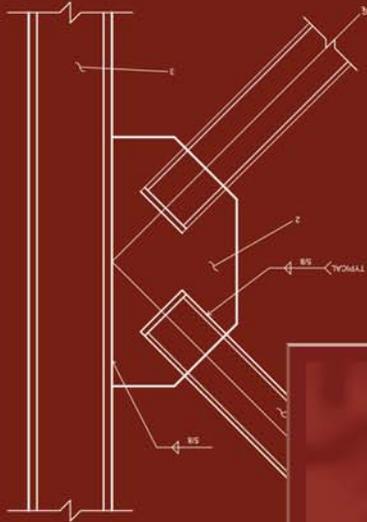
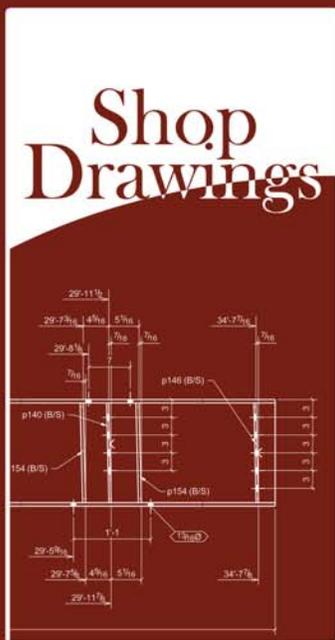


# M. Gates Browne

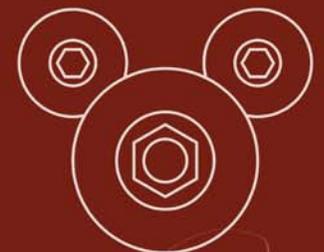
**ENGINEER**



**Builder**



**Student**



*Designer*

**Design Portfolio - 2009**

# Sanctuary Gate

## Project Description:

Several steel entry gates (only one constructed) at the Phoenix Zoo.



Project Name:	Sanctuary Gate
Location:	Phoenix Zoo
Design Firm:	Expiritu Loci
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Steel Frame and Isolated Footings
Year Constructed:	2007
Square Footage:	N/A

## Special Design Considerations & Project Challenges:

The original design of the entry consisted of several entries a few feet on center from one another. Additional, a swinging gate and more signage were originally intended and accounted for in the design of this structure.

The labor for this project was mostly donated and required that the construction be as simple as possible, this prohibited the use of drilled shaft foundations. A spread footing was designed that would accommodate the moment from wind and the swinging gate, while maintaining separation of the footings for each additional entry (though not built). Detailed analysis was performed for the column baseplates (per AISC 13th ed.) and anchorage.

# Happy Valley Shops

## Project Description:

Series of retail shops consisting of masonry wall and wood truss roof construction.



Project Name:	Happy Valley Retail Shops
Location:	Phoenix, Arizona
Design Firm:	Robert Kubicek Architects & Associates
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Series of Retail Shops (Two Buildings)
Year Constructed:	2007
Square Footage:	26,000 Total

## Special Design Considerations & Project Challenges:

These shops required that structural details coordinate aesthetically with the architects design. Large entries with long openings and tall walls required additional design effort to withstand wind loads.

The roof is supported by prefabricated wooden trusses and sits on a system of cantilevered glue laminated beams. These series of beams were adjusted to find the optimal depth and length to minimize material.

# CHASE Branch Office

## Project Description:

This bank is one of several branch offices designed by Vertex for CHASE. This structure is located in a retail shopping center and is surrounded by new subdivisions in the western part of Maricopa County.



Project Name:	CHASE Branch Office
Location:	Surprise, Arizona
Design Firm:	Robert Kubicek Architects & Associates
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Wood Stud and Masonry Office
Year Constructed:	2008
Square Footage:	5,500

## Special Design Considerations & Project Challenges:

There were several important design considerations for this structure. One difficult challenge was the wooden shear walls located at the front entry to the bank. This entry consisted of a two-story atrium. The second floor windows and first floor entry created large perforations in the shear wall, as a result, strapping was specified to transfer lateral forces and large hold-downs were employed to balance overturning forces on the structure.

The masonry columns supporting the drive-thru canopy were required to handle the lateral forces from the roof. These columns were designed in a fix-free condition and attention was given to ensure that the loads and resulting moment were resolved in the column and footing.

The long span and continuous windows at the front of the building required a steel frame to handle both gravity and lateral forces.

# Dover Business Park

## Project Description:

The Dover Business Park site plan consists of three office/ industrial buildings. Buildings 2 and 3 were designed by Vertex (building 1 has not yet been planned).



Project Name:	Dover Business Park
Location:	Mesa, Arizona
Design Firm:	Dickinson Architects
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Two Concrete Tilt-Panel Commercial Warehouses
Year Constructed:	2008
Square Footage:	28,000 & 39,500

## Special Design Considerations & Project Challenges:

Adding to the difficulty in designing this building are the many architectural features. There are several cantilevered tilt-panel sections and unsupported corners. There are also long perforated concrete beams over the entries to the buildings. The roof consists of steel joist and girders supported by steel columns.

The many corners and openings required extensive embed plates to support the panels and roof members.



# Superstition Commerce Park

## Project Description:

This business park consists of a large industrial tilt-panel building and two masonry office buildings.



Project Name:	Superstition Commerce Park
Location:	Mesa, Arizona
Design Firm:	Dickinson Architects
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	One Concrete Tilt-Panel and Two Masonry Buildings
Year Constructed:	2008
Square Footage:	160,000 Total

## Special Design Considerations & Project Challenges:

There are several masonry columns supporting this building, as well as a tall parapet wall. Additionally, there are steel canopies anchored into the masonry columns over the entries to the buildings.



# Yuma Regional Medical Center

## Project Description:

The Yuma Regional Medical Center Parking Garage provides additional parking spaces which helps facilitate the demands created by recent expansions to the hospital site. This garage was designed for additional future capacity.



Project Name:	Yuma Regional Medical Center Parking Garage
Location:	Yuma, Arizona
Design Firm:	Carl Walker
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Foundation Design
Year Constructed:	2008
Square Footage:	N/A

## Special Design Considerations & Project Challenges:

Initial design of parking garage consisted of a central cross of shear walls for lateral transfer of wind and seismic loads. Due to the height, length, and low dead load of the walls across the width of the building a large foundation was required to resist the overturning forces on the structure. The first iteration of the design called for an 8' deep by 12' wide footing. Through coordination with the precast designer it was possible to move the shear walls to the edge of the building. By moving these walls the cost and amount of material was reduced for the foundation.

An additional challenge on this project was the review of the hold-down shop drawings. Since this structure consisted of cast-in-place footings and precast concrete walls the connections between the panels and the footing required a coupling. The detailing and design of this coupling was extremely crucial due to the large lateral design forces.

# Falcon Field Hangars

## Project Description:

Foundation design for a series of light-weight prefabricated steel aircraft hangars.



Project Name:	Falcon Field Hangars
Location:	Mesa, Arizona
Design Firm:	Reilly Aviation
Structural Firm:	Vertex Consulting Structural Engineers
Structural Scope:	Foundation Design (five light prefab steel buildings)
Year Constructed:	2008
Square Footage:	75,000 Total

## Special Design Considerations & Project Challenges:

Due to the light-weight of the structures the footings were required to handle the lateral forces with very little dead load from the structure. Each footing was checked against sliding and overturning. There are many columns with varying loads, but for the final design five footing sizes (to increase constructability) were selected and adjusted to minimize the amount of material required for the foundation.

During construction several column anchor bolt groups were misplaced. Remediation consisted of post-installed epoxy anchors. Due to the large uplift and shear forces on these bolts it was difficult to find an appropriate anchor to meet the ACI 318 appendix D criteria. Ultimately with the assistance of Hilti PROFIS software it was possible to efficiently resolve this construction issue.

# Visual Argument



Title: A Day to Remember @ Disneyland  
Project: ASU - English 102 Visual Argument Assignment  
Date: Fall 2004

## Description & Design Thoughts:

This piece was created as part of an assignment for my creative writing course at Arizona State University. We were asked to take an object we have that stirs memories and write a paper and create a visual piece which embodies those memories. I chose a Bloodwood frame with a picture of my wife and myself in front of Sleeping Beauty's Castle on the day we were engaged.

This picture serves as a wonderful reminder of our engagement, wedding, and honeymoon. The above collage, designed in Photoshop, captures elements and memories of this exceptional time in my life.

# Dinner Menu



*Envorb*

**Prix Fixe**  
**Strawberries & Pineapple**  
**Hitipi**  
(Spoodles, BoardWalk Resort, WDW)

**First Course**  
**Sonoma Chicken & Apple Salad**  
(Pacific Wharf Cafe, DCA)  
**Cobblestone Cheese Bread**  
(Yacht Club Gallery, WDW)

**Second Course**  
**Garlic Herb Polenta**  
(California Grill, Contemporary Resort, WDW)

**Entrée**  
**Berberie Braised Lamb Shank**  
(Jiko, Animal Kingdom Lodge, WDW)  
**Stack of Vegetables**  
(Lumière's, Disney Magic)

**Dessert**  
**Chocolate Soufflé**  
(Palo, Disney Wonder)

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755 S. Spencer, Mesa, AZ (480) 308-8541

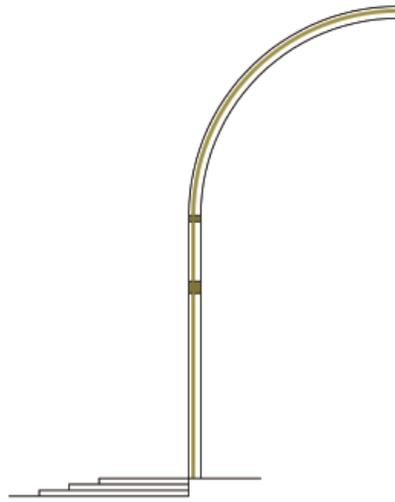
## Description & Design Thoughts:

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I love to cook and host dinner parties. In Fall 2008 I had the opportunity to host my Disney ImagiNations group and, of course, we had a Disney-themed meal.



# Rose Garden Conservatory



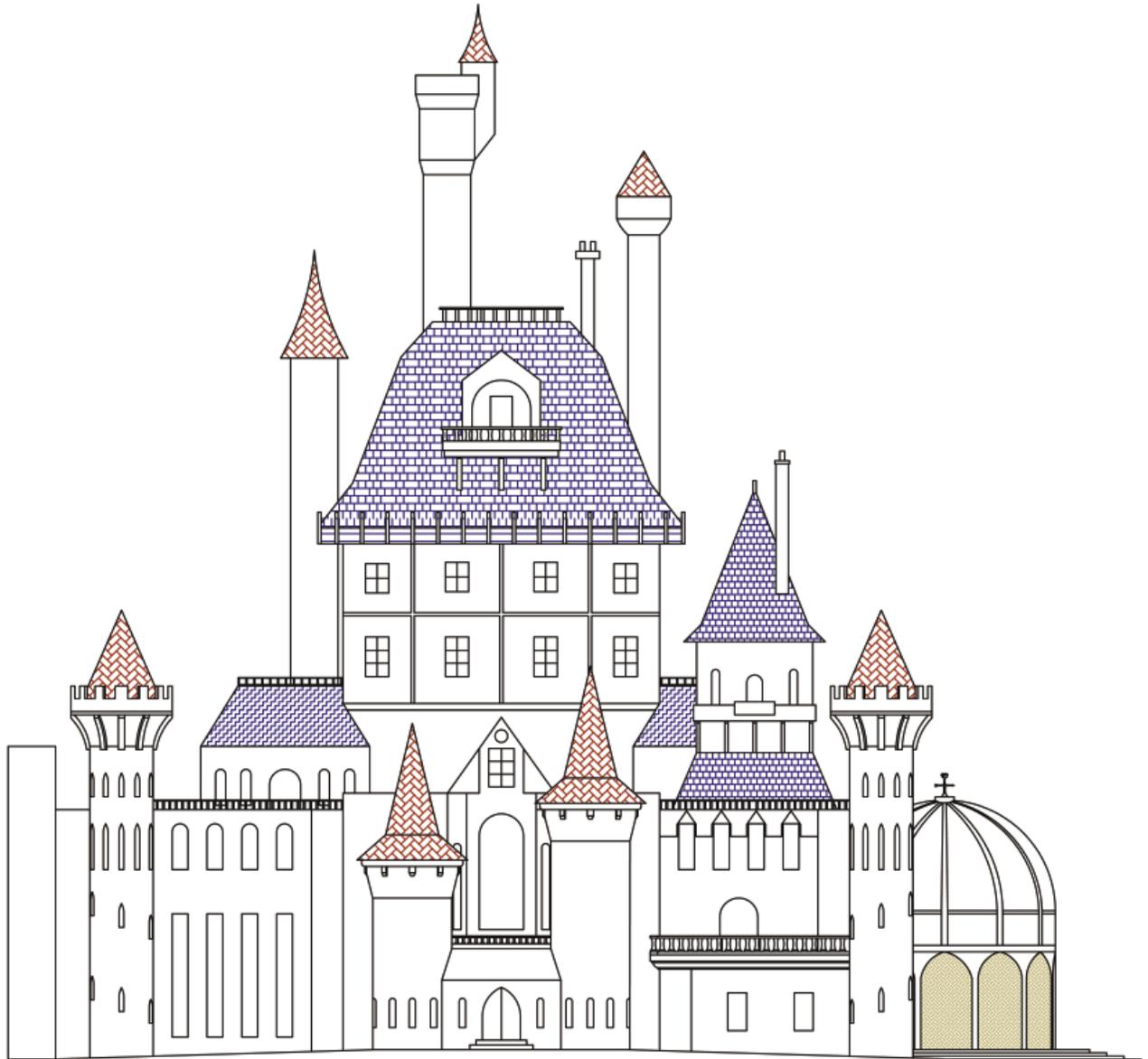
Title: Conservatory Elevation and Details  
Project: Disney ImagiNations Competition  
Date: Winter 2009

## Description & Design Thoughts:

This elevation was created in CAD and Photoshop; it was created for the Walt Disney ImagiNations design competition. The Rose Garden Conservatory is one room from the design project, a layout of Beauty and the Beast's castle. The Rose Weathervane is the capping piece of the structure.



# Castle Elevation



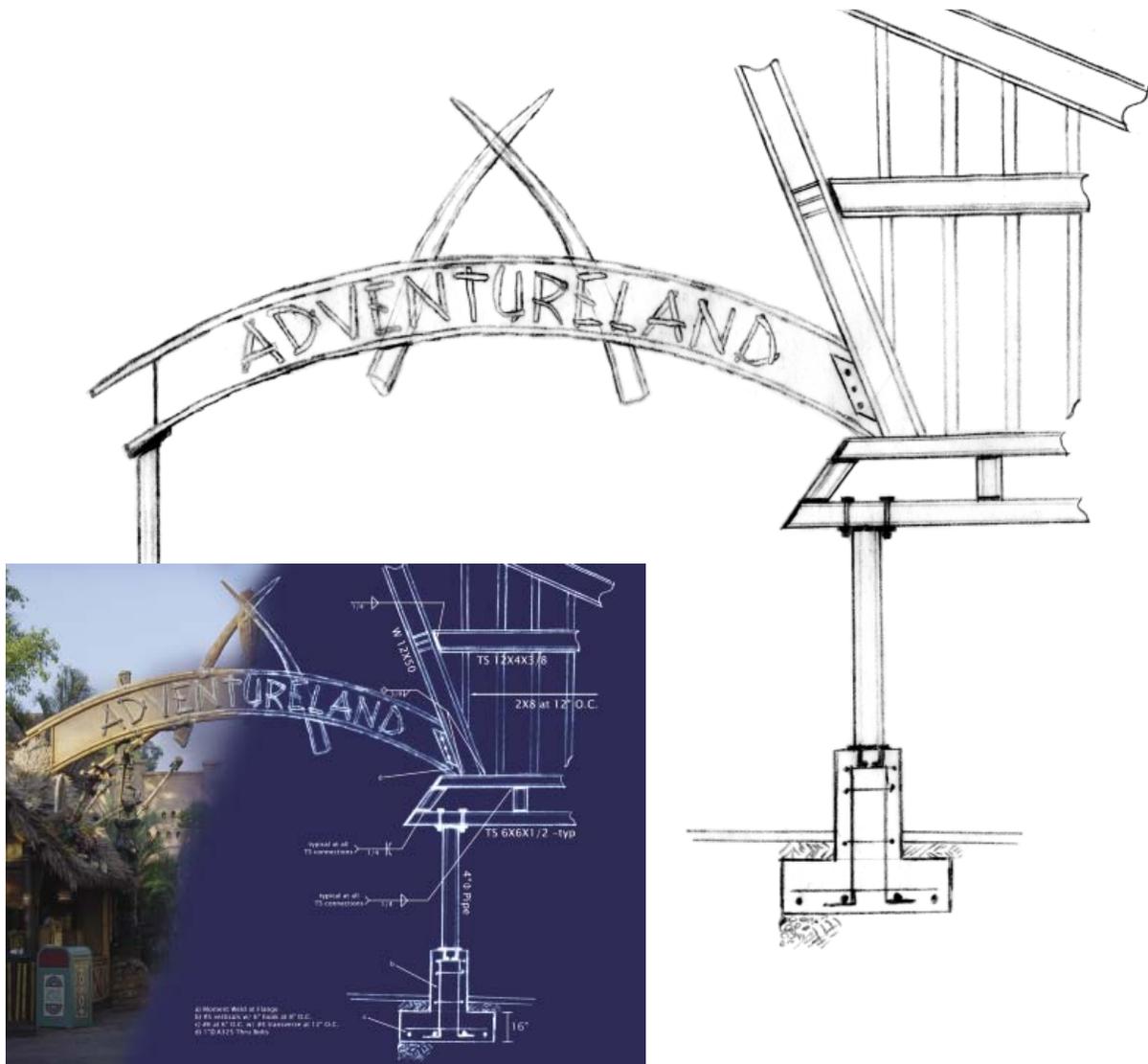
Title: Beauty and the Beast Castle Elevation  
Project: Disney ImagiNations Competition  
Date: Winter 2009

## Description & Design Thoughts:

As with the Conservatory elevation this piece was created for the Walt Disney ImagiNations design competition. This is the front elevation of the castle submitted for the contest.



# Adventureland Sign



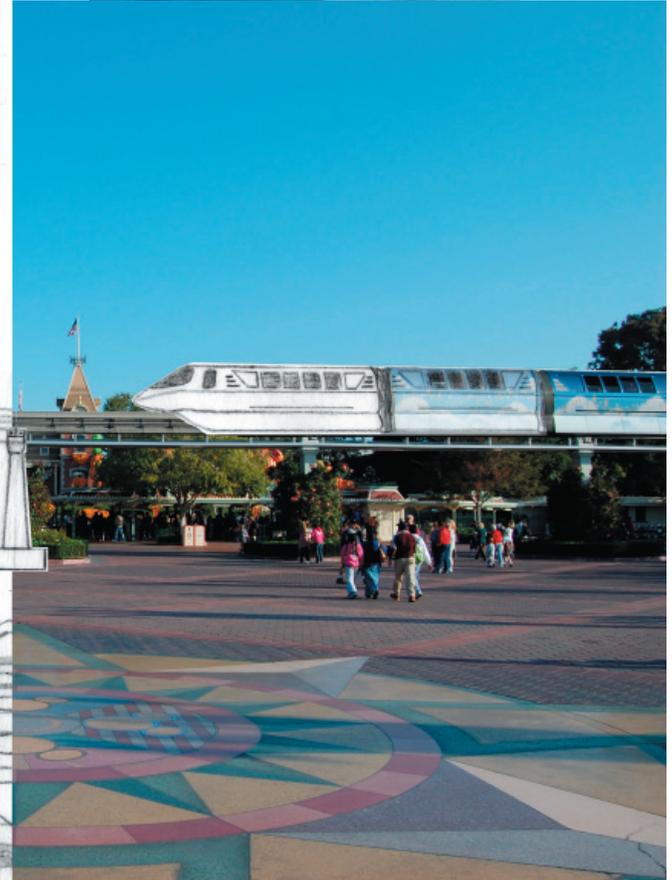
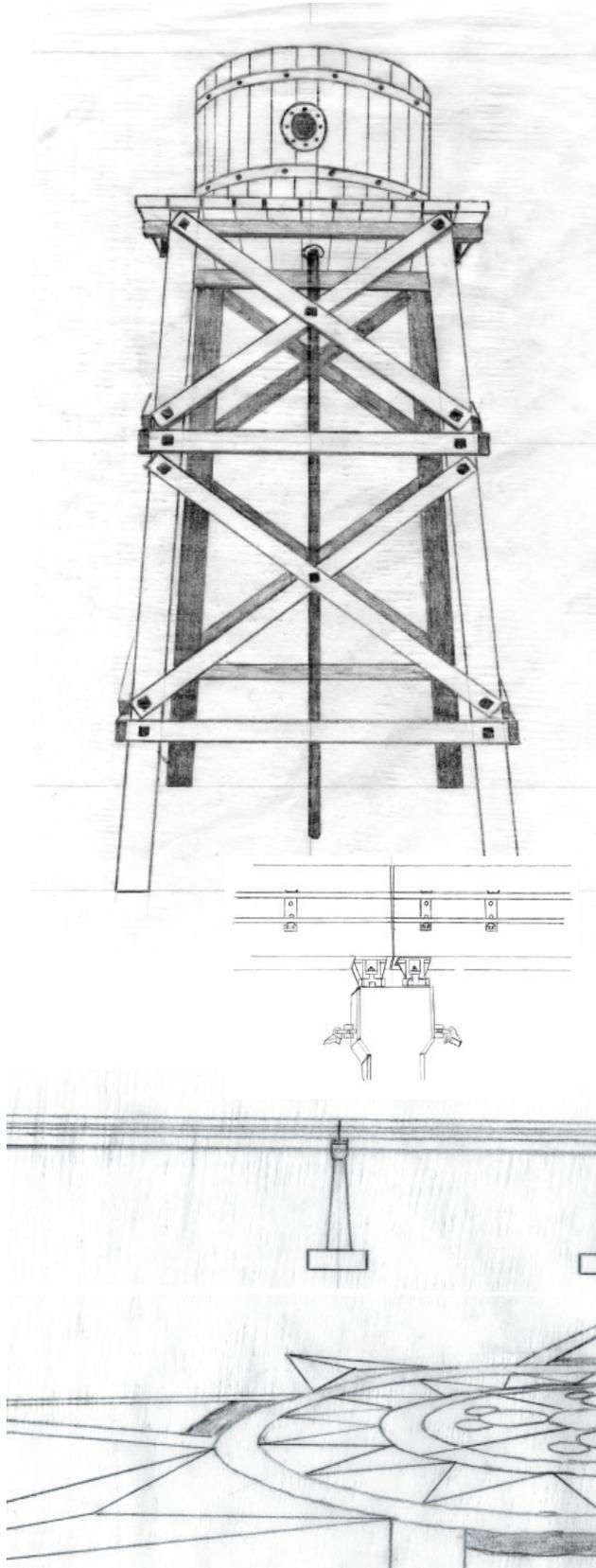
Title: Adventureland Sign Sketch  
Project: Just for Fun!!  
Date: Spring 2008

## Description & Design Thoughts:

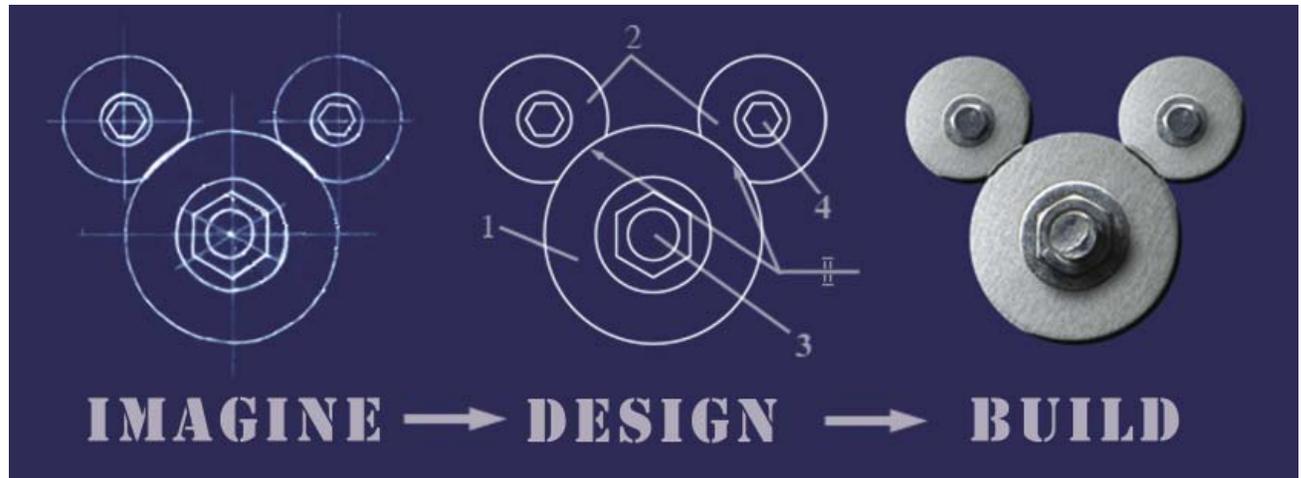
I enjoy making construction details and to help improve my skills I often make drawings of as-built conditions or stylized drawings of pictures. This creation and those on the following page are combination of still image, trace, drawing, and CAD.



# Various Sketches



# Mickey Metal



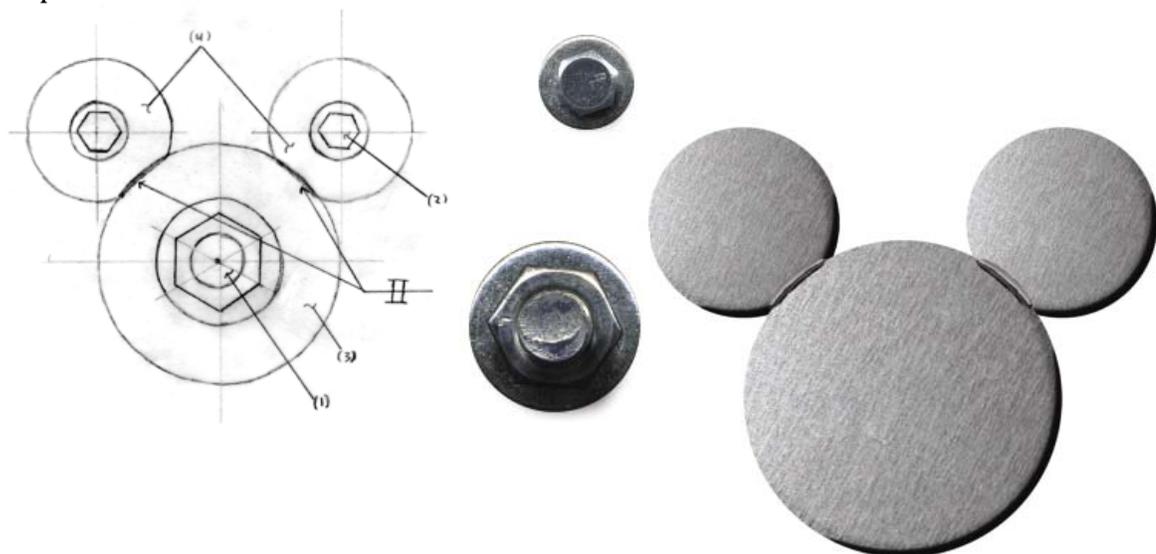
Title: The Creative Process - Mickey Metal  
Project: Just for Fun!!  
Date: 2008

## Description & Design Thoughts:

Mickey Metal was a fun exercise in Photoshop and AutoCAD. I started by scanning nuts, bolts and washers and then was able to create a steel pattern, welds and shadows.

From the completed Mickey Head, I created a printout and a tracing for "Imagine" and imported the image into AutoCAD to create the fabrication drawing.

The purpose of this piece (besides fun) is to convey the creative process. I have used these graphics for several items, including reports and pamphlets for school projects and presentations.

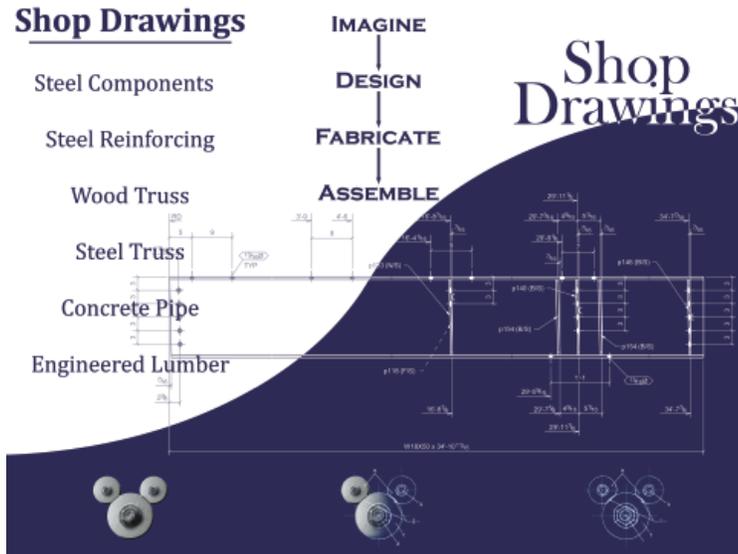


# Shop Drawings

Title: Shop Drawings Brochure  
 Project: ASU - CEE 494 Contract Management Presentation  
 Date: Summer 2008

## Description & Design Thoughts:

I gave a presentation for my Contract Management course on Shop Drawings. I included this tri-fold as a handout to help those in attendance understand shop drawings and to use as a reference.



## Division of Responsibility

**What are shop drawings?** Structural shop drawings are the actual documents used to fabricate the individual components of a project. Shop drawings indicate materials, sizes, quantities, and locations for building components.

**How are shop drawings created?** Shop drawings are made from architectural and structural plans and details. Shop drawings may also include the design calculations for the components to be fabricated.

**Why make shops?** Shops are created by the fabricator to verify their method of assembly with the desires of the design professionals (i.e. the architect and engineer). Shops which contain design calculations should be reviewed by the E.O.R. (Engineer of Record) and the governing municipality.

**When are shops to be reviewed?** The design professionals, contractor, and municipalities should review shops prior to fabrication and installation, and provide approval or clarification as needed.

**Architect:**  
 Verify that the shop drawings represent materials, methods, and dimensions are consistent with those specified for the aesthetics of the project. Architect is to distribute the several sets of shop drawings to the professionals involved for review and mark-up. Architect may specify additional (or a change in) responsibilities with regard to shop drawings.

**Engineer:**  
 Review drawings for proper assembly method, placement, and material grades. If there are calculations present in the submittal the engineer should review that loading and other design provisions have been considered.

**Fabricator:**  
 Is to produce the shop drawings, where applicable supply sealed calculations, and produce several copies of these drawings for distribution for review. Make changes to the drawings when mark-ups are received back.

**Contractor:**  
 Verify that proper quantities of items are accounted for in the drawings (for ordering purposes). Review drawings for potential problems during the erection and construction of the detailed component.

**Municipality:**  
 Review drawings for compliance with local building codes and accepted industry standards. When calculations are present the municipality is to review and verify that the responsible person is qualified to perform the professional design work.

**Owner:**  
 Certain code provisions name the owner as the responsible party for certain aspects of some types of shop drawings.

Michael Browne - CEE 494 Contract Management  
 8/7/2008 - ASU

# Statement of Qualifications

КГБГ:КГБЕ

12 ULITSA BOLSHAYA LUBYANSKAYA TEL. 011-7 (342) 236-7600  
LUBYANKA SQUARE, MOSCOW FAX 011-7 (342) 326-7601

## Brian Nicholls, Principal



### Chandler, 75% Local

Mr. Nicholls is a principal of KGB<sup>3</sup> and has more than 3 years experience with the company. He will serve as the Project Manager for this project. He is currently the head of all valley operations including oversight of projects throughout eastern Maricopa County along with corporate management of satellite offices. In his career he has overseen the structural analysis of The Rajan Warehouse Project, and he was the project manager over students designing and constructing a building under static and dynamic loading. His experience also includes design of commercial and residential subdivisions, preparation of reports, and working in plan set production with the CAD staff. Mr. Nicholls is pursuing a BS degree in civil engineering with a projected graduation of May 2009.

## M. Gates Browne, Principal, Structural Designer



### Mesa, 90% Local

Mr. Browne is a principal of KGB<sup>3</sup> and has more than 4 years experience with the company. He will serve as the head of the structural design department for this project. He is currently the head of the Mesa office and oversees the structural design of all projects in the valley. In his career he has performed primary design on a 1,000,000 sq. ft. concrete tilt-panel warehouse in Casa Grande. He is also leading our architectural team for the concept and design of a project for the Walt Disney ImagiNations competition. In addition, Mr. Browne performs special structural inspections at our various job locations. He is pursuing a BS degree in civil engineering with an expected graduation of May 2009.

## Benjamin Bowles, Contract Manager



### Mesa, 80% Local

Mr. Bowles has over eight years experience in the construction industry and 3 years experience with KGB<sup>3</sup>. He is in charge of managing all contracts in Arizona; including, review, creation, and seeing that the terms are being carried out and followed. He also specializes in contract governance, due diligence processes necessary for a successful project. In his career he has been the prime contract manager for remodel, and was the contract manager for The Access2006 Project. Mr. Bowles also has been a surveyor, a builder, designer, and drafter. Mr. Bowles is pursuing a BS degree in civil engineering with a projected graduation in the Spring of 2009.

## Brenden Saline, CAD Team Lead



### Mesa, 100% Local

Mr. Saline has more than 6 years civil drafting and design experience and leads a team of CAD operators in the Mesa office. He has been with KGB<sup>3</sup> for 2 years. He has the responsibility for assisting the project design, directing the development of construction documents, and managing the team. In his career he has served as the project design manager for self-heating portable coffee makers, and as a team lead for the design and construction of a 17 kW photovoltaic system. Mr. Saline is currently a member of the ASU chapter of The Triple Helix, an internationally published undergraduate journal, and is a member of the Ventures Group, a business consulting organization, both of which continue to complement his professional capabilities. Mr. Saline is pursuing concurrent BS degrees in civil engineering and business administration with a projected graduation in the Spring of 2009.

## Kevin Diefenderfer, QA/QC



### Mesa, 100% Local

Mr. Diefenderfer has 3 years experience with KGB<sup>3</sup>. He has the responsibility of ensuring the quality of the data produced by the laboratory including documentation of training, data review and reporting, standard operating procedures, and maintaining accreditation/certification through outside organizations for all testing done through the Mesa office. Part of his career has involved QA/QC of the pouring and testing of concrete cylinders and beams and has also been responsible for the testing of paintball velocities for consistency. In addition, Mr. Diefenderfer serves in the U.S. Air Force in the civil engineering squadron. He is pursuing a BS degree in civil engineering with a projected graduation of May 2009.



## UNITED STATES OFFICES - ARIZONA

PHOENIX (602) 430-2200  
30 W. IMAGINATION DR.  
PHOENIX, AZ 85009

MESA (480) 270-8700  
25 N. INSPIRATION PRKWAY  
MESA, AZ, 85204 USA

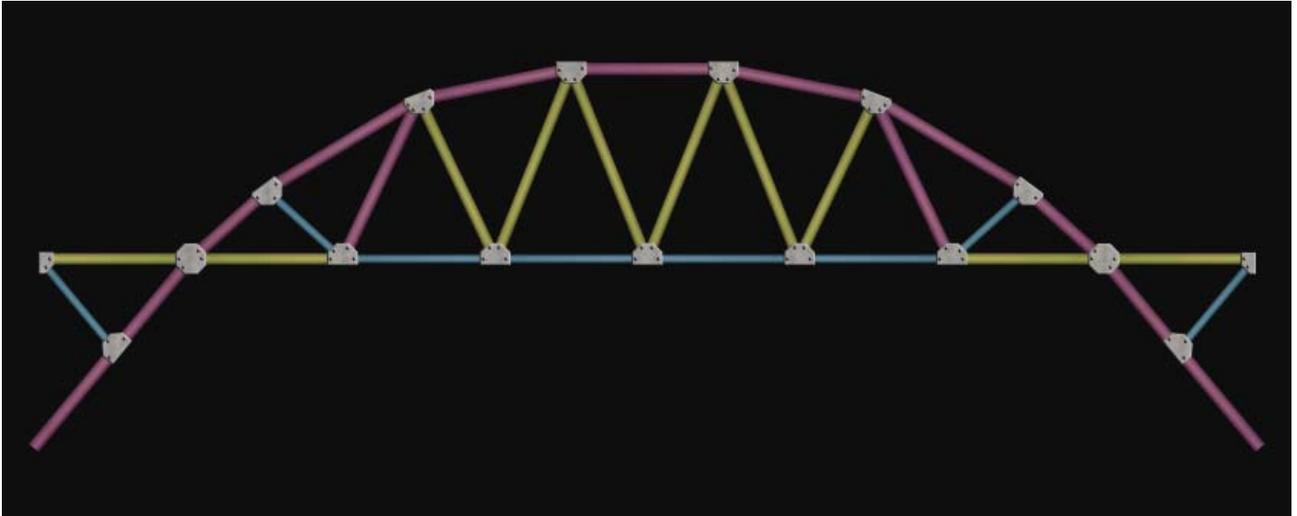
CHANDLER (480) 270-8800  
45 PERSPIRATION WAY  
CHANDLER, AZ 85224

Title: Statement of Qualifications Assignment  
Project: ASU - CEE 494 Contract Management SOQ's  
Date: Summer 2008

## Description & Design Thoughts:

This is one sheet I designed for a group project. Our team was required to submit our Statement of Qualifications for an imaginary project. To help facilitate the creation of a fictitious company, street address, etc. I developed a story for our team and company. We became KGB<sup>3</sup> (a combination of the last letters of our names), an engineering firm based in Russia. Our street addresses became 30 Imagination Dr., 25 Inspiration Prkwy and 45 Perspiration Way (or 100% creativity). In addition to the formatting for our submittal, I also created our team logo as shown above.

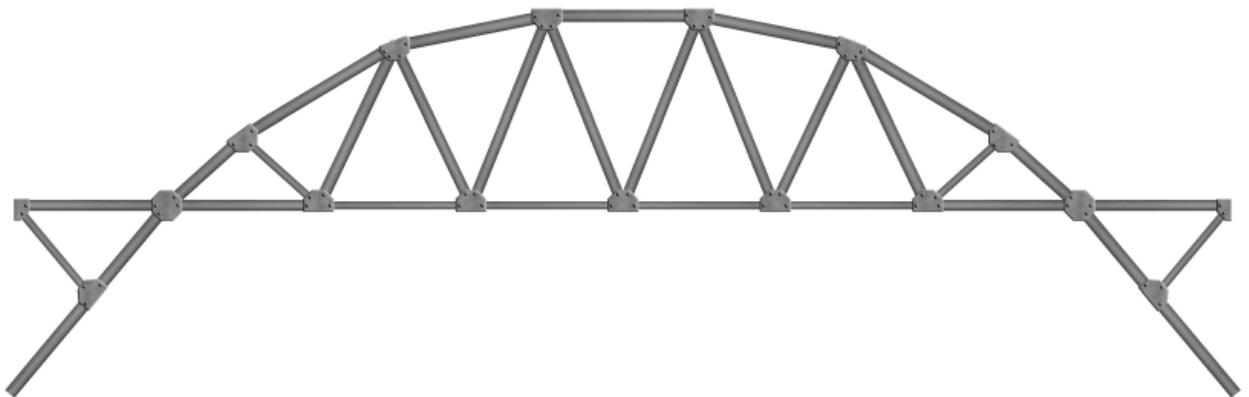
# Structures Frame



Title: Structural Design Frame  
Project: ASU - CEE 321 Structures Project  
Date: Fall 2007

## Description & Design Thoughts:

In my Structural Design course I was part of a team assigned to design a bridge frame. The project consisted of a report and presentation. The graphical representation of our tubular steel bridge helped show the shape and connections of our bridge. One design constraint limited the structure to 3 cross-sectional sizes. The color model represents the location of the different cross-sections (blue = lightest, yellow = medium, red = heaviest members). This may have been an engineering project, but there was no reason for it to not look good.



# Disc Labels



Title: CD & DVD Disc Labels  
Project: Various Video and Audio Projects  
Date: Various

## Description & Design Thoughts:

One of my favorite hobbies is Digital Video Editing. Many of my projects are outputted to DVD and sometimes I create a companion soundtrack; those discs need labels. Above are some samples from various projects that I have produced.



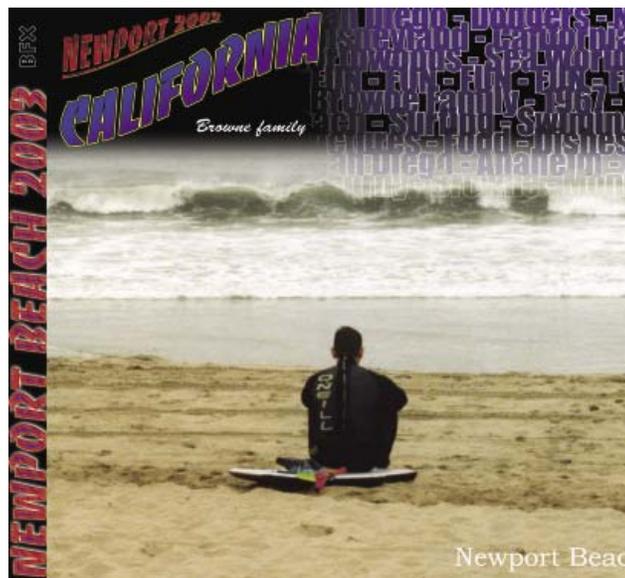
# Newport DVD

Title: Newport 2003  
 Project: Family Vacation Home Video Project  
 Date: 2004

## Description & Design Thoughts:

The following is supporting work for Newport 2003 (DVD menu, DVD insert, back CD cover). In 2003, my entire family vacationed to Newport California. I edited together the week's events and produce a DVD and soundtrack. The DVD was designed to resemble a satellite TV interface. The menu below was constructed to look and function like that of a digital service, the red box was for video content.

SAT JUNE 21 6:44 PM			
 <b>Newport 2003</b> 6:30 PM- 8:00 PM Browne family trip 2003. A weird Family (the Brownes) spend a week @ a beach-house located in Newport Beach, Ca.			
<b>SATURDAY</b>	<b>6:30 PM</b>	<b>7:00 PM</b>	<b>7:30 PM</b>
133 TRAV	Destinations	Explore Kauai	
134 FTV	Great Cuisine of Southern California		
135 MTV	Music Vids	TRL: Total Requests Live	
136 ESPN	Sportscenter	Sportscenter	
137 ESPN2	RPM: Tonight	Baseball Tonight	
DVD OPTS	Play NP2003	Bonus Material	More Channels



**Family Experience**

**at Schedule**

- Total Request Live
- 136 ESPN
- Sportscenter
- 137 ESPN2
- Baseball Tonight
- 140 BYU TV
- Family Night
- 141 Disney Channel
- Music From the Movies
- 142 Newport TV
- The Browne Family

**Newport Beach, California**

# Bloodwood Frame



Title: Bloodwood Frame  
Project: Woodworking Project  
Date: Summer 2004

## Construction Details:

The frame is made of a beautiful hardwood known as Bloodwood. The wood is characteristically deep brown and red and finished beautifully. This piece was the first constructed for my wife Angie and displays a picture of the two of us at Disneyland on the day I proposed to her.



# Cherry End Tables



Title: Cherry and Granite End Tables  
Project: Woodworking Project  
Date: 2007

## Construction Details:

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This set of Cherry tables flank the couch in our living room beautifully. These tables are the most advanced pieces I have made. The Cherry wood is stunning and matched only by the elegance of the green granite tile top. I hope these pieces will be in the family for many years.



# Beech Kleenex Holder



Title: Beech Kleenex Holder  
Project: Mother's Day Present  
Date: 2006

## Construction Details:

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This kleenex holder was made for my wife for Mother's Day. It is made of 4/4 Beech.



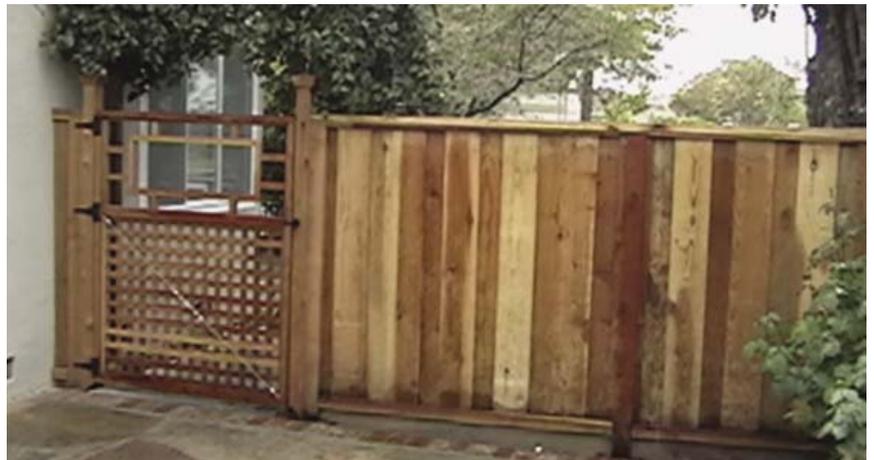
# Redwood Fencing



Title: California Redwood Fencing  
Project: Parent's Home - San Jose, California  
Date: 2005

## Construction Details:

These fences were design by my father and constructed by me. The inspiration for the fence comes from the metal railings at the Autopia queue at Disneyland.



# Christmas Light Display



Title: Annual Christmas Lights  
Project: Parents Home  
Date: 1990-2004

## Construction Details:

Early on I started helping my father with our Christmas light display. The focal point of the scene (and first piece) is the 30' tall star. The star evolved from color set of tracing lights (top left) to the all white final version with a colorful scene of Bethlehem below. A 16' tall Christmas tree balances the scene on the left side. The small tree (mid-left) is glowing with over 1,500 white lights. The second oldest piece is the "Merry Christmas - Happy New Year" sign. This sign utilized adjustable time delay relays to flash between the two sets of words.

# Automotive Multimedia PC



Title: Gizmoduck - Automotive Multimedia Computer  
Project: Computer and Electronics  
Date: 2003

## Construction Details:

Gizmoduck (as this PC is called) is the second iteration of a car multimedia computer. The first iteration was a full-sized PC without a display unit and strictly was used for playing music (circa 1999). Gizmoduck is built on a Via Mini-ITX system board and 1ghz processor. The unit outputs to a 9" widescreen touch display and features a 40gig laptop disk drive. Power is supplied directly from the car's electrical system through a DC-DC power supply and has automated power on/off integrated into the vehicle's ignition. Gizmoduck is a Windows based PC and has wireless networking, GPS navigation, and surround sound audio.

# The Family - the Best for Last



## The Family - The Biggest and Most Important Project

The most important facets of my life involve my family. I love my wife (Angie) and our two sons Walter (4) and Roger (1).

