frog to develop this very compact mechanical design, including thermal analysis, component configuration, internal structure, part design, and manufacturing documentation.



## Scanner Design & Project Management

### PSC Handheld Scanner: *Adapting Existing Products to New Applications*

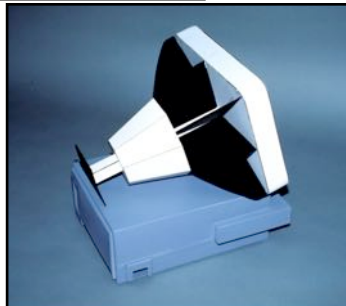
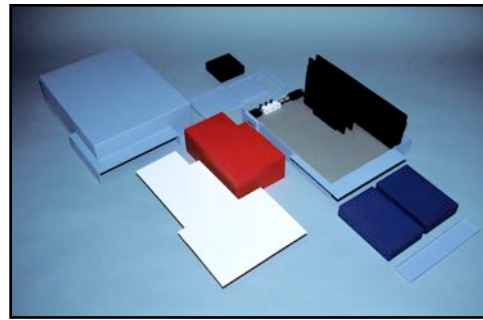
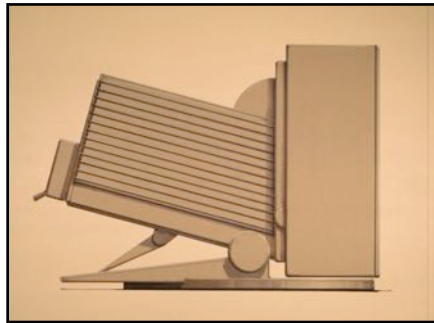
PSC Scanning contracted with Bill and his company along with his Lunar Design support team to adapt an existing hand-held bar-code scanner into a new RFID hand scanner using completely new technology. Bill and his team addressed a number of difficult design issues, including styling and appearance design, ergonomics and usability design, mechanical design and component configuration, and utility and technology application. In-depth research was conducted on the application environment as well as current competition and related products. Drawings, mockups, test models, and CAD mechanical layouts and form images were developed to finalize the testing and design of the unit.



## Secret Computer Project

### **Apple Water Project:** *The Secret Next Generation Apple Desktops*

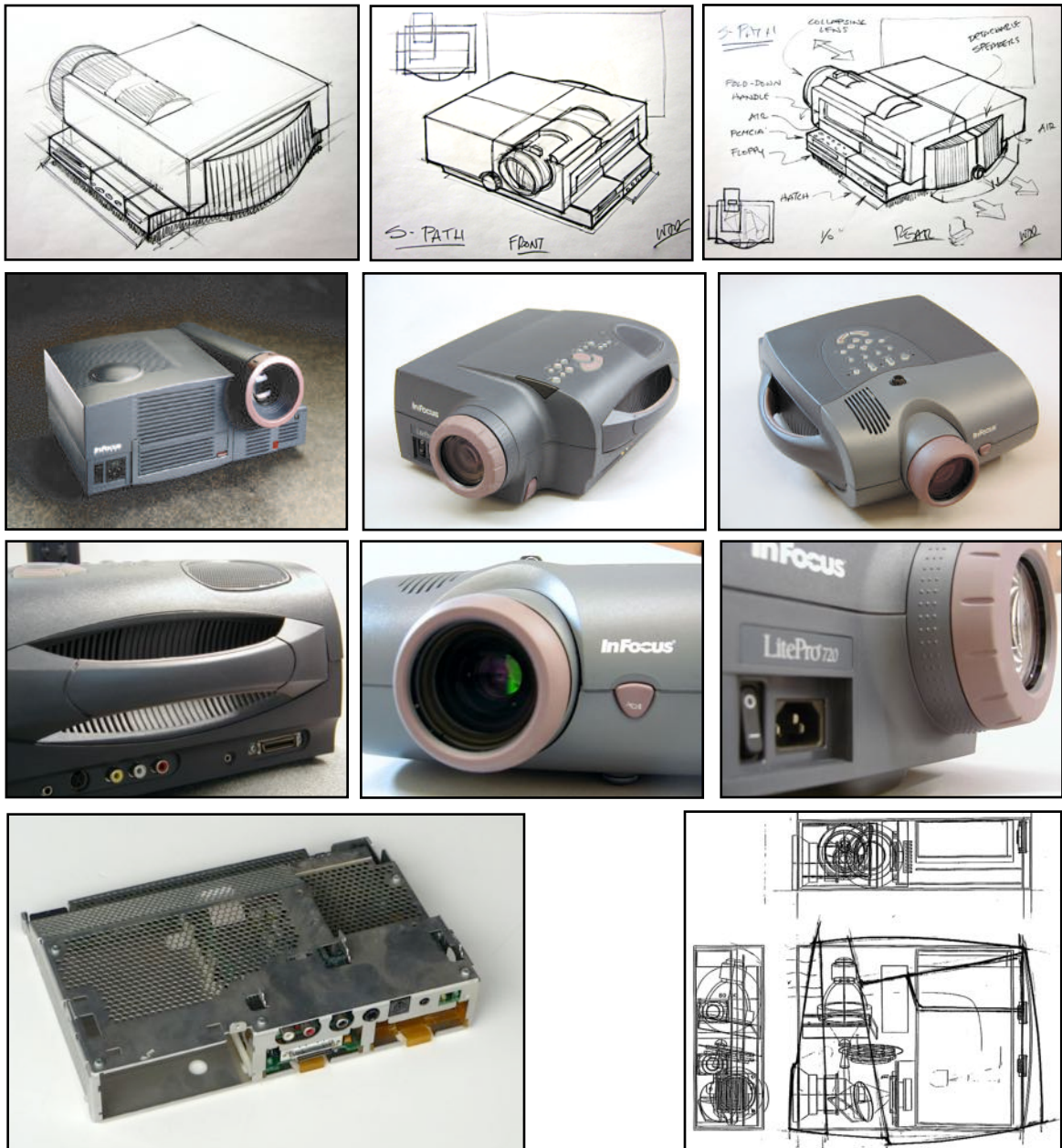
After he left Apple as an internal design manager, Bill was engaged by a secret Apple team as a design consultant to develop the next generation of desktop computer form designs. To help him do this, Bill partnered with a new and upcoming Silicon Valley design firm by the name of Lunar Design. Together they developed the concepts for the secret Apple Water Project from sketches to renderings to mockups of form and structure to a finished appearance model.



## Best-In-Class Projector Systems

### InFocus Projectors: *Best Market-Leading Products in the Industry*

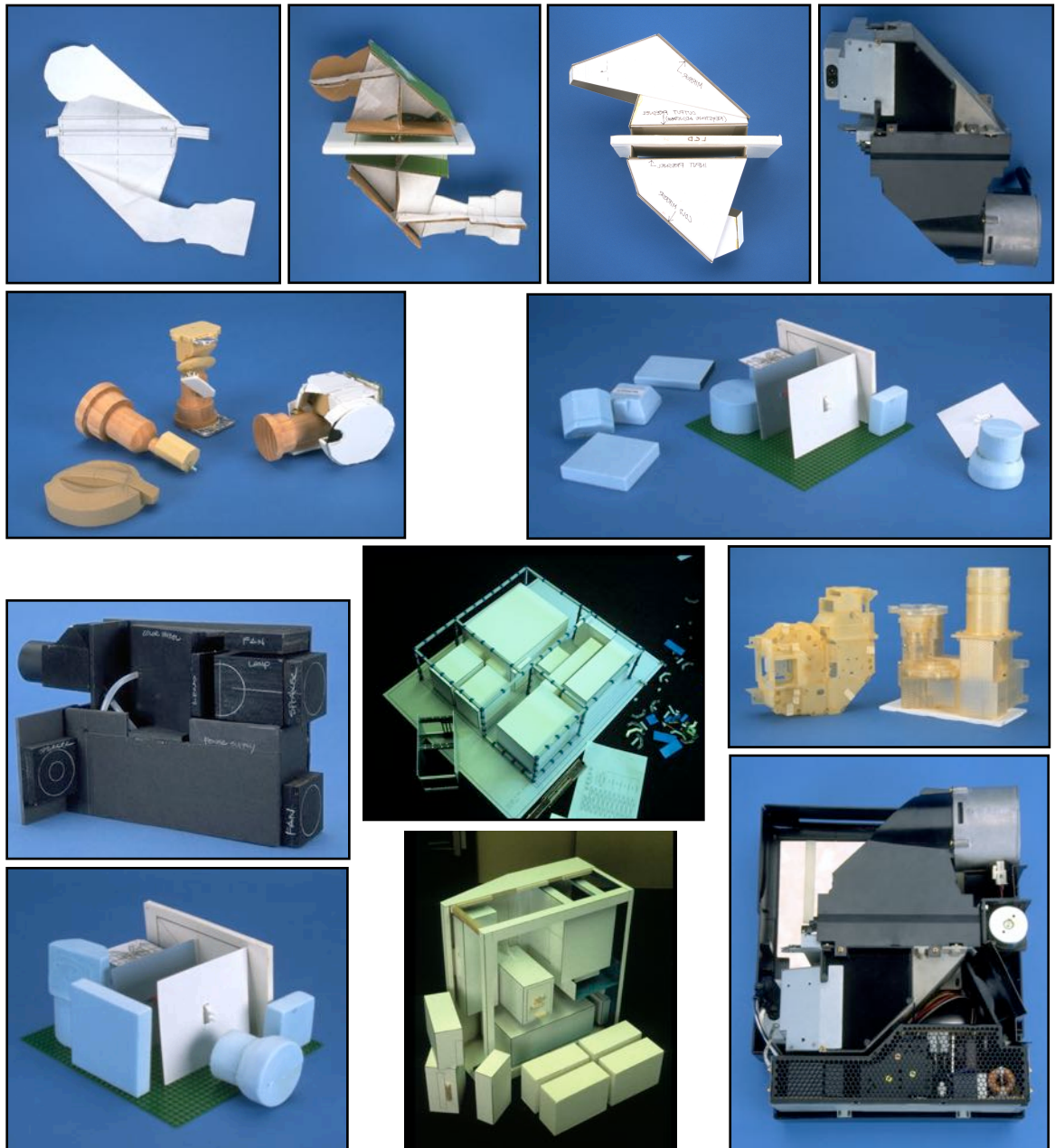
As Manager of Product Design at InFocus, Bill facilitated the people and projects and contributed to the design of these ground-breaking digital projectors for InFocus that were all best-in-class market-leaders in their time. He also managed world-class design insourcing and outsourcing for their industrial design, product design, and mechanical design, including Stratos, Ziba, Lunar, Function, and others, plus coordinating internal optical-mechanical configuration and electronics engineering. These three products generated millions of dollars of revenue for InFocus.



## Product Configuration

### Product Configuration Design: *Design from the Inside Out*

One of the keys to successful product design is what Bill calls Configuration Design. This is where all of the known product technologies and components are mocked up in a simple medium, and then configured in various ways for optimum design features, such as utility, functionality, performance, usability, service, assembly, maintenance, sustainability, and aesthetic form. This inside-out design is then blended with the outside-in aesthetic form design to provide an optimum overall product solution. Shown below are samples of various configuration design challenges.



## Product Usability Design

### Usability and Application Research: *On-Site Investigation and Mock-up*

To be able to properly design the form factors, usability, serviceability, and installation details and procedures for the TransFRESH Atmosphere Monitor Unit, Bill and his team had one chance to research the application environment for the system—huge shipping containers and refrigeration units. They went to the site at the Oakland, California, shipyards and took photographs and investigated the application details inside and outside. They then went back to Bill's studio and built mockups of the entire product usability environment for proper design and installation analysis.

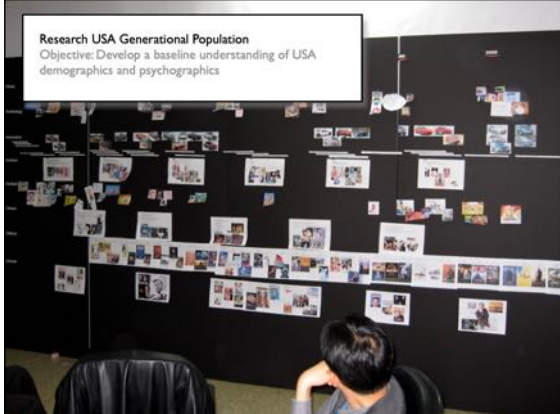




# Total Design Immersion Project

## Pantech Goldfish Project: *Reimagining the Mobile Phone Product Market*

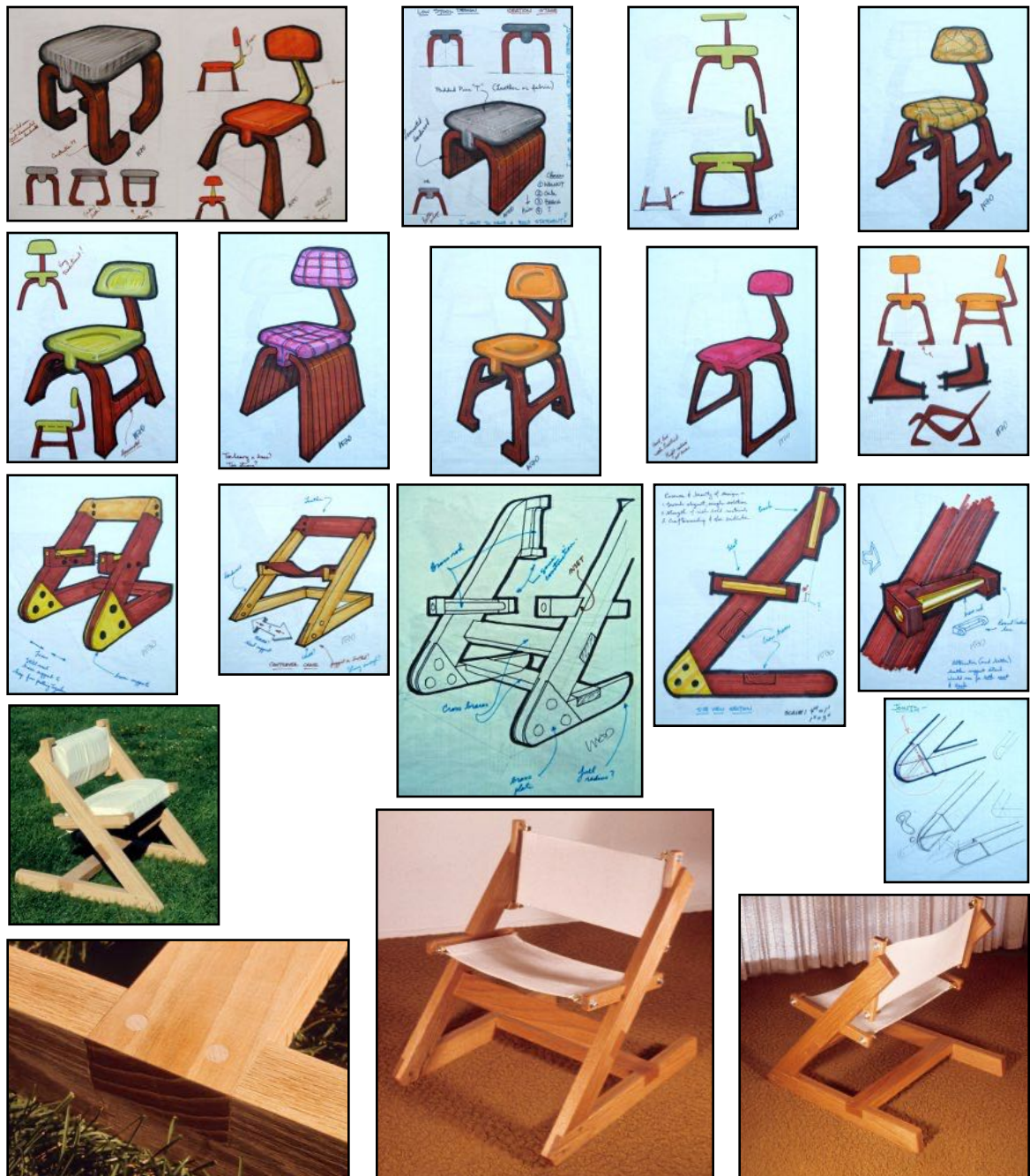
During nearly a full year, Bill and his team conducted a total immersion project for Pantech Corporation, a leader in Korean mobile phones. We were directly commissioned by Pantech's CEO, and we conducted a number of research and development exercises in product design thinking and process with a cross-functional team from Pantech. Direct exploration of markets, phones, users, and competitors was undertaken in both the USA West Coast and in Korea. We established Innovation Kitchen Labs in both Korea and in the USA, and designed five proprietary new phone concepts for Pantech.



## Furniture Design & Fabrication

### Seating Design Project: *Making a Sculptural Statement*

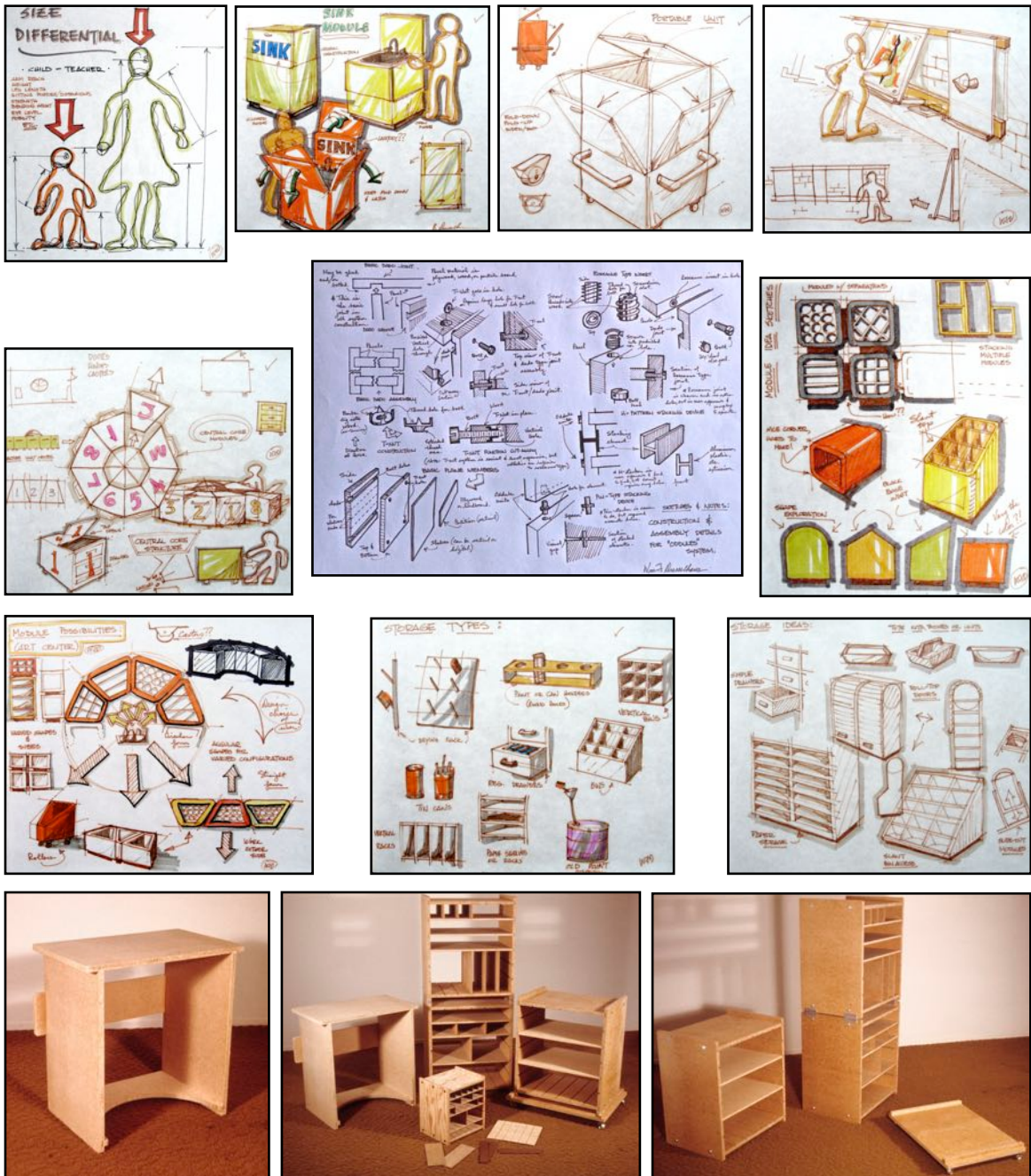
As a special design research project, Bill explored developing a unique form for a chair that was both visually unusual as well as physically comfortable. After developing many concepts and ideas, he focused on a cantilever design with precision machined wood joints and materials of oak wood, brass hardware, and canvas fabric for the seat and back. The final hand-crafted prototype was precise, robust, and comfortable.



# Furniture Design & Build

## Preschool Furniture Project: *Build-It Yourself Modular Design*

This project involved Bill in developing a modular furniture storage system for preschools that could be easily built by the teachers themselves in a simple shop environment with basic woodworking tools. Research was first conducted around the preschool environment, then concept sketches and ideas were developed, and finally a refined system prototype was built and tested with basic production processes.



## Musical Instrument Design and Build

### Custom Designed and Built Electric Guitar: *Innovation with Fabrication*

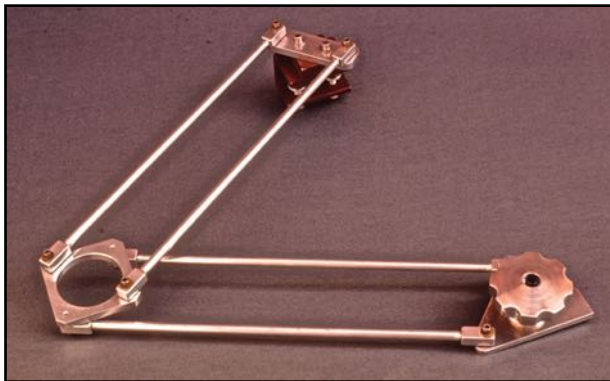
Bill had been interested in electric guitars for some time, learning to play somewhat, and even performing in a rock band in South Korea when he lived and taught there. However, being a product designer and maker, and a bit fanatical about product usability, he took a master course in electric guitar making. After that, he was hooked on guitar making, and decided to build his own custom design. He did extensive research, testing, and CAD models for development, and built four functional prototypes before he landed on his preferred design and ergonomic solution. Bill's unique design uses inexpensive layered Baltic birch plywood for the body and neck, a single unique current-based humbucker pickup, a separate headstock and neck, a lower leg body cutaway for comfort, a fully top mount 3D-adjustable bridge, an integrated bamboo pickguard with all electronics, a short scale of 24.070 inches, a wide neck at the first fret of 47 mm, self-aligning locking tuning machines, a pre-slotted maple fretboard, and a zero fret and 3D printed string guide instead of a traditional nut. All design, modeling, prototyping, fretting, soldering, routing of wood parts, and assembly was done by Bill.



## Model & Prototype Design & Fabrication

### **Making and Building:** *Machining, Mockups, and Models*

Bill has always been a maker and visualizer besides designer. He believes that both visualizing and making designs is essential. He has been a machinist and model-maker, making not only for his own designs, but for others. Below are examples of his work: retail register appearance model, abstract walnut sculptural form, precision drafting machine, scaled shop models, and machined measuring instrument.





## **Teaching and Training**

**Bill Speaks at Wharton: Penn's B-School Marketing/Engineering Students**

Bill and his good friend, Jeff Smith, cofounder and CEO of Lunar Design, were invited to speak at the Wharton School of Business at the University of Pennsylvania, and then have an interactive session with business and engineering students.

The Daily Pennsylvanian  
**dailypennsylvanian.com**  
the web site of the independent student newspaper of the university of pennsylvania

Friday, August 27, 2004

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### Tech CEOs combine business, engineering

By DAN SIEGEL  
March 24, 2004

Lunar Design CEO Jeff Smith and Dresselhaus Design Group, Inc. founder and President Bill Dresselhaus, whose prowess in engineering and technological development have made them successful entrepreneurs, spoke with a group of around 30 students over a fully catered dinner last night at the Weiss Tech House.



[Rachel Meyer/The Daily Pennsylvanian]

Tech company bigwigs Bill Dresselhaus (left) and Jeff Smith discuss the merits of integrating business with technology at the Weiss Tech House.

The dinner, planned by members of Tech House's mentoring program and Tech House Staff Director Anne Stamer, was the sixth talk this semester under the theme of innovation and technology.

Smith, the founder and current CEO of the Silicon Valley, Calif.-based product design company Lunar Design, began by modestly describing the prestige of his company's clients a list that includes Apple, Sony, Samsung and Dell which he said allows him to be "part of a really dynamic community."

Introduced by Engineering professor Karl Ulrich as an "innovation management consultant," Dresselhaus also authored a book titled ROI: Return on Innovation.

However, his most unique credential may have been his past role as Apple's 316th employee, where he worked directly with Apple CEO Steve Jobs.

"What I love doing is helping people be innovative," Dresselhaus noted when explaining his current multifaceted role as a speaker, professor, consultant and innovator.

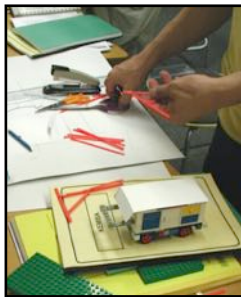
The discussion went down many paths, as the students were excited to probe the various issues each innovator has faced in attaining and holding his current position.



## International Training

### **Design and Innovation Training: *Global Strategy and Tactics***

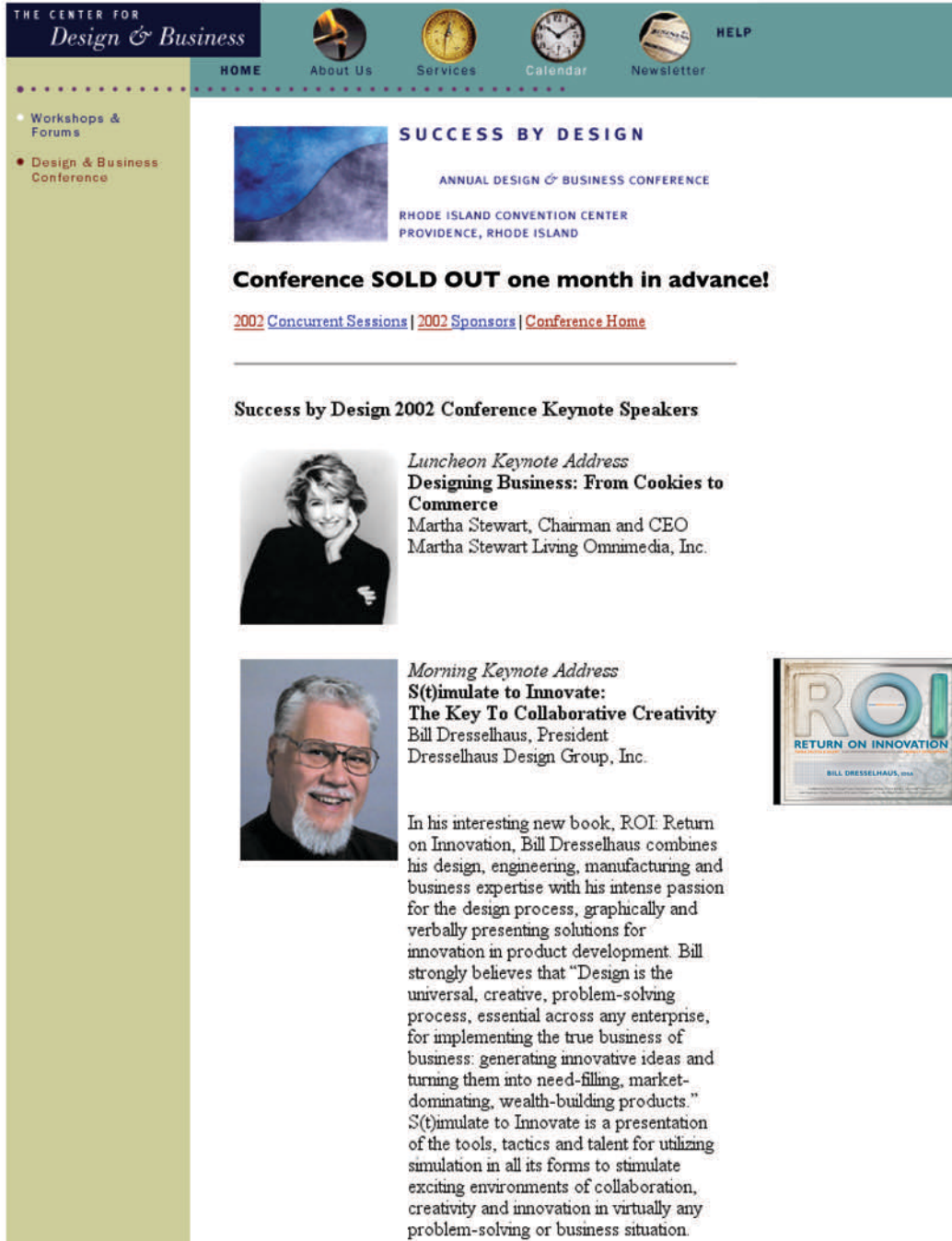
Bill has trained hundreds of students and professionals in the USA and Asia in creativity, innovation, design, management, and marketing. His international courses, seminars, workshops, and project participants range from professional engineers, designers, managers, and marketers to students from high school through graduate school. Bill has a passion for training others to improve their work and life processes.



## Martha Stewart & Bill Event

### Bill Keynotes at RISD Event: *On the Docket with Martha Stewart*

The first ever RISD (Rhode Island School of Design) *Success by Design* annual conference event had as its main keynote speakers, Martha Stewart at the luncheon session, and Bill at the morning session. Both spoke about the great value of design in the world of business.



The screenshot shows the website for 'THE CENTER FOR Design & Business'. The navigation bar includes links for HOME, About Us, Services, Calendar, Newsletter, and HELP. A sidebar on the left lists 'Workshops & Forums' and 'Design & Business Conference'. The main content area features a banner for 'SUCCESS BY DESIGN' with the subtitle 'ANNUAL DESIGN & BUSINESS CONFERENCE' and the location 'RHODE ISLAND CONVENTION CENTER, PROVIDENCE, RHODE ISLAND'. A prominent headline states 'Conference SOLD OUT one month in advance!'. Below this, there are links for '2002 Concurrent Sessions', '2002 Sponsors', and 'Conference Home'. The section 'Success by Design 2002 Conference Keynote Speakers' lists two speakers: Martha Stewart, who will give the 'Luncheon Keynote Address' titled 'Designing Business: From Cookies to Commerce', and Bill Dresselhaus, who will give the 'Morning Keynote Address' titled 'S(t)imulate to Innovate: The Key To Collaborative Creativity'. A book cover for 'ROI: RETURN ON INNOVATION' by Bill Dresselhaus is also shown.

THE CENTER FOR  
*Design & Business*


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• Workshops & Forums  
• Design & Business Conference


**SUCCESS BY DESIGN**  
ANNUAL DESIGN & BUSINESS CONFERENCE  
RHODE ISLAND CONVENTION CENTER  
PROVIDENCE, RHODE ISLAND

**Conference SOLD OUT one month in advance!**  
[2002 Concurrent Sessions](#) | [2002 Sponsors](#) | [Conference Home](#)

**Success by Design 2002 Conference Keynote Speakers**

 **Luncheon Keynote Address**  
**Designing Business: From Cookies to Commerce**  
Martha Stewart, Chairman and CEO  
Martha Stewart Living Omnimedia, Inc.

 **Morning Keynote Address**  
**S(t)imulate to Innovate:  
The Key To Collaborative Creativity**  
Bill Dresselhaus, President  
Dresselhaus Design Group, Inc.



In his interesting new book, ROI: Return on Innovation, Bill Dresselhaus combines his design, engineering, manufacturing and business expertise with his intense passion for the design process, graphically and verbally presenting solutions for innovation in product development. Bill strongly believes that "Design is the universal, creative, problem-solving process, essential across any enterprise, for implementing the true business of business: generating innovative ideas and turning them into need-filling, market-dominating, wealth-building products." S(t)imulate to Innovate is a presentation of the tools, tactics and talent for utilizing simulation in all its forms to stimulate exciting environments of collaboration, creativity and innovation in virtually any problem-solving or business situation.

**Bill's PTC Webcast Event: Internet Presentation for Innovation Process**

Bill spoke for the Parametric Technologies Corporation (PTC) internet webcast segment as part of the international Virtual MCAD Internet event to an audience of thousands. He presented "Digital Empowerment" via a scripted video with slides. Bill talked about how the many incredible digital-virtual computer tools available to the engineer and designer of today empower them to revolutionize their productivity and product development innovation capabilities.

The image displays a collection of promotional materials for Bill Dresselhaus's webcast event. At the top left is a title slide for "Digital Empowerment" by Bill Dresselhaus, Designer, Engineer, and Author. To its right is a screenshot of the Vedio.com interface, featuring a video player with a "Virtual MCAD" logo and a "The Auditorium" sidebar. Below the title slide is a diagram titled "Collaboration" showing the intersection of Marketing & Sales, Manufacturing & Operations, Design & Engineering, and INNOVATION. To the right of this diagram is a slide titled "BIO" providing a detailed biography of Bill Dresselhaus, including his role as President and Founder of Dresselhaus Design Group, Inc., and his authorship of the book "ROI: Return On Innovation." Below the bio slide is a video player interface showing a video of Bill Dresselhaus speaking. The video player includes a "Business of Business" list with items: Mentality, Support, Ideas, Needs, Wealth, Products, and Customers. At the bottom right of the video player is a call to action: "Fill out this short survey and enter to win Bill Dresselhaus' book: 'ROI: Return on Innovation'" with an "Enter" button.

## Bill Trains for Innovation in Korea: LG Executives and KIDP Designers

Bill has taught design, technology, innovation, product marketing, and design management in Korea to a variety of industry professionals many times since 2001 for the Oregon Graduate Institute of OHSU. Below is an article from a USA Asian weekly that features his training.

# The Asian Reporter

Pacific Northwest NewsWeekly □ Volume 12 Number 38 □ Tuesday, September 17, 2002 □ www.asianreporter.com

## OHSU faculty develop ties with Korean professionals

**B**ill Dresselhaus and Paul R. Newman, both adjunct faculty members in the Department of Management in Science and Technology (MST) at the OGI School of Science & Engineering at Oregon Health & Science University (OHSU), traveled to Korea in the past year to share their expertise with Korean professionals.

MST adjunct faculty member Bill Dresselhaus recently returned from his third trip to Seoul, where he taught design-based marketing and design management. His experiences there are part of a growing trend of indigenous institutes and universities in Asia teaming up with Western graduate schools to offer MBA degree programs.

Dresselhaus taught under the auspices of Seoul's Institute for Industrial Policy Studies. His students were industry professionals from sales, marketing, engineering, human resources, and social sciences.

"It is very clear that Asia is hot for innovation, design intelligence, and design management expertise," says Dresselhaus. "Korean industry has specifically identified both the design process and design management as core competencies and strategic advantages for high-tech and consumer product companies like LG Electronics and Samsung." In all his courses, Dresselhaus made use of his own textbook, *ROI: Return on Innovation*. His design consultancy can be found at <[www.BillDresselhaus.com](http://www.BillDresselhaus.com)>.



Bill poses with his LG Electronics students in Korea at their corporate campus.



LG Electronics executive professionals working on their team project.



Design management students working on their class projects at IPS in Seoul.

## Bill's ROI Asia-USA Book Tours: Spreading the Message of Innovation

Bill toured eleven cities in seven countries in 2001 in conjunction with his ROI book and ROI Seminar sponsors SDRC, SGI, Alias Wavefront, and Hewlett-Packard. He presented to hundreds of engineers and managers throughout Asia, including Japan, Malaysia, India, Taiwan, Korea, China, and Singapore. Selected press pieces are shown below. Prior to the Asian "Innovate Or Die!" ROI Seminar Tour, Bill also did a North American Tour with his sponsors, presenting his message on innovation to hundreds of industry professionals in eight major US cities, including New York, Chicago, Cincinnati, San Francisco, and Los Angeles.

12 EXPRESS COMPUTER Bangalore, India APRIL 30, 2001

### Design today: 'From digital to clay and back'

Bill Dresselhaus designed Apple's Lisa, the product that inspired the Macintosh. He later moved on to design Sun's early workstations and Infocus' best selling projectors. He spoke to Prashant L. Rao in Bangalore about how design has evolved over the last few decades and where it is headed.

**■ You were involved in the design of the Apple Lisa, a groundbreaking product that paved the way for the Macintosh. What happened with the Lisa?**

In the 1970s design was not as important as it has become in recent years. Steve Jobs drove this transformation at Apple. When I helped design the Lisa, it was a disaster. We were ready in 1981 but had to spend two years waiting for the hardware and software to get ready. However, my team got bonuses for being the best performing team in the company. Concepts from Lisa came into the Macintosh that used Lisa's industrial design theme. It was the foundation on which the Mac was built. We invented stuff such as colour model colours. The GUI allows you to open it from the side, take out modules and insert them. We did that seventy years ago in the Lisa! We even had pull-out cards under the keyboard telling you how to use the software.

**■ You say engineers should think about the future of design. How do you see the future of design?**

Multi-cultural design seems so vital. We have to be careful about closed and shapes versus many products that have worked in the US have failed in Asia. Many companies are getting potential customers to come in and 'design' products by putting together blocks covered with fabric and blind. When you look at Visa... it's the same team that developed the film. It was the Film 01 and at a distance the product look alike. But the Visa is customizable. You can change it by swapping modules.

**■ The future of design**

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Design moves in cycles. In the 1960s the Japanese had failed by offering a standard model for a lower price. The Americans had more options but they lost. Today it's moving back towards more options and customisation. Traditional methods are still used. Old time customer meeting clay models (one of my jobs) design some. A product like the Ford Focus was done via IEKAS software and from the customer model clay models based on the digital design and added beautiful touches. These transitions were switched back into the digital model. So it goes digital to clay and back to digital.

**■ After Apple, what were the later projects that you worked upon?**

I did mechanical design on the first SPARC for Sun. I then worked with Infocus where we helped them build their first world class product, the LP250. We later did the 250 series and set up the team for the LP250. There are some of the most successful products in the market. The life span of a new product used to be one year and our goal was to roll that down to six months of product development. To do this we had to innovate in terms of process and product. We started using aluminium looking as if it was faster than steel. Lost it production—getting a technology into a like product. Styling, ergonomics, design, features, usability—its all part of the game.

The importance of design today can be seen from the fact that Tom Ichni and other management gurus have been preaching design as a means of differentiation.

**■ What do you feel about Apple's comeback and Steve Jobs role in it?**

The idea of returned brands and transparent enclosures. Was Apple thinking different again? Jobs does something because he believes in it. The design design in the transition. Companies and the others are doing returned brands including Apple. OS X came from NeXT, a member of Jobs' company. He'll look at

**■ Have design tools changed dramatically over the years?**

Thinking tools—engaging one another, thinking out of the box—have stayed the same. What's new are digital tools such as CAD, a 3D software for full laboratory product development or Alias Wavefront for styling and surfacing and Mastercam that lets you create digital models. The problem is that these tools are not tapped to their full potential. Designers need training and time to fully use the products to use them effectively.

Less was done on Mylar (plastic film) with pencil. CAD didn't exist at that time. It took two years (1979 to 1981) to do Lisa. We can do the same kind of product development in six to nine months today. The goal is design today is to eliminate paper. You need to do more with drawings, people can always pull out the bit you want and print it out from the design.

**■ The future of design**

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**■ How do you see the future of design?**

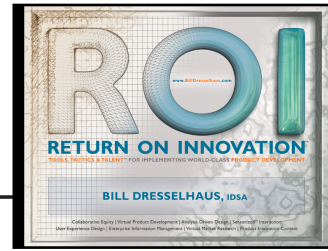
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SPARK PRACTICE Clipping Service

### Malaysian Business

SDRC SINGAPORE 16-31 May 2001 Circulation: 30,000 Page 07

## Innovate or Wither



Dresselhaus: Both the ROI's should matter

**M**ALAYSIAN companies should place more emphasis on developing innovative products to become truly competitive in the New

Economy. According to Bill Dresselhaus, president of US-based Dresselhaus Design Group, one of the key elements that should be given prominence is the design of a product.

Citing the case of Apple Inc's iMac, which revolutionised the look and feel of a computer through innovative design, Dresselhaus said that the time has come for companies to exert competitive advantage through the design of products that scores high on usability and aesthetic values.

Design innovation is a particularly good option for local companies to retain their competitiveness, he said. "The continued growth of small companies in the region will depend largely on their

ability to develop products that are of equal quality with their larger competitors, but which stand out in terms of design," said the Stamford-trained expert with 30 years' experience in the design industry.

According to him, because of the importance of innovation in the current business landscape it is high time that companies start placing equal emphasis on the Return on Innovation as much as their current preoccupation with Return on Investment.

"Both the ROI's should matter," he said. Dresselhaus said organisations should concentrate on choosing the right tools, techniques and talent when attempting to strengthen their innovative capabilities.

New Delhi, India THE ECONOMIC TIMES NEW DELHI SUNDAY 29 APRIL 2001

## Creative context

Bill Dresselhaus tells E Jayashree Kurup how organisations can benefit from facilitators, who act as mediators between thinkers and implementors

**C**ALL HIM a product engineer, industrial designer and innovation facilitator. With a degree in chemical engineering, a masters in product design from Stanford University and an advanced graduate studies degree in the executive programme at the Art Center College of Design, Bill Dresselhaus functions between the visual arts and engineering.

Even as corporates round the world try to give the customer what he desires, Dresselhaus works as a link between the ones who have the ideas and the ones who can execute them. In fact, he calls himself a facilitator.

Dresselhaus himself has an impressive track record. He designed Apple's Lisa, the product that inspired the Macintosh. Later he designed Sun's early workstations and Infocus' best selling projectors. Products that came out of designer's minds and later translated into hot-selling consumer items.

If all started when Dresselhaus was working with Ford as a chemical engineer. "While at my workstation one day, I heard some colleagues discussing a problem they were trying to sort out in a refinery. I thought I understood what the problem was and immediately took some cardboard and string and simulated the refinery. Then I gave some suggestions on what I thought they were doing wrong. And the idea worked." That

was the first time Dresselhaus felt that he was good at listening to far-fetched ideas of designers and putting them in perspective. "That way I would facilitate the creation of products out of wild ideas."

A thought that sent this chemical engineer back to the school of design in Stanford. He has even taught industrial design in Korea and worked as a graphic designer at Clement Labs, Hewlett Packard, Apple Computers and functioned as design director at the Art Center in the Bay Area. But feels he has found his calling in conducting seminars on innovation, around the world.

His book Return on Innovation has been prescribed as a text book in three design schools and he is soon to embark on a video series on innovation.

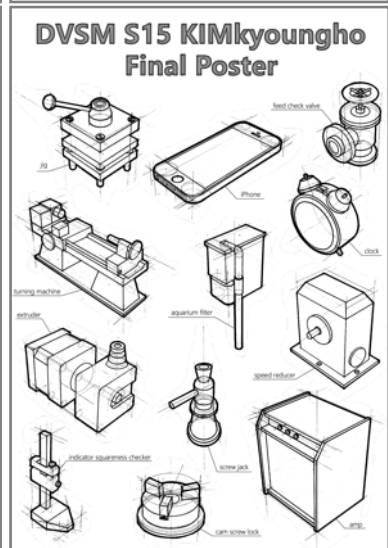
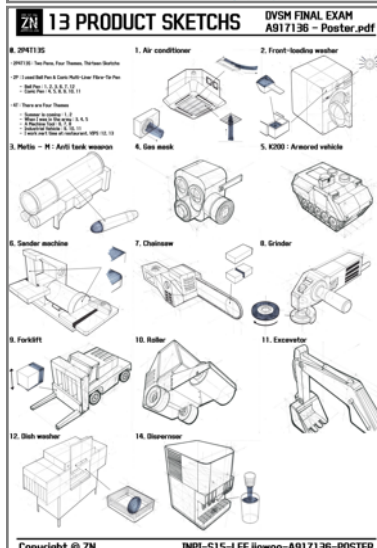
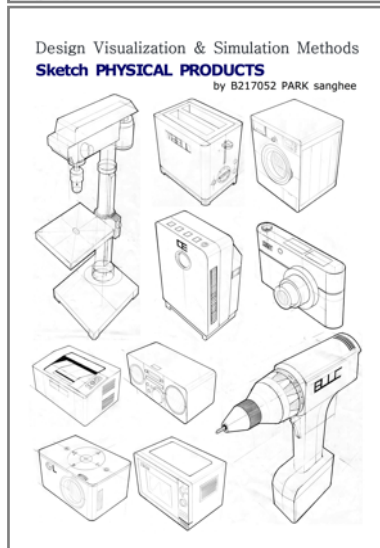
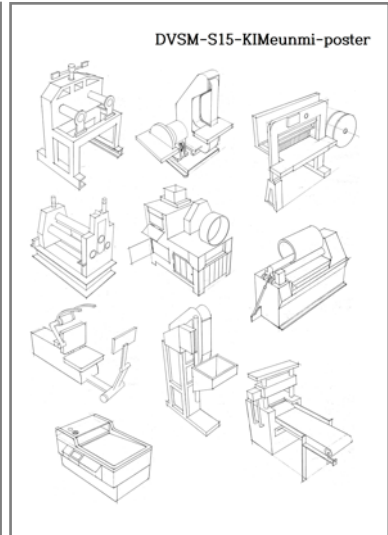
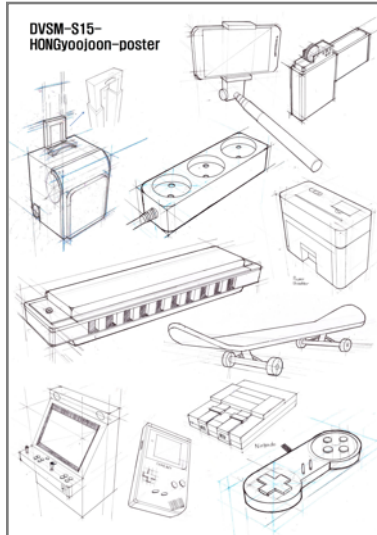
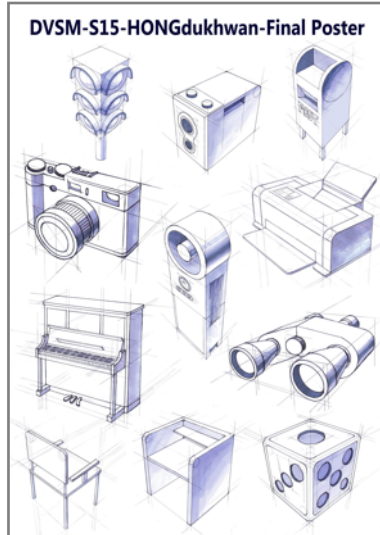
So who is this facilitator? "Ideally, he should be a person who can build bridges." This facilitator could be from within a company or from outside. "A facilitator is someone who understands both sides," explains Dresselhaus. For which enough technical understanding and some experience in design and processes are a must. "To be fully able to relate to both he must also be a little crazy," Dresselhaus adds with a grin.

After all, he finds that companies like British Telecom spend on hiring futuristic designers. But to cash in on their expertise, he finds they need a facilitator who can understand the creative and corporate processes. "A lot of people have good ideas," says Dresselhaus. A designer is that he is able to hear the idea, transform it into a sketch or three-dimensional model and simulate the final product it would fit into. At a recent seminar in Delhi, Dresselhaus told Cad-Cam engineers from SDRC how to make room for innovators and facilitators in the team. And judging from audience responses, has paved the way for this new profession in India.

# Teaching Design Visualization

## Design Visualization & Simulation Methods: *Idea-Sketching & Mockups*

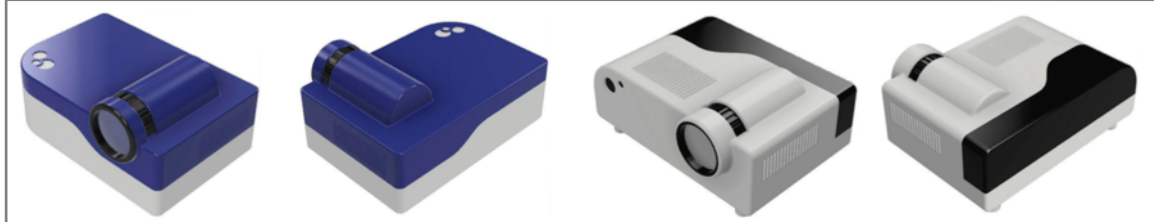
Bill taught this course in the Mechanical & System Design Engineering (MSDE) Department at Hongik University in Seoul, Korea, to primarily mechanical engineering junior and senior level undergraduate students. The content enabled them to generate quality idea-sketches and soft precision mockups for design projects in many areas. Posters of work examples are below.



# Teaching Product Form Design to Engineers

## Form & Esthetics for Engineering Design: Logical & Beautiful Products

Bill taught this course in the Mechanical & System Design Engineering (MSDE) Department at Hongik University in Seoul, Korea, to primarily mechanical engineering junior and senior level undergraduate students who wanted to be able to create logical, durable, and beautiful high-technology product designs. The students were taught basic aesthetic form design and logical geometric-based design principles. Below are some of the best student course work.



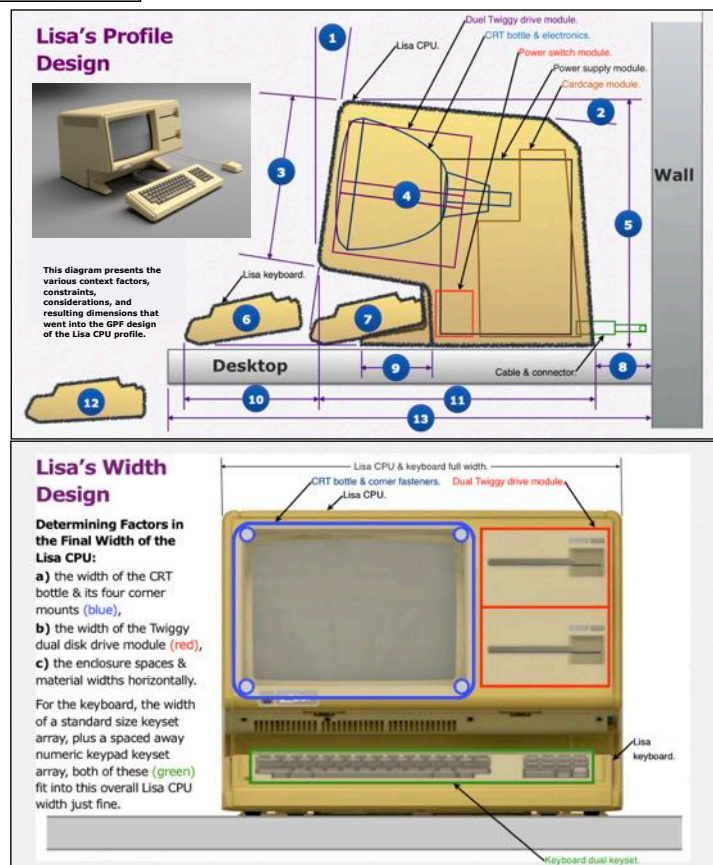
## **Publications**



## Apple Product Design History

### Bill's Apple Lisa iBook: An Early History of Apple Product Design Work


Bill was the Principal Product Designer of Apple's Lisa computer. However, that story has rarely been told truthfully or completely, including the work, effort, and people who were actually involved. Too often, the story told, by those who were not there, was primarily about the electronic and software designer, and not the product design. Bill decided to publish the true and full story behind the product design of the Apple Lisa development. He designed, wrote, and published the Apple's Lisa iBook, and is now converting it to an ePub book as well.



## Bill's Book on Design Innovation

### Bill's Book **ROI: Return On Innovation: The Book That Tells You How!**

Bill wrote, designed, art-directed, and published his revolutionary book on product design and innovation to respond to the need for a clear, visual manual on this important business subject. The inside of the *ROI* sales brochure below shows its unique graphic nature and design, and includes key testimonials and endorsements from various business and management leaders. *ROI* has been popular with designers and engineers globally, and has been used as a textbook in many colleges and universities throughout the world.



**T**he world we live in **demands** innovation in all areas of business. Innovation can and must be **managed**. Today's most successful companies manage their innovation assets as aggressively as they do their financial assets.

Here is a resource that can help you empower and grow your company's ability to innovate, especially in the area of new product development. Created by a pioneer in product design and design facilitation, **ROI: Return on Innovation™** will give you simple, practical innovation solutions applicable across your enterprise.

ORDER ROI ON THE WEB: [www.BillDresselhaus.com](http://www.BillDresselhaus.com)

**ROI: Return on Innovation™** is a guide for maximizing the return on your product development investment. It describes how to facilitate innovation throughout your company, beginning with new product development, but ultimately permeating the enterprise. Reading and implementing the principles and methodologies in **ROI: Return on Innovation™** will give your people the vision and the passion to apply their individual and collective creativity to actualize better products more quickly.

“Finally—a book filled with valuable product innovation tools that's also fun to read. I found Dresselhaus' masterpiece hard to put down, and I'm sure I will be picking it up again often. If you need to integrate form with function, this is the book for you.”  
— **Preston Smith CMC**, Principal,  
New Product Dynamics, co-author of  
*Developing Products in Half the Time*

“Bill's new book is ORIGINAL, COOL, DIFFERENT & IMPORTANT! I wholeheartedly endorse it. Bill is 'riding the wave' with this 'design-innovation thing.' IT IS HOT—AND DESERVEDLY-BELATEDLY SO.” — **Tom Peters**, management guru and author of *The Circle of Innovation*, *In Search of Excellence*, and the *Reinventing Work* series.


“The title says it all: Bill Dresselhaus knows how to get tangible returns on your investment in innovation, and that creating a business environment fostering creativity is good for your bottom line. Use **ROI** like a cookbook, implementing new “recipes” for innovation within your organization. You'll be pleased with the returns on your investment!” — **John Harker**, President and CEO, InFocus

“**ROI** is a practical guide to product development, effectively breaking down the entire process into its basic parts. At Art Center, it is our goal to educate our students to become creative leaders in the real world. This publication would be an invaluable aid to anyone interested in familiarizing themselves with the necessary steps that lead to product innovation.”  
— **Richard Koshalek**, President,  
Art Center College of Design

**A Graphic Is Worth Twenty Pages Of Verbiage.** **ROI: Return on Innovation™** won't waste your time with a lot of foundational material, obtuse research results, or theoretical meanderings.

Instead, every page contains practical ideas, visually presented, with examples and case studies. It's designed to communicate as quickly and effectively as possible. Each topic is summarized in bullet-point format to get you back to work with a great idea **right now!**

MORE ON ROI at: [www.BillDresselhaus.com](http://www.BillDresselhaus.com)



## Bill's Book, ROI, in LA Times: Creates High Interest in Santa Monica

Bill assisted a premier design and art bookstore in Santa Monica, California, in setting up a full store window display that featured his book, *ROI: Return On Innovation*, as well as Art Center College of Design student work. The book and display attracted crowds that were often three deep and was featured in the *LA Times* in the article below.

**Los Angeles Times**

On The Internet: [www.latimes.com](http://www.latimes.com) THURSDAY, MAY 31, 2001 Editions: 2000 CC: 152 Pages 50¢ Designated Area Higher



Los Angeles Times

THURSDAY  
MAY 31, 2001  
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# Southern California Living

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The public has much interest in design, which is "a cultural phenomenon," says Hennessey & Ingalls bookstore manager Douglas Woods. BY JEANNINE STEIN

## Eyes on Design

Innovative products—from wireless headsets to a power saw—draw gawkers to a Third Street Promenade window display.

**By JEANNINE STEIN**  
TIMES STAFF WRITER

**T**he young dad powering a stroller stops dead in his tracks at a store window on Santa Monica's Third Street Promenade. He stares at the streamlined, silver metallic speakers that have caught his eye before turning his attention to a futuristic, spoke-less bicycle. Intrigued, he swivels his head around as he wonders aloud: "What is this place?"

It's Hennessey & Ingalls, a bookstore specializing in art and architecture, and none of the items in the window are for sale. They're part of a display celebrating innovative product design and designers inspired by the book "Return on Innovation: Tools, Tactics & Talent for Implementing World-Class Product Development" (Dresselhaus Design Group Inc., 2000).

The informational guidebook to the design industry is the work of Oregon-based independent consultant Bill Dresselhaus, who is best known as the first in-house product/industrial designer at Apple Computer. The speakers and an MP3 player are courtesy of RKS Design Inc., a Thousand Oaks-based product design company; the bicycle, wireless headsets, a shoe, jacket, power saw and aerodynamic models are by students and alumni of Art Center College of Design in Pasadena. Alias/Wavefront Corp., an animation software company based in Santa Barbara, contributed a video exhibit, and Nokia offered a sampling of its wild-patterned cell phones.

According to store manager Douglas Woods, gawkers sometimes stand five- and six-deep during the Promenade's peak hours. Considering Southern California is the land of the jaded, why the human pile-ups?

"Design has become a cultural phenomenon," says Woods, who brainstormed the display idea as an alternative to a book-signing for Dresselhaus, who brought in the participants. "The lines are blurring between art and architecture and design. I'm really impressed with how people get it. And it's amazing how it crosses age groups and demographics and everything."

On a recent day the window attracted the attention of sculptor Brandon Bell, who was taken by the bicycle: "I saw the tires and thought it might be an exercise bike," he says. "Then I saw the shoe—it sort of looks translucent. And those headphones look like they'd be comfortable."

Message therapist Bonnie DeJong was drawn by the sleek, sculpted, bright orange shoe, designed by Gretchen Wustrack, a graduate of Art Center, in conjunction with Reebok (its design incorporates acupressure points).

"It looks like something you'd buy off the Internet," she says, sipping a cup of coffee. "Its lines really caught my eye and drew me over here."

Although Woods says some people have come into the store asking about prices of the display items, they're also inquiring about Dresselhaus' \$75 spiral-bound book, of which the store has sold 40 copies—good, he says, for a self-published book geared to design professionals and students.

This heightened awareness of design, says Dresselhaus, also can be attributed to the fact that the public has choices to make when buying products—and often the final decision comes down to design. "There's an incredible technology explosion going on," he says, "but the problem is that a lot of products use the same technologies. So design is becoming the market differentiator."

He hopes the window brings attention not only to design, but also to those involved in the process: "People are very interested in how design works," he says. "The process is somewhat isolated to the designers, but everybody should know how it's done."

Martin Smith, chairman of the product design department at Art Center, agrees. "I think a lot of people don't know there's such a thing as industrial design, and you can have a career in creating products that help people's lives be easier or better. I think a display like this, whether it's objects created by students from the school or the Nokia phones, is raising awareness one step at a time."

Although the wireless phone headset that 26-year-old Art Center undergraduate Bryan Soriano created isn't on the market, he'd still like people to know what went into its creation: His research included studying anatomy to determine which parts of the head and ears contain the most nerves and blood vessels, affecting the product's comfort level.

"It gives more value to the product knowing how much research was involved. It's not about just making it look cool," he says. "Is this the right shape for the user? I focused on ergonomic design to make sure the user was as comfortable as possible, thinking that the person would be using the product for hours on a daily basis. I tried to avoid any funky attachments over the ear that would put pressure on it."

Soriano would like to see more anatomy of design displays everywhere—even the supermarket. "The public should be informed about what's going on. You have to have some kind of exposure, and there has to be some kind of communication between designer and public."

The window display will remain until June 17 at Hennessey & Ingalls, 1254 Third Street Promenade, Santa Monica. Phone: (310) 458-9074.

**Korean ROI Edition: Volume 1—DESIGN INNOVATION 1.0**

Besides being a tremendous success in the USA, Bill's book, *ROI: Return On Innovation*, has been extremely popular in Asia, especially in Korea. Bill teaches and holds seminars and workshops frequently there on design, marketing, and innovation strategy. *ROI* has been translated into Korean and published in a new and innovative format in Korea. It has been popular with Korean designers, and used in some colleges as a textbook. It can be obtained in certain bookstores such as Kyobo's Books, or Bandi and Luni's, in Seoul, Korea.

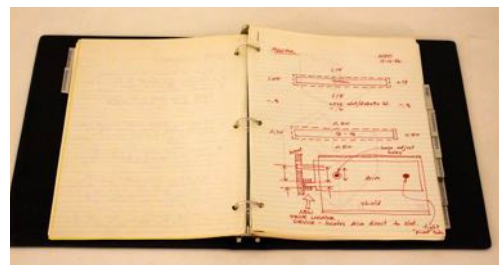


## Miscellaneous

## Product Design Exhibition

### Bill's Design Exhibit in Seoul, Korea: *Celebrating Product Design*

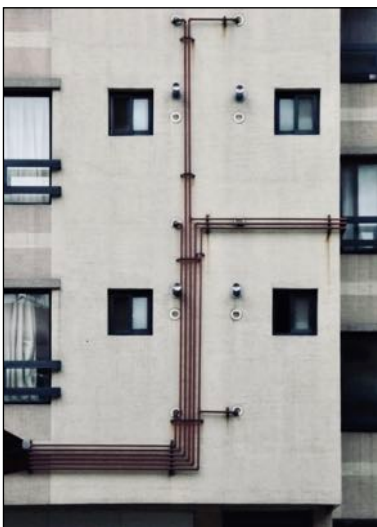
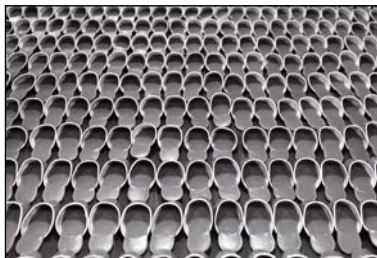
In June/July of 2017 Bill's Apple/Lisa/Design work and materials collection of hardware, software, and drawings were exhibited at the Dongdaemun Design Plaza (DDP) in Seoul, Korea, by the donation beneficiary, the Seoul Design Foundation (SDF). It is estimated that around 10,000 visitors viewed the exhibit over roughly a one month timeframe.



## Bill's Photography

### A Sampling of Bill's Photography: *Eclectic Images Taken from Around the World*

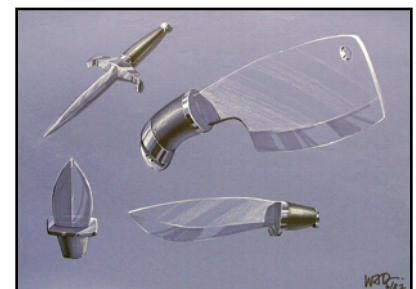
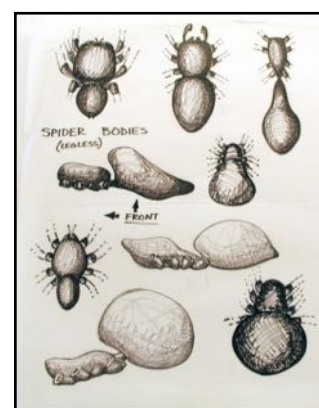
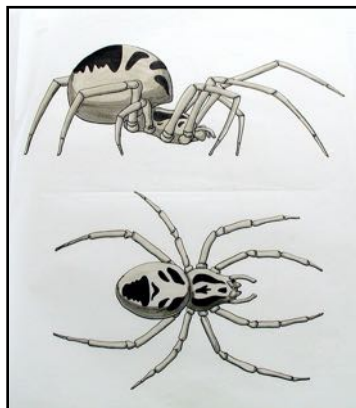
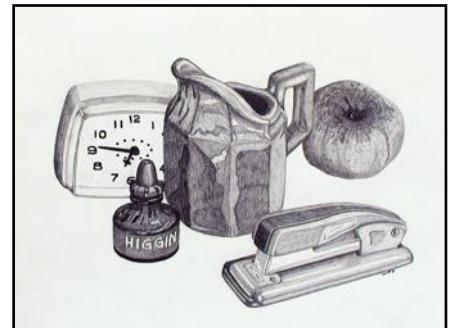
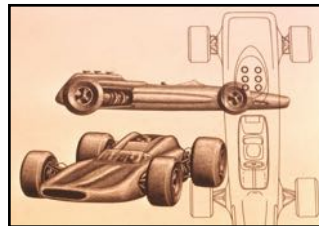
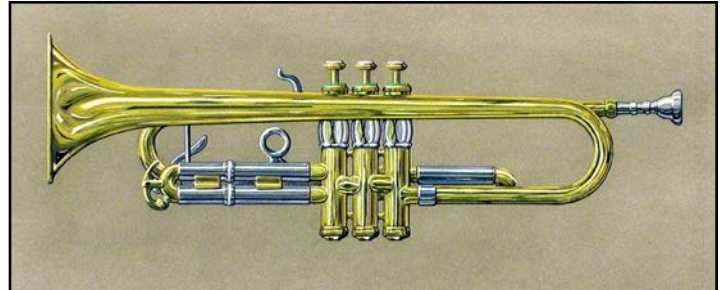
Below is a sampling of Bill's photography. Some is from Japan, some from Korea, some from USA, some of people, some of interesting formations, some of architecture, some of nature, some in color, and some in black and white.



## Drawing & Illustration

### Artistic Drawing & Illustration: *Basic Skills in Visual Expression*

Basic drawing skills are essential to designers and drawing is a key element of design capabilities that often sets individuals apart from other professionals. Represented here are a few examples of Bill's general artistic drawing and illustration abilities applied to various still life content in pen and ink, graphite, paint, and colored pencil media.

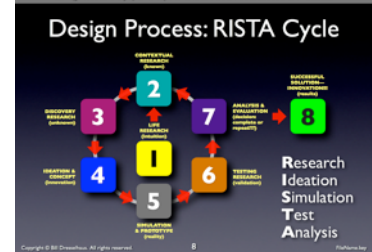
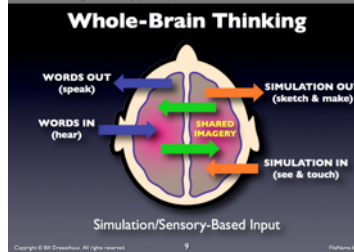
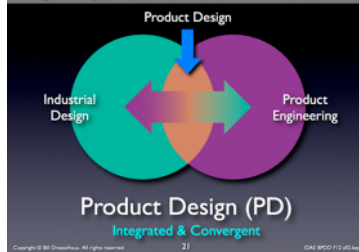
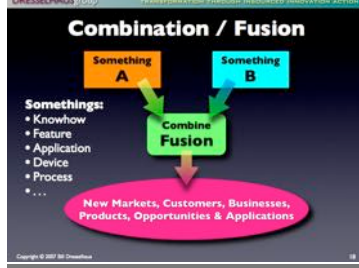
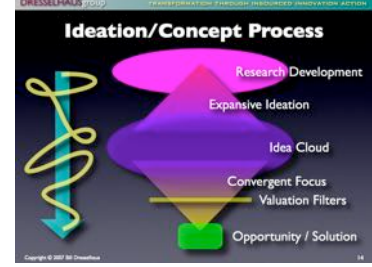
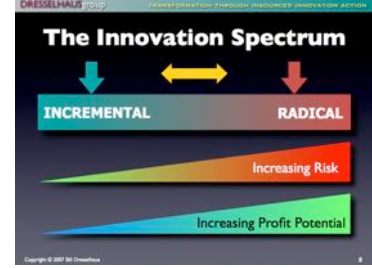
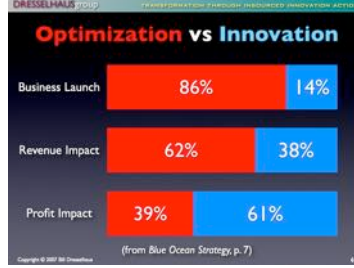
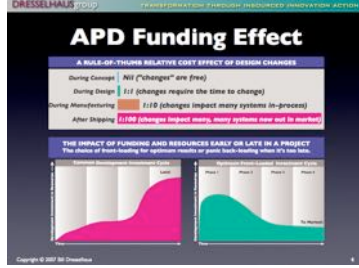
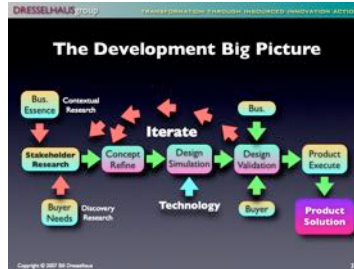




# Presentation Graphics

## Presentation Graphics: *Visually Clarifying Complex Concepts and Ideas*

Bill specializes in graphically and visually presenting principles, concepts, and ideas of design, technology, and innovation knowledge for optimum understanding. He creates graphics for his slide presentations for teaching and training seminars, books, websites, courses, and workshops. A number of these are presented below.



**END**  
of the  
**Professional Portfolio**  
of  
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