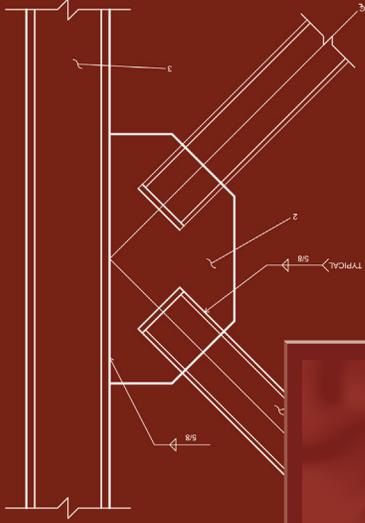


M. Gates Browne, PE

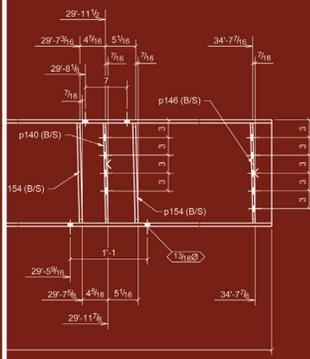
ENGINEER



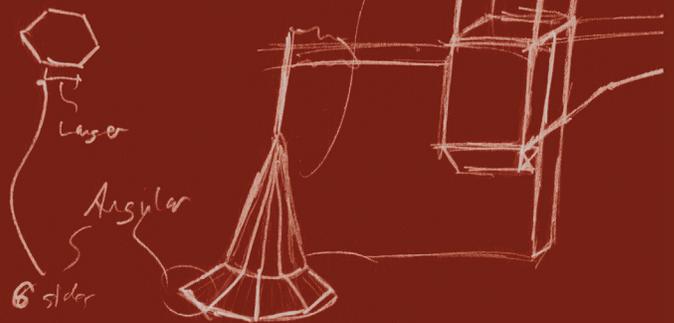
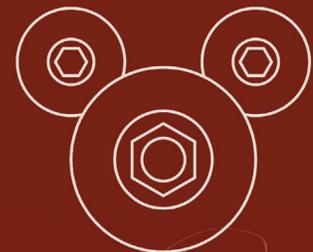
Builder



Shop Drawings



Student



Designer

2014 Design Portfolio

Kingston Commons

Project Description:

Kingston Commons Condominiums is a 6-story, 21-unit luxury condominium located on the banks of the Cedar River



Project Name: Kingston Commons Condominiums
Location: Cedar Rapids, Iowa
Design Firm: Vantage Point
Structural Firm: Select Structural Engineering
Structural Scope: Steel Framed 6-Story Condominium
Year Constructed: 2013
Square Footage: 31,000 + 7,500 Parking Level

Special Design Considerations & Project Challenges:

Kingston Commons was designed with two different floor plans. The first two iterations of design utilized light gauge load bearing walls with flat strap X-bracing. A third version of the building was designed utilizing bolted steel moment frames. The moment frame options was selected and constructed.

The moment frames provided open floor layouts and allowed for many windows to be placed in every condo unit.



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.

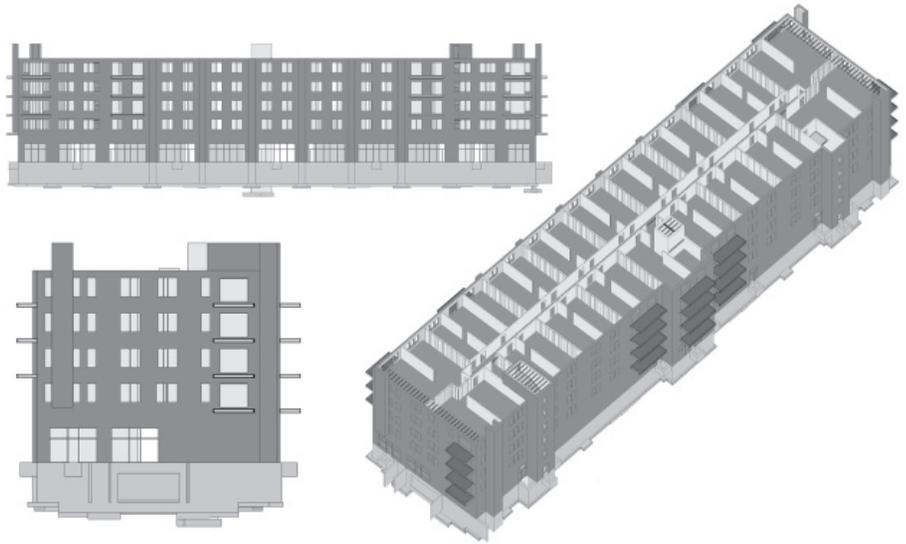
The many corners and openings required extensive embed plates to support the panels and roof members.



808 on 5th

Project Description:

5-story mixed use building with basement level parking. 4 levels of residential apartments on precast podium, 1st level commercial and retail space.



Project Name:	808 on 5th, Building 1
Location:	Coralville, Iowa
Design Firm:	Carlson Design Team Architects
Structural Firm:	Select Structural Engineering
Structural Scope:	4-story Residential on Precast Podium, 1st Floor Commercial
Year Constructed:	Under Construction
Square Footage:	93,000 + 18,600 Parking Level

Special Design Considerations & Project Challenges:

The 808 building required detailed coordination with the precast supplier to handle vertical and lateral loads. The 1st and 2nd floor deck consist of hollow-core concrete planks and inverted tee beams.

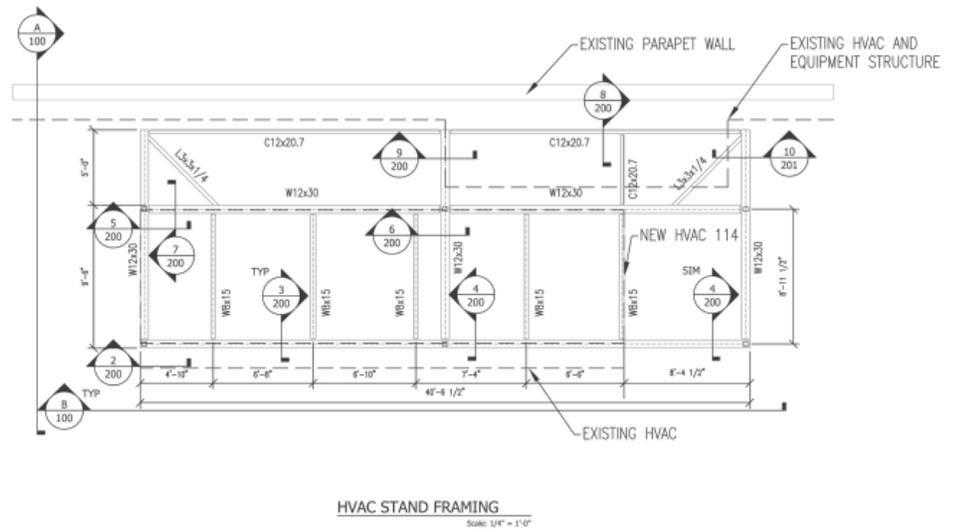
Wood shear walls between apartment units are utilized to resist lateral loads with the precast beams detailed to resist the overturning moment of the shear wall. Four CMU shear walls in the interior of the structure are located at the 1st floor and basement levels to resist the majority of the lateral load.

This project was fully modeled and detailed in AutoDesk Revit.

Industrial Facilities

Project Description:

Design of various industrial facility and alterations. Steel platforms and stands for additional equipment and access walkways.

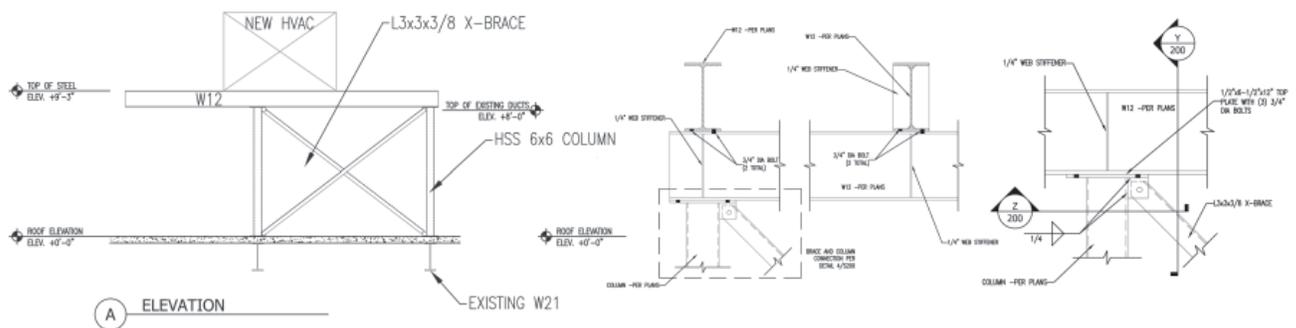


Project Name: Various Industrial Facility Structures
 Location: Iowa
 Corporations: General Mills, Cargil, Nestle, John Deere
 Structural Firm: Select Structural Engineering
 Project Types: Rooftop HVAC Stands, Platforms, Wall Openings, Cranes
 Structure Reinforcing, Equipment Stands
 Contractors: Blahnik Construction, Calacci Construction

Special Design Considerations & Project Challenges:

Most industrial projects have been designed and detailed in short time-frames to accommodate plant shutdowns or emergency situations. Projects are usually existing facilities where clearance and existing equipment dictate allowable depths and sizes of members.

Check existing roof and wall members for new loads and alterations. Design structure for machine isolation to minimize vibration on surrounding structure and equipment.



St. Pius Early Learning Center

Project Description:

The St. Pius Early Learning Center is an addition to their existing elementary school. This facility will be used for pre-K activities, with classrooms and a large multi-purpose room.



Project Name:	St. Pius Early Learning Center
Location:	Cedar Rapids, Iowa
Design Firm:	Aspect Architecture
Structural Firm:	Select Structural Engineering
Structural Scope:	School Addition (Daycare and Classrooms)
Year Constructed:	2014
Square Footage:	11,000

Special Design Considerations & Project Challenges:

This learning center is constructed of steel bar joists bearing on both a centerline steel beam and column system and exterior light gauge bearing walls.

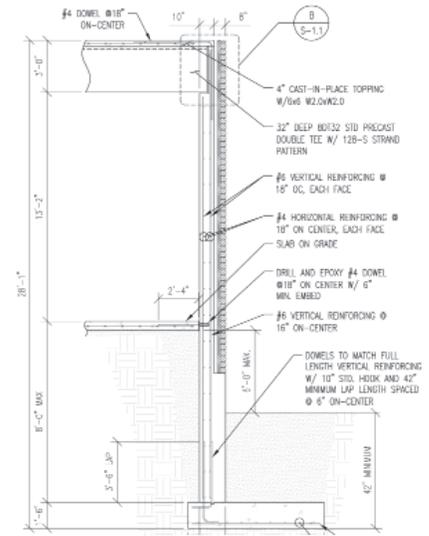
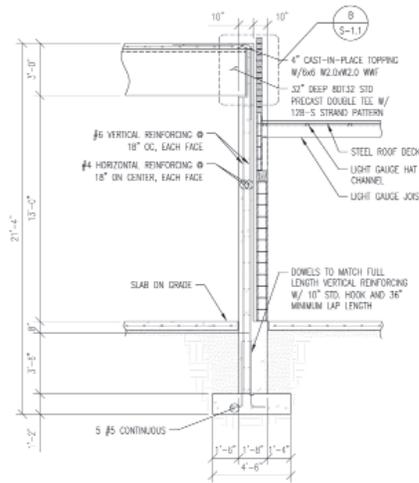
The lateral system is composed of wood and gyp sheathed light gauge shear wall panels.



Mary Welch Storm Shelter

Project Description:

Storm shelter addition to Mary Welch Elementary School that can be used as future classroom space.

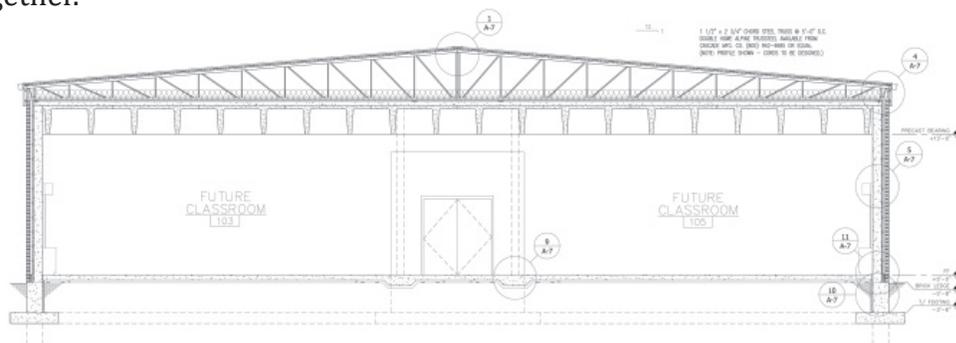


Project Name: Mary Welch Elementary Storm Shelter
 Location: Williamsburg, Iowa
 Design Firm: Select Structural Engineering
 Structural Firm: Select Structural Engineering
 Structural Scope: Storm Shelter/Classroom Addition
 Year Constructed: Construction Not Started
 Square Footage: 5,700

Special Design Considerations & Project Challenges:

Unlike most storm shelters set into the ground; the Mary Welch Storm Shelter was limited in location on the existing school grounds and stands up to 22' above grade. This storm shelter was designed to the FEMA and ICC 500 load requirements (250 mph wind velocity)

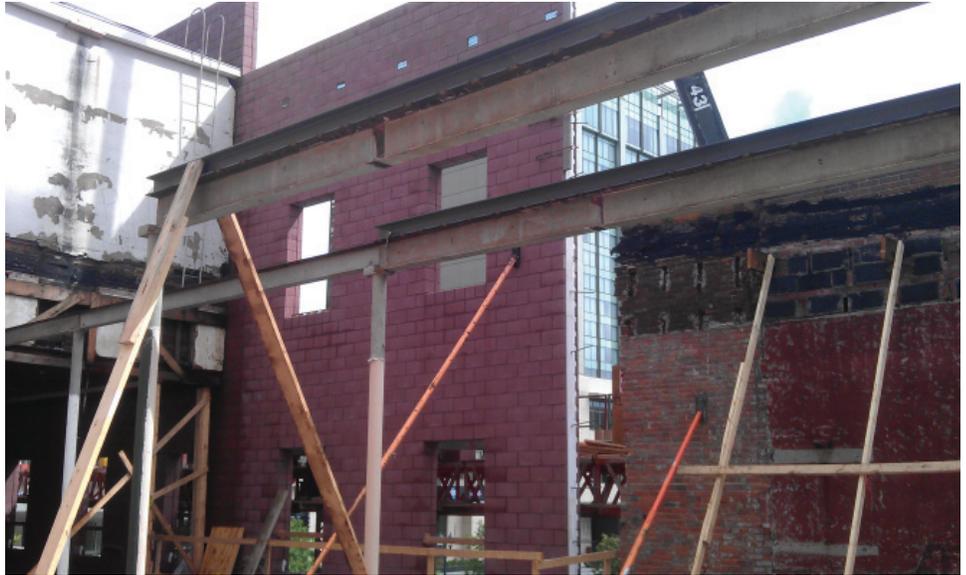
Precast double-tee's were designed to clear span the addition and resist the large uplift due to the high wind pressure. Structural slab-on-grade is employed to tie exterior walls together.



Coventry Gardens Mall

Project Description:

Coventry Gardens Mall is a 120 year old building that was vacated after the flooding of the Cedar River in 2008. The restoration of the Coventry Gardens Mall will create 19 apartment units and 2 retail spaces.



Project Name:	Coventry Gardens Mall Restoration
Location:	Cedar Rapids, Iowa
Design Firm:	Vantage Point
Structural Firm:	Select Structural Engineering
Structural Scope:	Restoration of 3-story Wood and Masonry Building
Year Constructed:	2014
Square Footage:	27,000 + 9,000 Basement

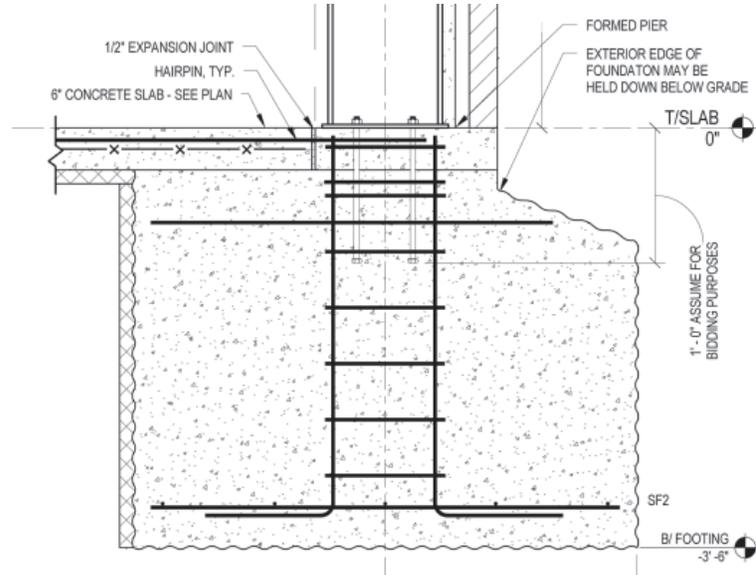
Special Design Considerations & Project Challenges:

The age and advanced deterioration of the Coventry building presented unique design challenges. The long exterior load bearing wall (3-wythe brick) was replaced with the OneStep Building System (A Concrete Form Masonry Unit System). Wood framed shoring was designed to support the three floors and roof system while the wall was replaced in three segments. No additional timber was permitted on this project creating difficulty combining light gauge and existing wood members.



PEMB Foundations

Project Description:
Foundation design for pre-engineered metal buildings.



Project Name:	Pre-engineered Metal Building Foundations
Location:	Various
Design Firm:	Various
Structural Firm:	Vertex & Select Structural
Structural Scope:	Foundation and Pier Design
Year Constructed:	Various
Square Footage:	N/A

Special Design Considerations & Project Challenges:

The light weight steel frames in PEMB cause large reaction forces in both uplift and thrust at their column bases requiring detailed anchorage and foundation design. Loading typically provided; however, for public bid projects foundation design completed prior to the selection of the building manufacturer. Design load derived for gravity loads, uplift, thrust and wind shear.



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.

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.



YRMC Parking Garage

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 on 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 device. The detailing and design of this coupling was extremely crucial due to the large lateral design forces.

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 beams were adjusted to find the optimal depth and length to minimize material.

Manhattan Substation

Project Description:

The Manhattan substation is a new electrical distribution substation with a 138kV transmission lines and two 12kV distribution circuits that service growing electrical load in Central Indiana.



Project Name:	Manhattan Substation
Location:	Manhattan, Indiana
Owner:	Duke Energy
Construction Firm:	McIntyre Brothers & Duke Energy
Project Scope	New Distribution Substation
Year Constructed:	2011
Operating Voltage:	10.5MVA Transformer 138kV to 12kV

Special Design Considerations & Project Challenges:

The Manhattan substation project consisted of a new 138kV to 12kV substation located in rural Indiana. The location for the substation was elevated above US-40 and required extensive earthwork to provide adequate access for large equipment and to maintain proper drainage at the site.

In addition to serving Duke Energy customers, this substation, also contain REMC dedicated equipment and metering.



Five Points Foundation Repair

Project Description:

Five points required extensive remediation to structural foundation holding 230kV equipment. Work was performed while equipment remained energized.

Project Name: Five Points Substation
Location: Greenwood, Indiana
Owner: Duke Energy
Construction Firm: McIntyre Brothers
Project Scope: Foundation Work
Year Constructed: 2010
Operating Voltage: 230kV

Special Design Considerations & Project Challenges:

Five Points had several issues with foundations:

Drilled piers were too shallow and suffered lateral displacement causing equipment stands to stand out-of-plumb.

Large transmission dead-end foundation had frozen prior to curing properly; this led to excessive cracking above the frost line. These foundations were removed to sound concrete and repaired. The structures were suspended and work was performed while the 230kV transmission line remained energized.



Kokomo Southeast Expansion

Project Description:

Add additional circuit breaker, structure, 12kV underground exit to an existing substation.



Project Name: Kokomo Southeast Substation
Location: Kokomo, Indiana
Owner: Duke Energy
Construction Firm: Duke Energy
Project Scope: Additional 12kV Circuit
Year Constructed: 2011
Operating Voltage: 12kV | 1200A Breaker

Special Design Considerations & Project Challenges:

An attempt was made to acquire additional land and expand the existing structure. Duke Energy was unable to purchase the required land resulting in a non-standard design of this additional exit.

The main 12kV bus was extended around the existing structure and the breaker was added to the opposite side of the existing structure, this solution allows for a second additional circuit breaker, if required in the future.

Due to existing lightning protection static wire poles, clearances were very tight during design and construction of the main bus extension around the existing structure.

Emergency Foundation Work

Project Description:

The Wilmington substation original transformer consisted of three single phase units supported on wood tie foundations. During maintenance it was discovered that two of the units were leaning and a 3-day concrete mix was used to correct this issue.



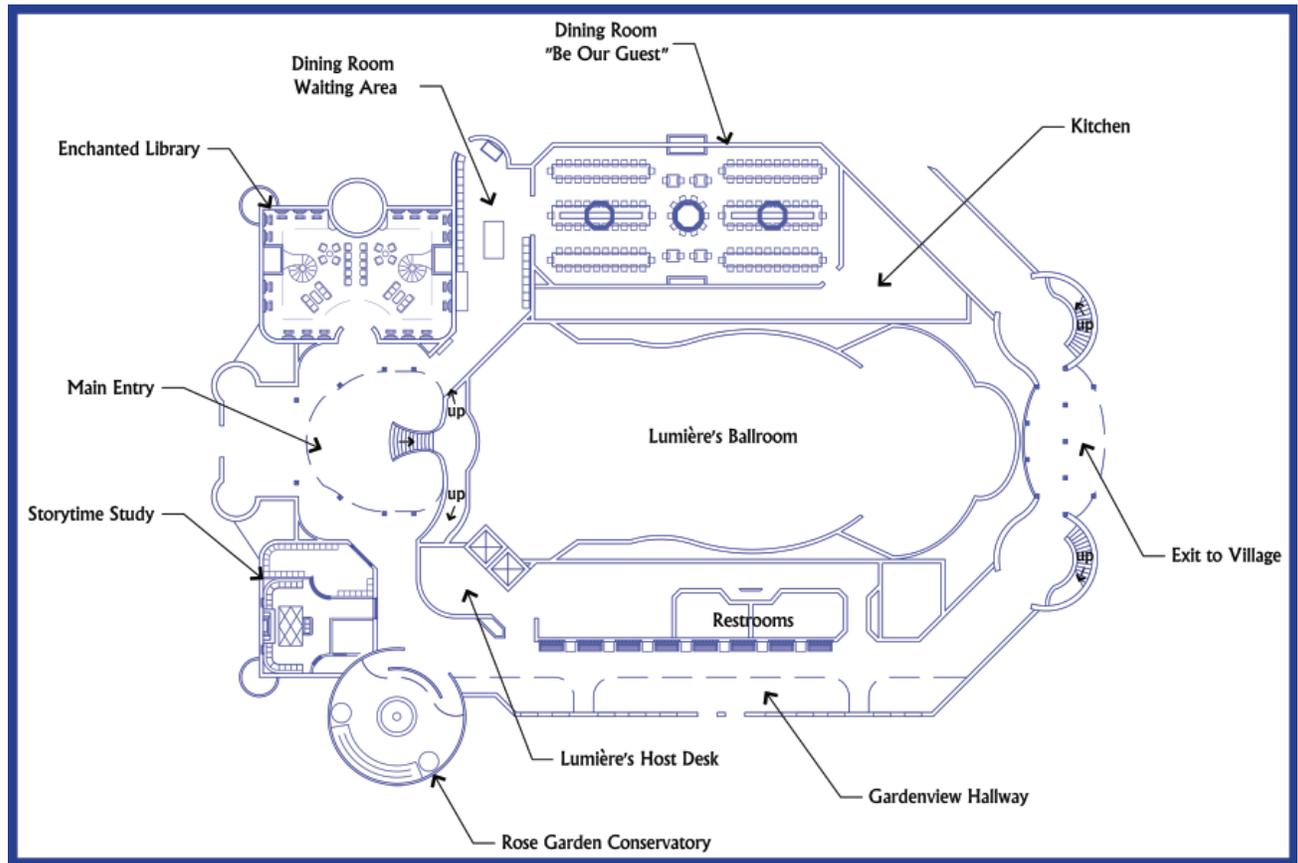
Project Name:	Wilmington Substation
Location:	Wilmington, Indiana
Owner:	Duke Energy
Construction Firm:	Duke Energy
Project Scope	Replace Wood Foundations for Existing Transformer
Year Constructed:	2010
Operating Voltage:	138kV to 34.5kV Transformer

Special Design Considerations & Project Challenges:

Transformers were required to be taken out of service during foundation construction. A 3-day concrete mix with high-range water reducer was employed to minimize electrical outage time.



WDI - ImagiNations Contest



Title: Le Château de la Belle et la Bête
Project: Walt Disney ImagiNations Competition
Date: Winter 2009

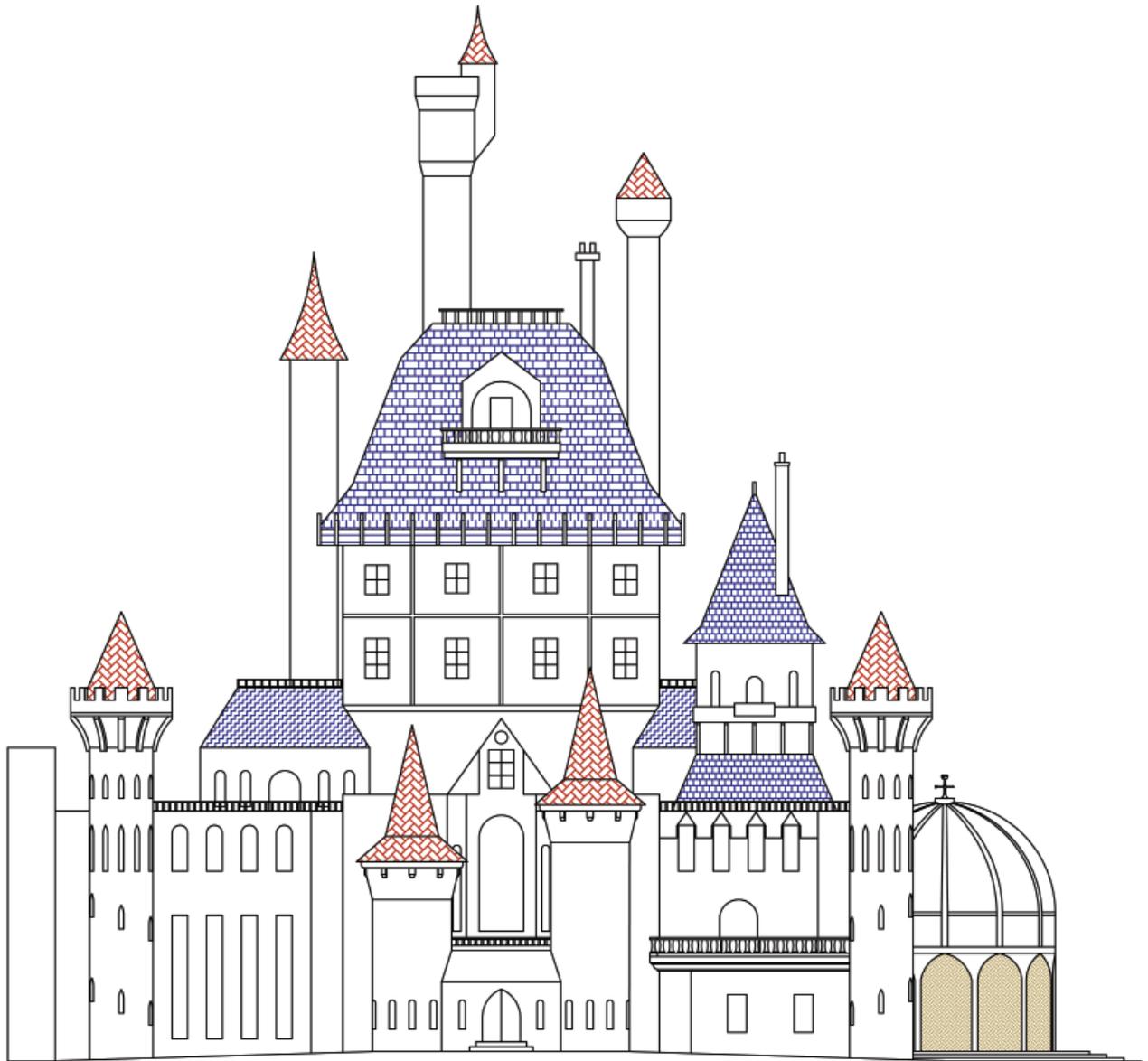
Description & Design Thoughts:

During my senior year I led a four person team of students in developing a design concept for the Walt Disney Imagineering ImagiNations Competition. For our concept we created a full sized castle from the animated feature Beauty and the Beast.

The Castle consisted of sprawling gardens, ornate hallways, a library attraction and two restaurants. Each room was designed to varying levels of detail; the study was fully designed and rendered in 3D with colors and materials specified for each of the room's finishes.

This project is where I learned to use AutoCAD for both 2-dimensional and 3-dimensional drawings.

Castle Elevation



Title: Le Château de la Belle et la Bête
Project: Walt Disney ImagiNations Competition
Date: Winter 2009

Description & Design Thoughts:

This elevation was created as part of the ImagiNations design competition. This is the front elevation of the castle submitted for the contest.

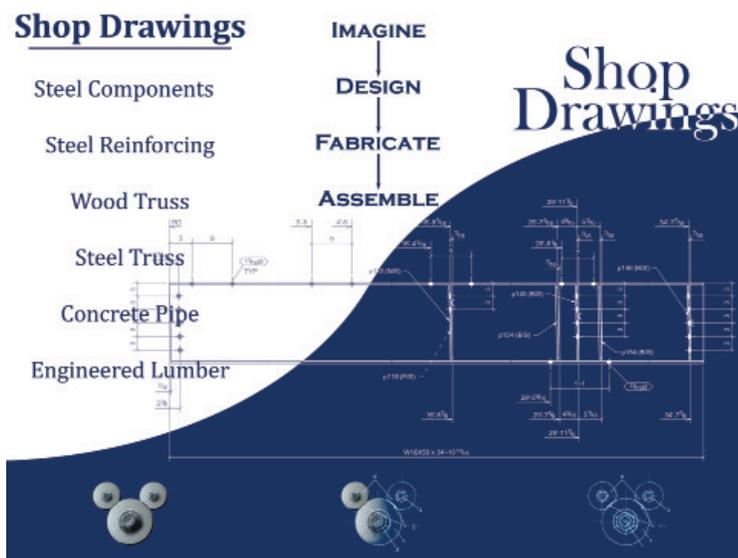


Shop Drawings

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

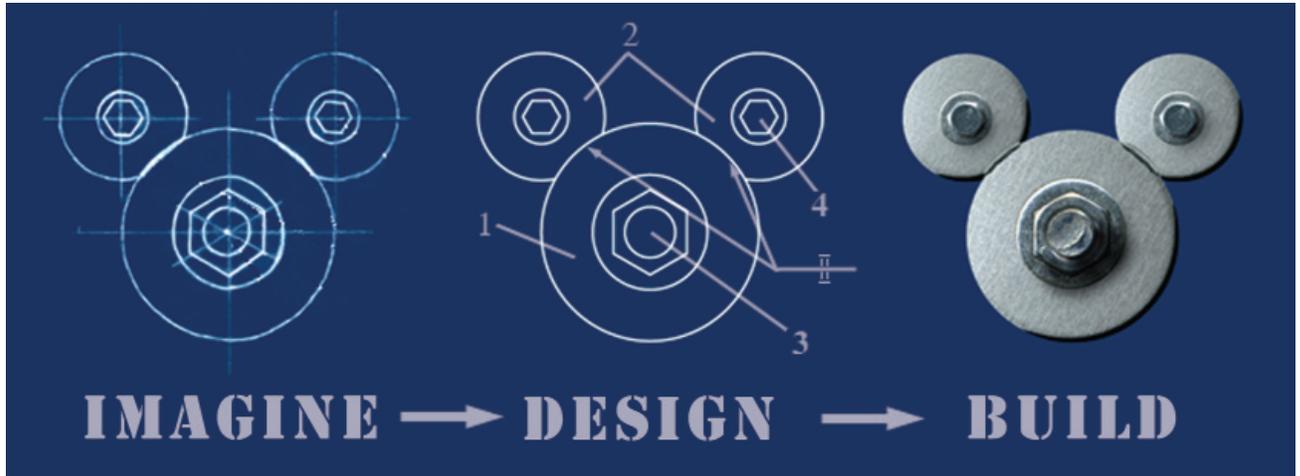
Description & Design Thoughts:

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 the role shop drawings play in the design, fabrication and construction process.



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

Mickey Metal



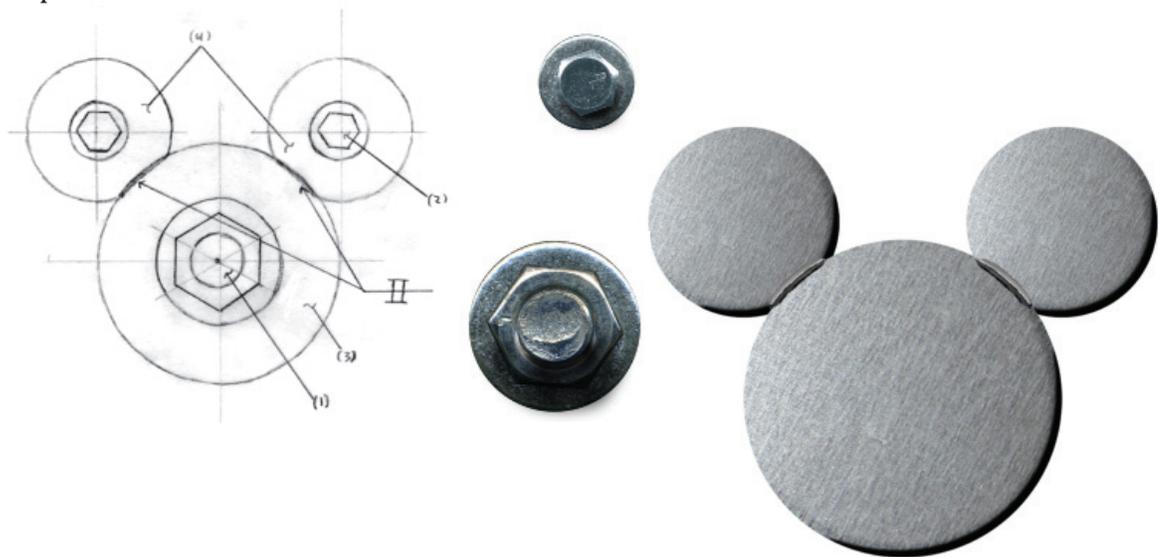
Title: The Creative Process - Mickey Metal
Project: Just for Fun!!
Date: 2008

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.



Dinner Menu



Description & Design Thoughts:

In the Fall 2008 I had the opportunity to host a dinner party for my Disney ImagiNations group; of course we had a Disney-themed meal. This is the menu from the dinner.



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 then 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.

Cherry End Tables



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

Construction Details:

This is one cherry table, of a set, that flanks our living room couch 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 my family for many years.

Home Remodel



Title: Arizona House Remodel
Project: Plaster, Paint, Electrical, you name it
Date: 2005-2009

Construction Details:

I enjoy working around the house. Our home in Arizona was no exception. We enclosed the carport to a garage, completely re-roofed and reframed the porches, all new electrical (included the breaker panel), completely gutted and remodeled bathroom, and painted just about everything.



Pinewood Derby Car



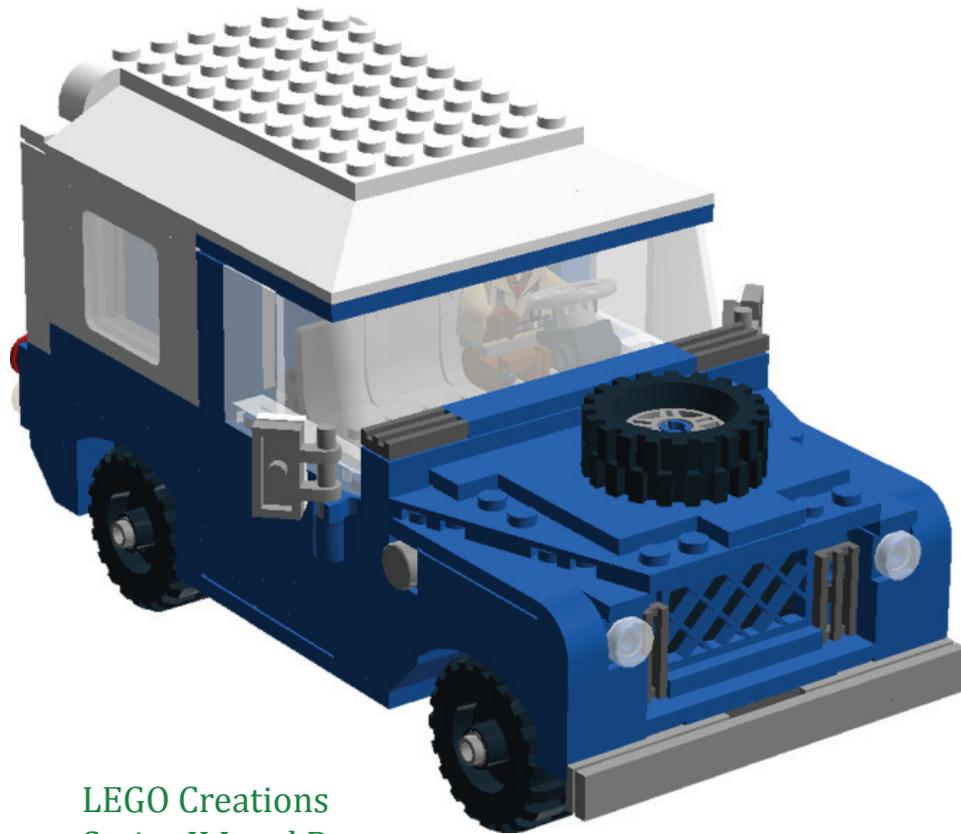
Title: Walter's Derby Car
Project: Cub Scout Pinewood Derby Car
Date: 2014

Construction Details:

This undefeated 1st place Pinewood Derby Car was a multi-generation project. This was Walter's first Derby. I modeled the rough shape of the car in 3-D using AutoCad. Walter's grandfather roughed out the pine block to the correct shape. Walter and I then sanded, weighted, and painted the car.



LEGOs



Title: LEGO Creations
Project: Series II Land Rover
Date: 2014

Construction Details:

Who doesn't love LEGOs? The sophisticated interlocking brick system. My father loves his Series II Land Rover, and for Father's Day I made his blue Land Rover out of wonderful LEGOs. I used the LEGO Digital Designer software to determine the bricks needed and then sourced the correct bricks for the job.



Bloodwood Frame



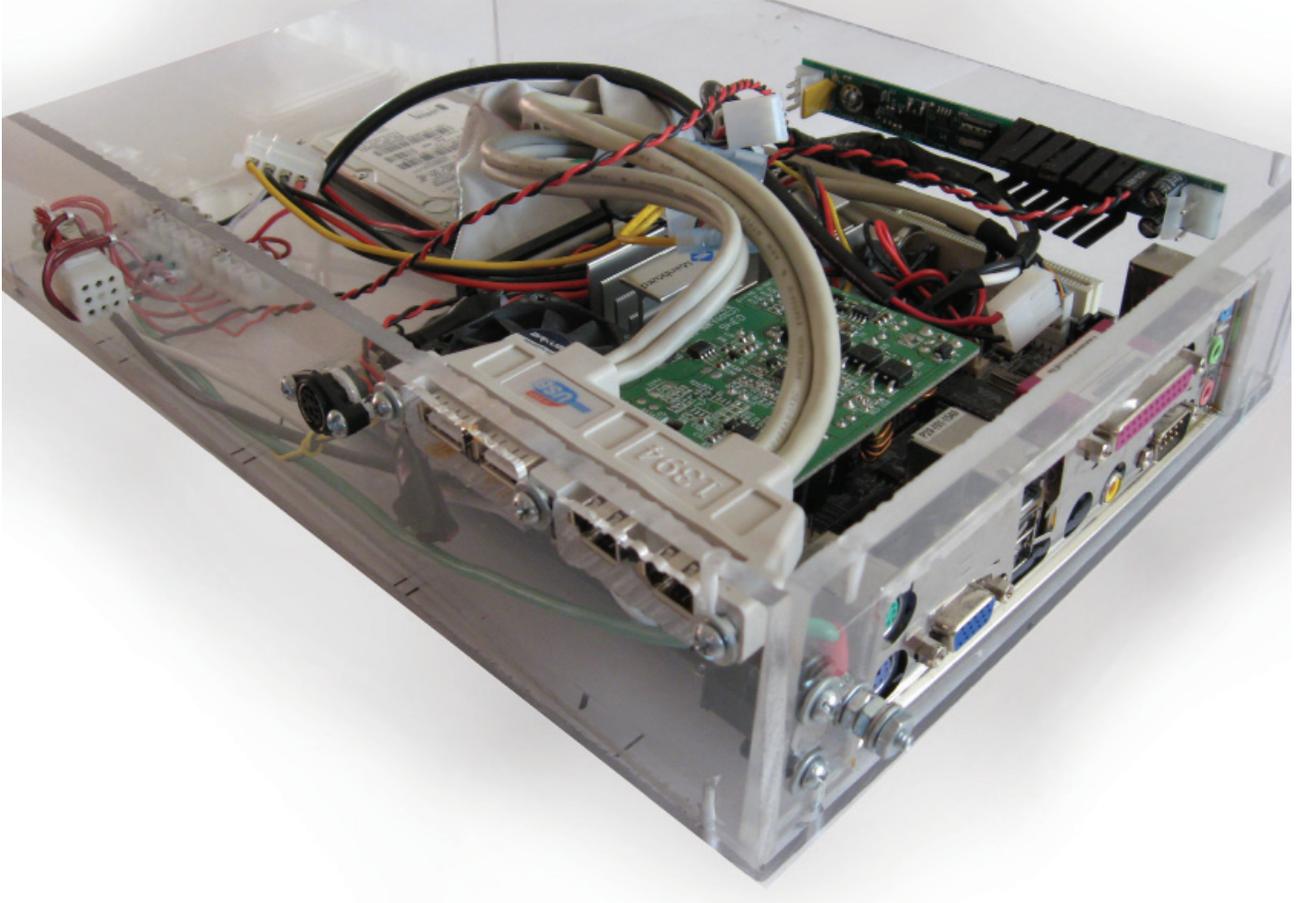
Title: Bloodwood Frame
Project: Woodworking Project
Date: Summer 2004

Construction Details:

This frame is made of a beautiful hardwood known as Bloodwood. The wood is characteristically deep brown and red and finishes 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.



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 was strictly 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 automatic 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.

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.



Beech Kleenex Holder



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

Construction Details:

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



Endorsements

e-mail comments from Matt Miller (owner SSE):

“You are a key person in the company and along with Tony you have asserted yourselves as the future leaders of this office and company.” (7/31/2013)

“Thank you for staying late to get this done I appreciate your extra effort to ensure this goes out on time.” (11/14/2012)

Notes From Annual Reviews

Comments by Bart L Tharp: (Collaboration)

Good working relationship with Construction Supervisors, Forman, and Designers. SE Construction personnel know that they can count on him to be very responsive to their questions. Gates usually drops everything and goes to the field to help the construction team work through construction issues.

-2011 Annual Review Notes by Supervisor

Comments by Bart L Tharp: (Collaboration)

Very good collaboration skills. Worked with Standards and Construction to create a new method of installing rebar in pad foundations by designing chairs to hold upper layer of rebar. Also took the lead in correcting a vendor issue with tack welding hoops vs tying them. Lastly, he led the team in resolving deteriorated foundation problems at Five Points Sub.

Comments by Bart L Tharp: (Delivering Results)

Zero procrastination. He has always met his issue dates. Also, a reliable source of information and action for our customers to turn to.

Comments by Bart L Tharp: (Overall Comments)

Gates is a welcome addition to our staff. He has grasped our design methods very quickly and continues to lead efforts to improve them. He works very well with our staff as well as with our external customers. He seems to have a passion for civil engineering and strives to be the best he can be.

-2010 Annual Review Notes by Supervisor

The Family - the Best for Last



The Family - The Biggest and Most Important Project

The most important facets of my life involve my family. My wife (Angie) and I love going on adventures with our two sons Walter (9) and Roger (6).

