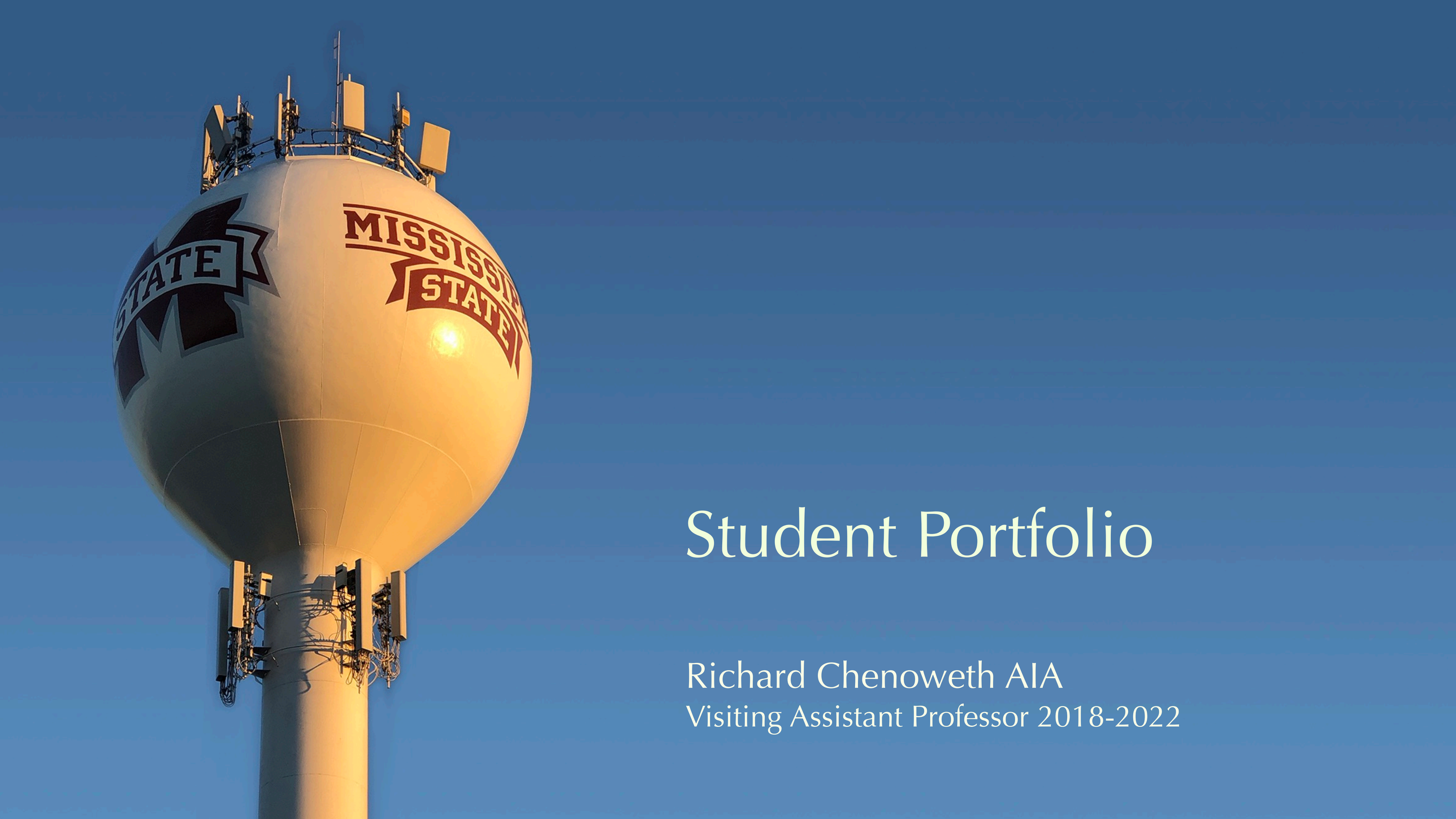


Student Portfolio

Richard Chenoweth AIA
Visiting Assistant Professor 2018-2022

Fall 2018 Collaborative Bench Project

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. Ninety students competed to have their design selected to produce 3 each of 4 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches included branding. Client: MSU Athletic Department.

Bench A - steel and cypress

Team A's three benches have gently curving seats featuring an epoxy infill diagram of three connecting segments of the Mississippi River. This idea was based on the famous Mississippi River flood plain maps created by U.S. Army Corps of Engineers in the 1930s. Team A built these benches for the Football stadium.

Bench B- steel and cypress

Team B's elegant design features end pieces of steel that drape over the back rest and support the slatted seat. Team B designed and built these benches for the Women's Volleyball venue.

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. Ninety students competed to have their design selected to produce 3 each of 4 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches included branding. Client: MSU Athletic Department.

Bench C - cypress

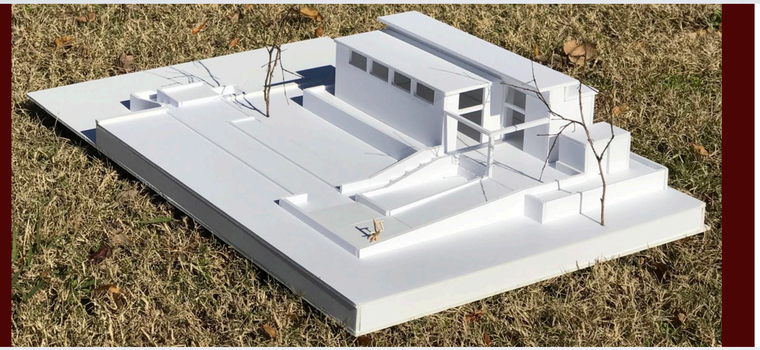
Team C's three benches are solid cypress with an interwoven corner detail that makes it very strong. C benches were built for the Tennis venue.

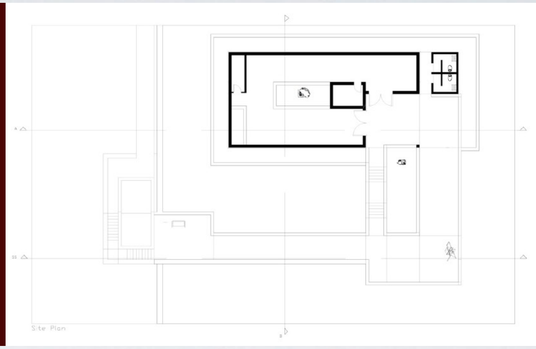
Bench D- steel and cypress

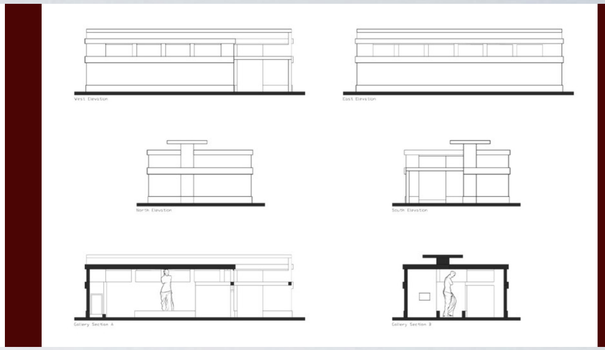
Team D's design is very minimalist and is based on welded C-channels that hold the precision-milled cypress. Team D's benches are for the Basketball venue

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

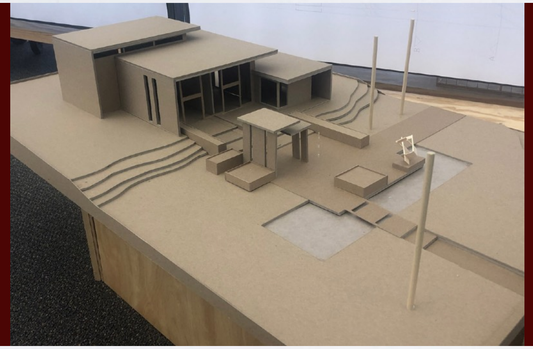
> The bench design project spanned seven weeks from first sketches to final delivery. Ninety students competed to have their design selected to produce 3 each of 4 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches included branding. Client: MSU Athletic Department.

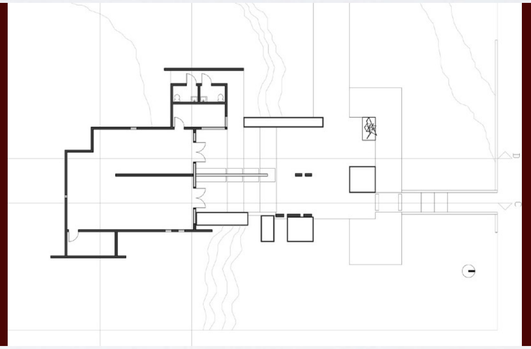


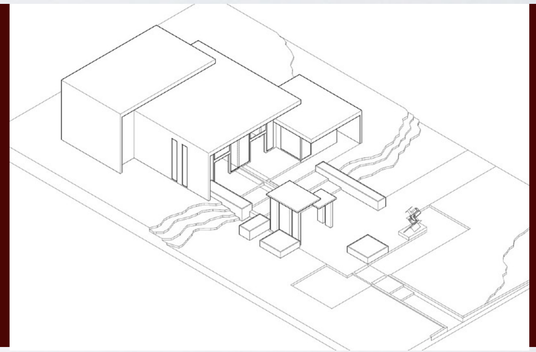




Student A



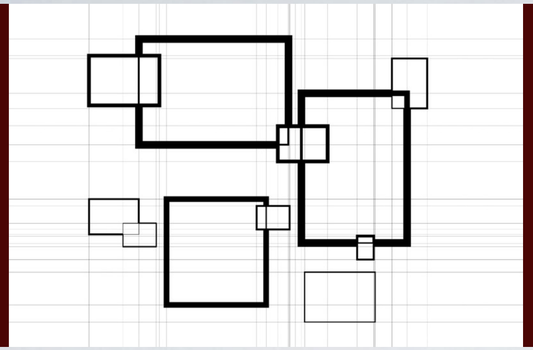
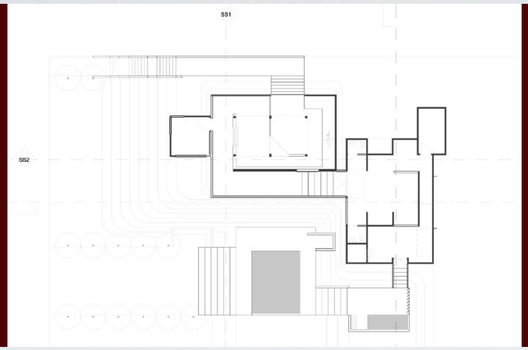


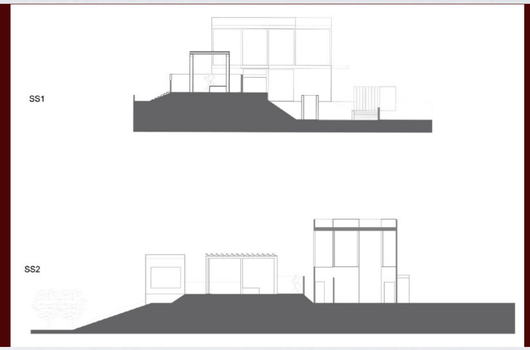


Student B

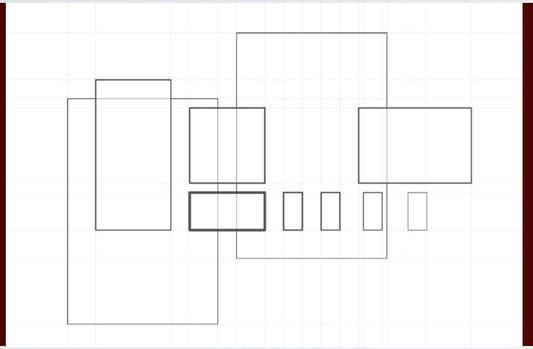
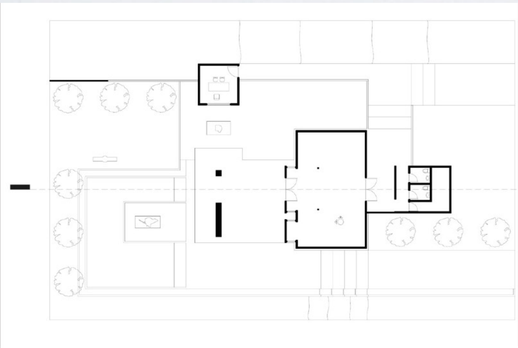
Design of a small gallery on a limited site (2nd Year Architecture students - second project)

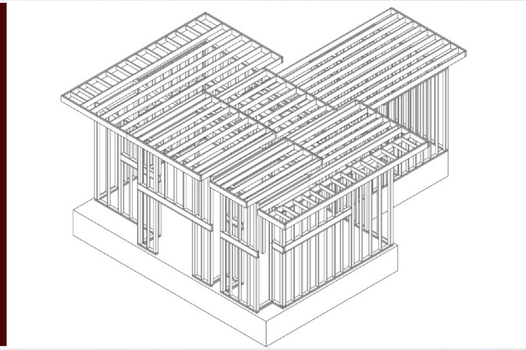
> This project began as a classic design problem beginning with two-dimensional design composition and diagramming, and developing design principles such as arrival, circulation, space, proportion, and natural light serving a simple program. The diagrams developed quickly into plans and then into massing models on the unencumbered yet gently-sloping site. Presentation and jury output included sketches, collages, drawings, computer models, massing models, and framing models.



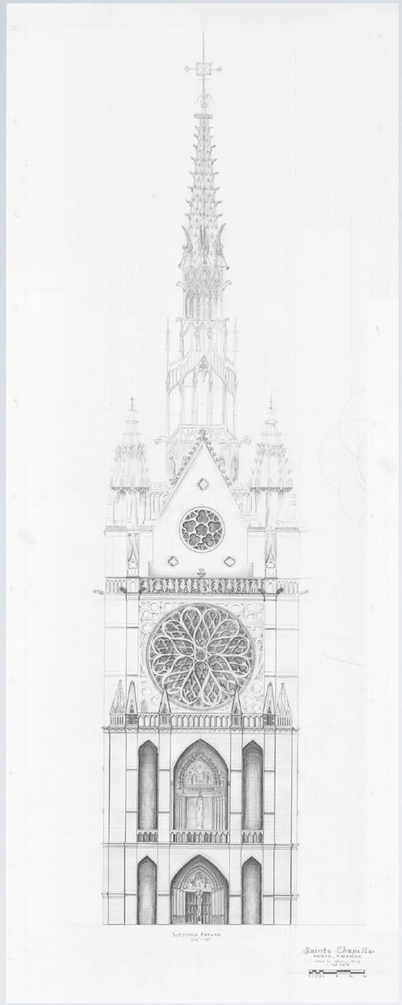
Student C

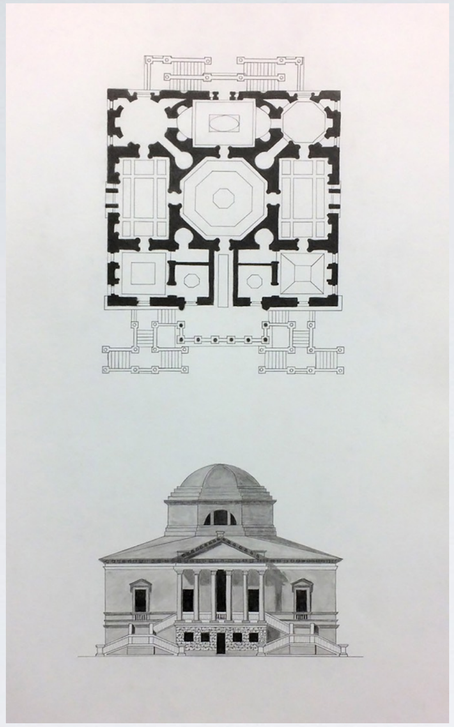


Student D

Design of a small gallery on a limited site (2nd Year Architecture students - second project)

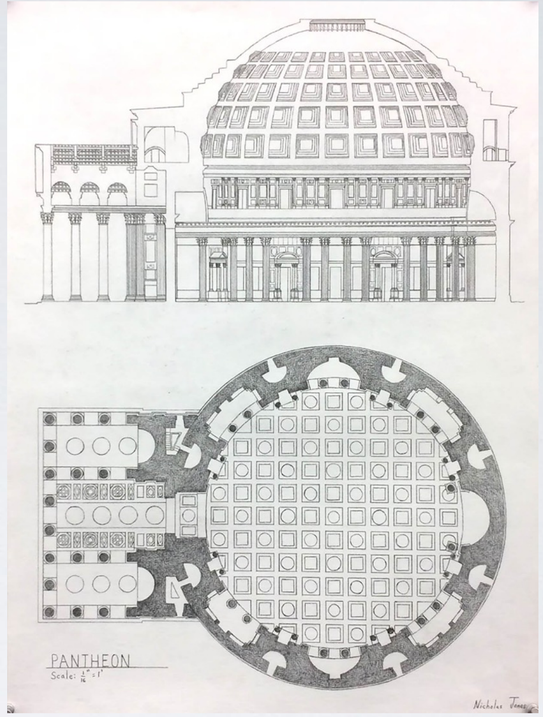


Sainte Chapelle

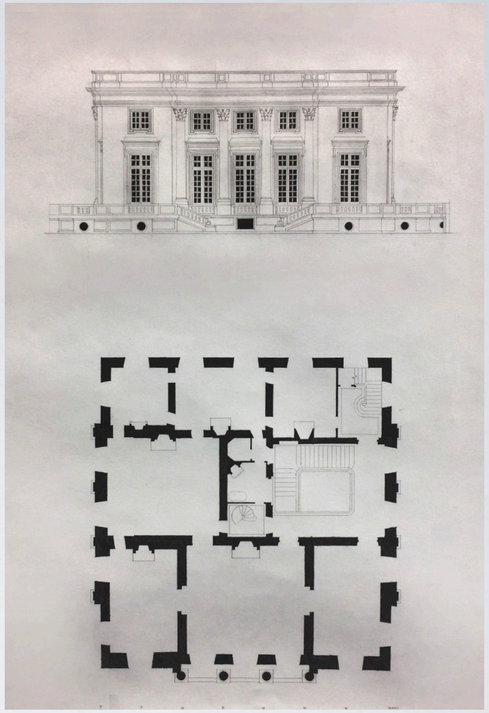


Chiswisck House

Saint Basil



Pantheon

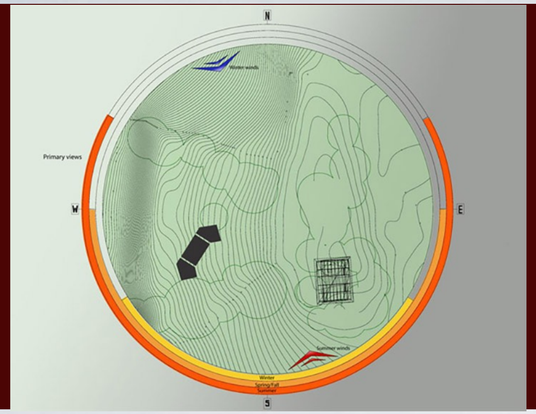


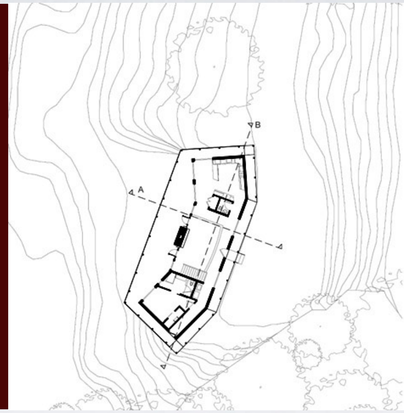
Petit Trianon

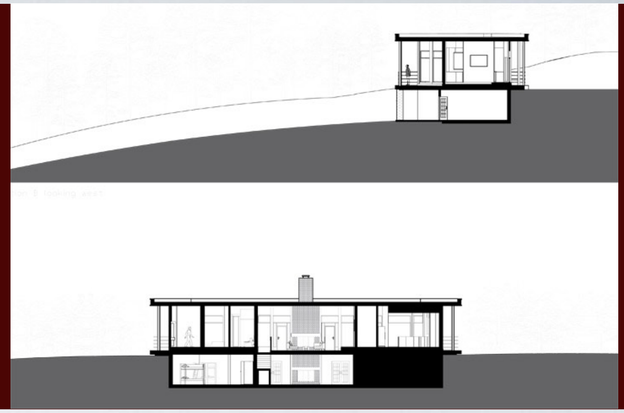
Sainte Chapelle (detail)

Architectural History II (our drawing exercise)

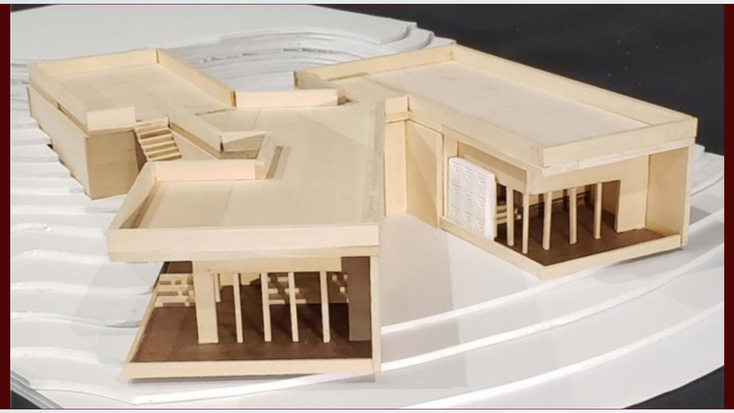
> In teaching Architectural History, I like to emphasize drawing, imagery, language, and publications. As part of my course I ask students to deeply investigate a building of their choice by drawing it in great detail. It's an excellent way to fully understand architecture as the program, the parti, the arrangement, the scale, and the details all become graphically evident in a careful drawing which can be a valuable portfolio contribution for the student.

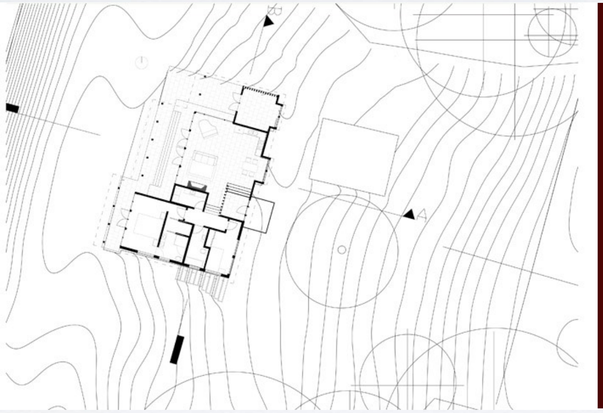


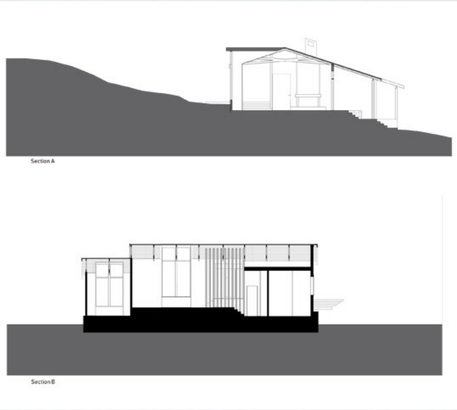




Student A







Student B

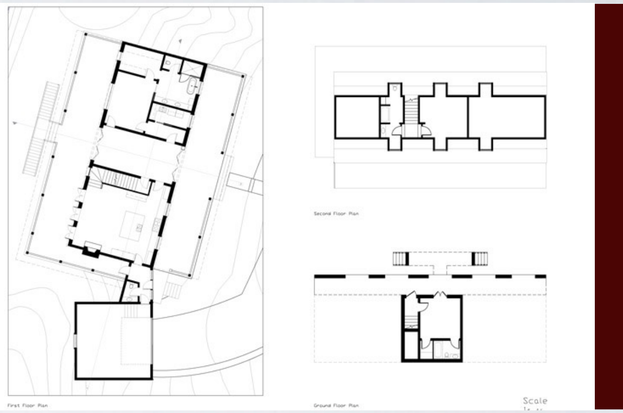
Student C

Design of a Residence on a topographically dynamic site (2nd Year Architecture students)

> The Spring semester began with a brief module in which each student developed a three-dimensional prototype for a modular and repeatable screening form that would create shade and shadow. This was done in a Rhino, which was new to them, and results were 3D-printed. > The next brief module was learning to generate hand-drawn perspectives using Renaissance methods, changing focal planes and distances, and learning to hand-render light, shade, and shadow on their forms. > The third module was learning Site Analysis for our subject site, including aspects of topography, exposure, views, drainage, and siting. > The significant portion of the semester was to design a house on our subject site with respect to topography, site conditions, and classic design principles of arrival, circulation, creating space, and integrating architecture with the landscape. The Rhino design could be integrated into the house design (as a screen for example), and the Perspective exercises could be employed in final renderings.

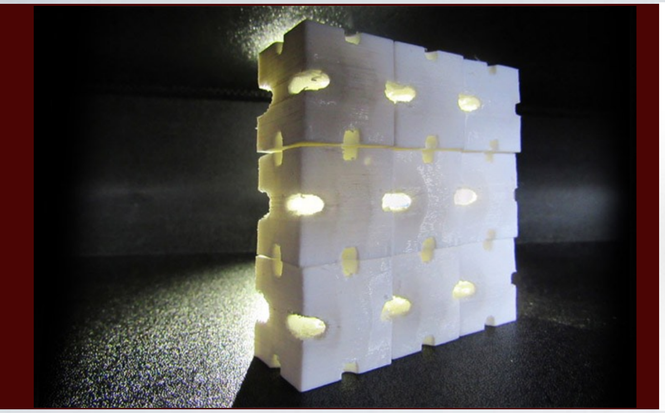
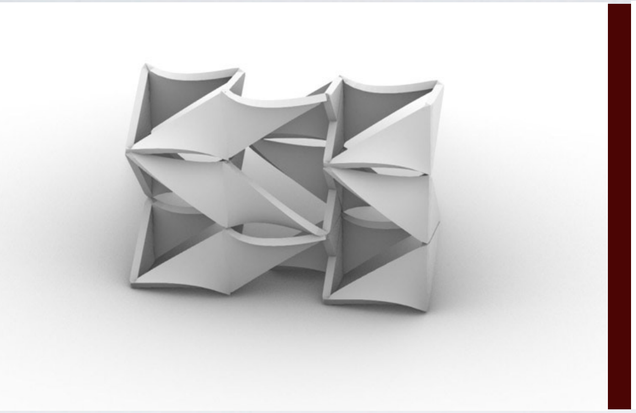
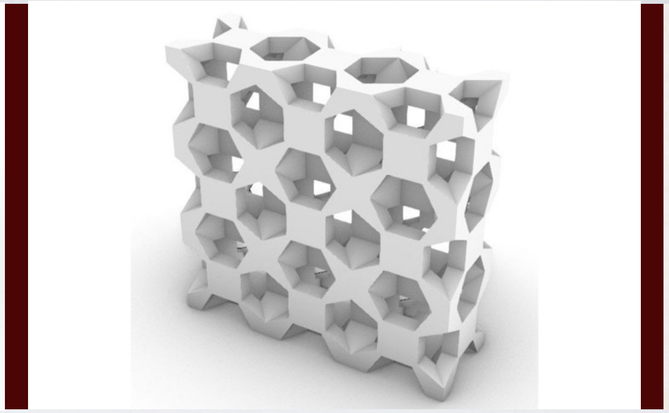
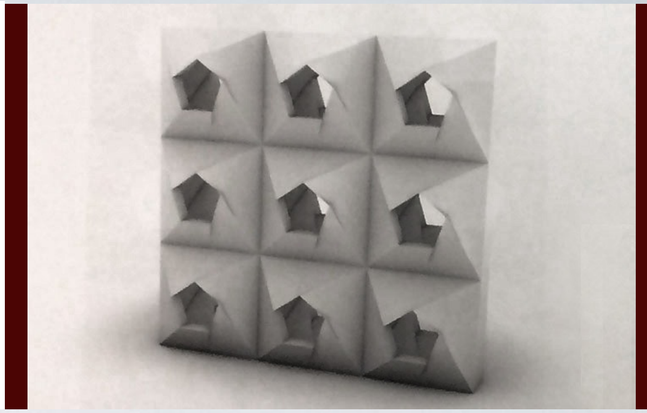
Student D

Student E

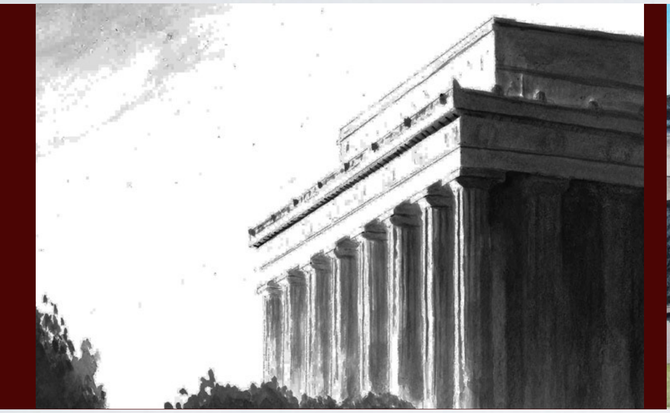


Student F

Design of a Residence on a topographically dynamic site (2nd Year Architecture students)

Sampling of Rhino 3d printed screens




Sampling of Perspective Drawing and Hand Rendering exercises

Design of a Residence on a topographically dynamic site (2nd Year Architecture students)

Fall 2019 Collaborative Bench Project

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. 90 students competed to have their design selected to produce 3 each of 6 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches were required to have one area of armrest and one area of backrest. Benches included branding. Client: MSU Athletic Department.

Bench A

Team A's bench design maintained a sculptural and abstract sensibility that provided backrest and armrest at one end. The dark metal panel has reinforcement that invisibly supports the the laminated wood seat in this sculptural arrangement.

Bench B

Team B's bench designated to create a dramatic and hidden cantilever support using a rigid steel A-frame. The bench is sheathed in a traditional and user-friendly slatted cypress with a polyurethane finish.

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. 90 students competed to have their design selected to produce 3 each of 6 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches were required to have one area of armrest and one area of backrest. Benches included branding. Client: MSU Athletic Department.

Bench C

Team C's bench featured routed slots in a laminated cypress seat and back which then were joined to the rigid steel frame using hidden connectors.

Bench D

Team D designed and built a bench using inset steel frames and inset laminated panels of cypress. Team D's paint schedule is in classic MSU color combination.

Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. 90 students competed to have their design selected to produce 3 each of 6 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches were required to have one area of armrest and one area of backrest. Benches included branding. Client: MSU Athletic Department.

Bench E

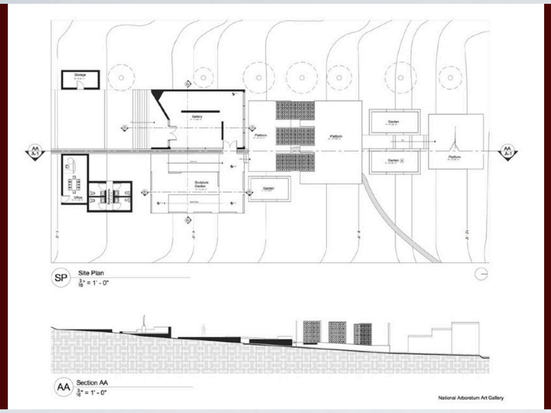
Team E opted for a bench that turned its backrest 90º and positioned it at the end opposite the armrest. Its built of dark-stained laminated cypress and dark-gray powder-coated steel tube.

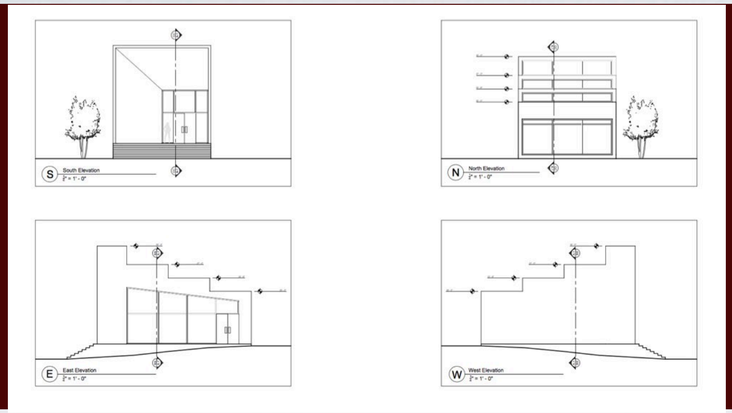
Bench F

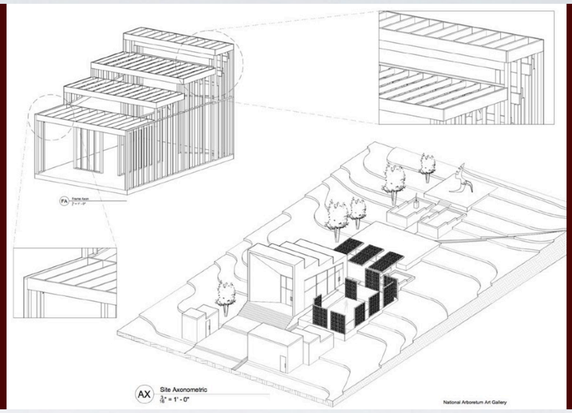
Team F's bench was designed to have an integral layout area at each end - very useful in a bench. The dark-stained and sealed cypress is framed comfortably in its seven-foot steel tube frame.

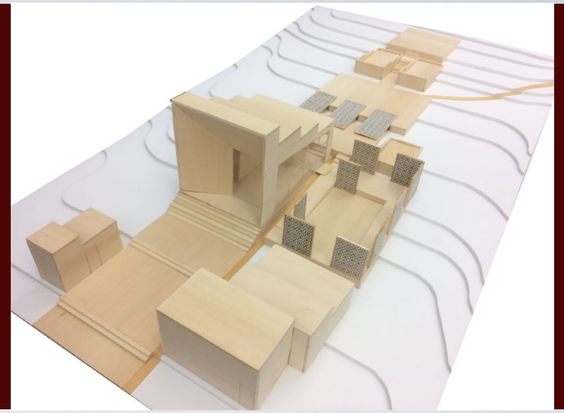
Collaborative Bench Project (Collaboration of 2nd Year Architecture students with BCS students)

> The bench design project spanned seven weeks from first sketches to final delivery. 90 students competed to have their design selected to produce 3 each of 6 prototypes. Teams then produced designs, shop drawings, RFIs, prototypes, and samples while continuing to refine their proposals. Students fabricated and finished their benches based on a budget of $350 per bench. Students were required to procure all of their materials, mill wood, weld and grind steel, drill, assemble, and finish their benches. Benches were required to have one area of armrest and one area of backrest. Benches included branding. Client: MSU Athletic Department.

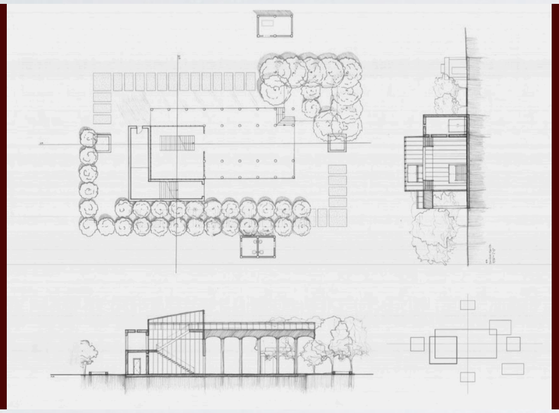


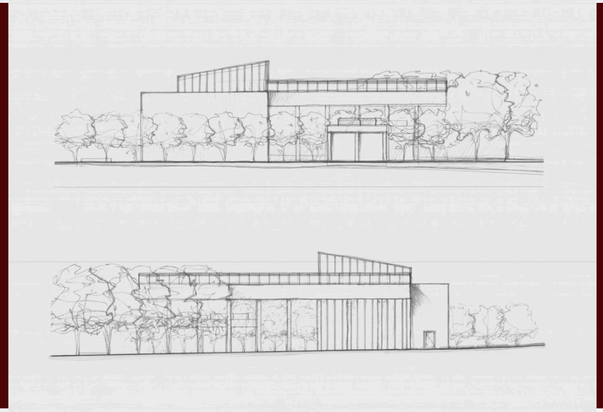




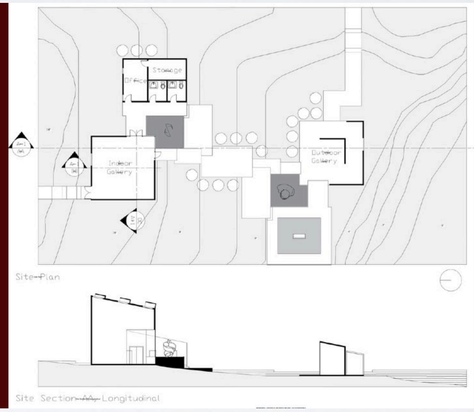


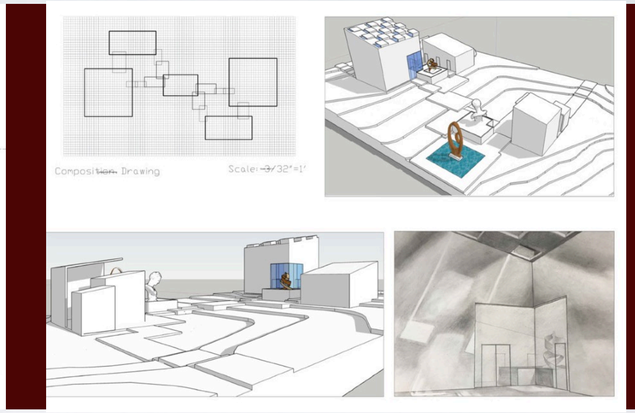
Student A





Student B

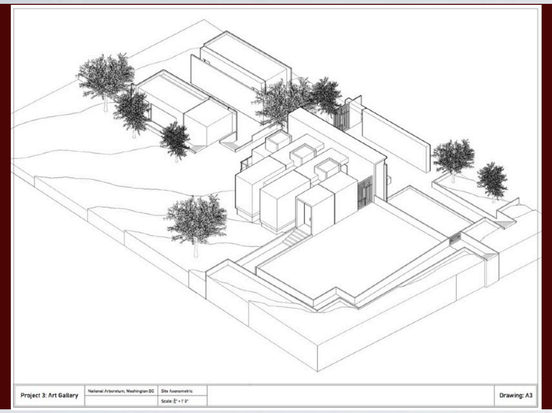


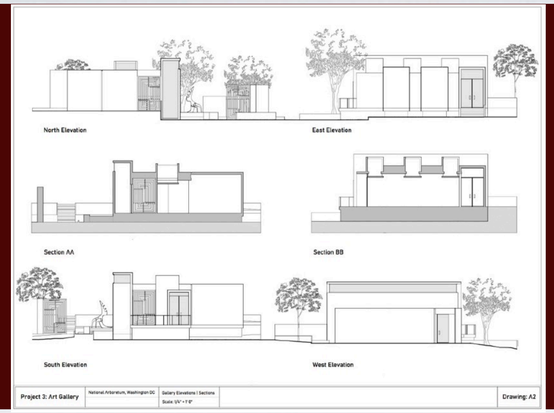


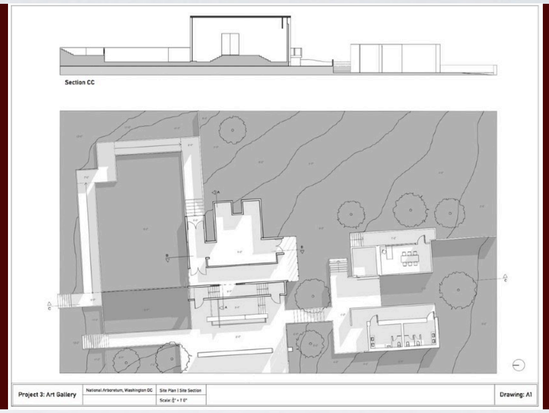
Student C

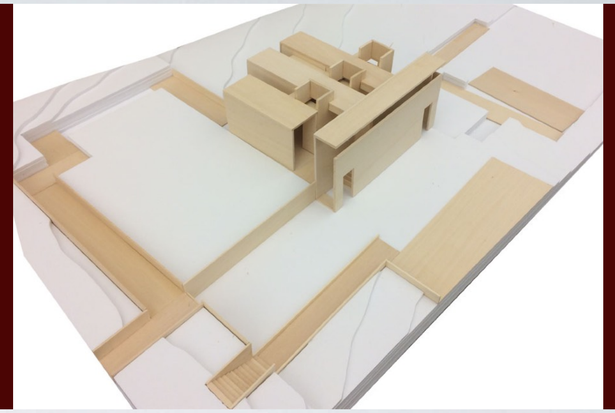
Design of a small gallery on a limited site (2nd Year Architecture students - second project)

> This project began as a classic design problem beginning with two-dimensional design composition and diagramming, and developing design principles such as arrival, circulation, space, proportion, and natural light serving a simple program. The diagrams developed quickly into plans and then into massing models on the unencumbered yet gently-sloping site. Presentation and jury output included sketches, collages, drawings, computer models, massing models, and framing models.

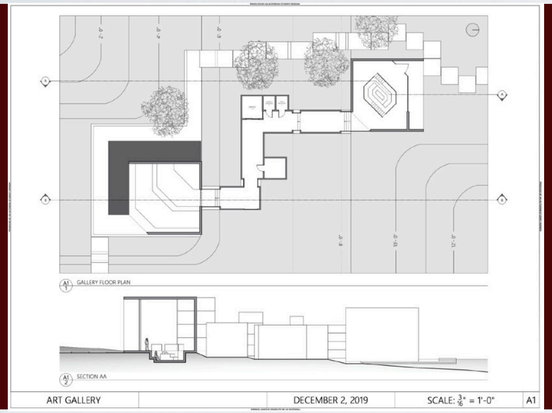


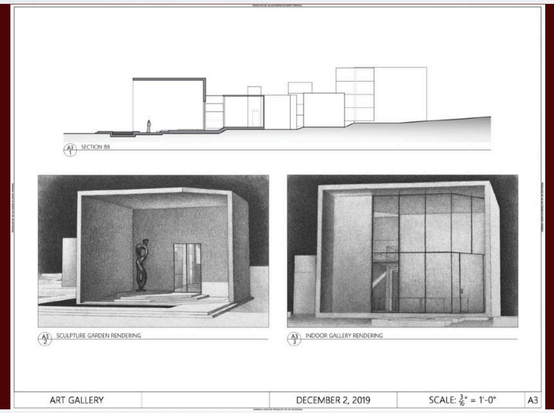


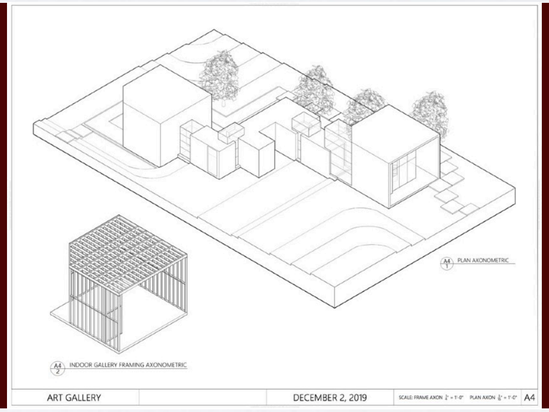




Student D





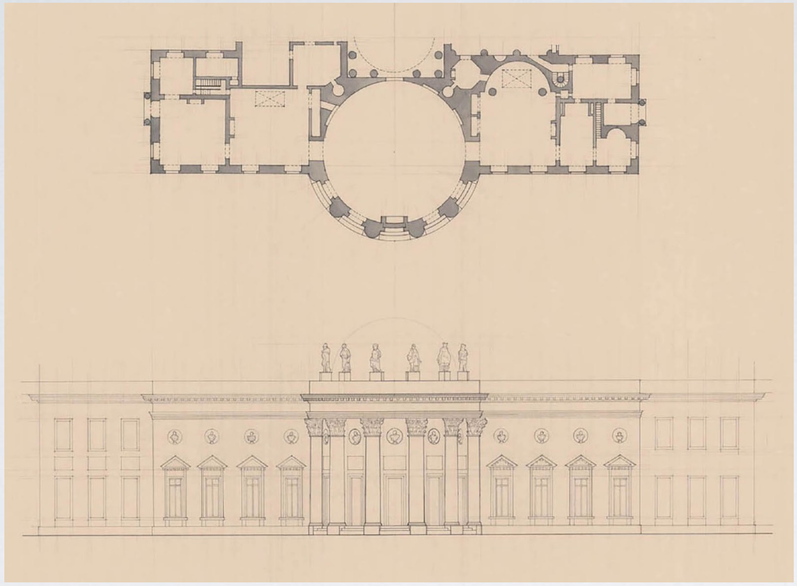


Student E

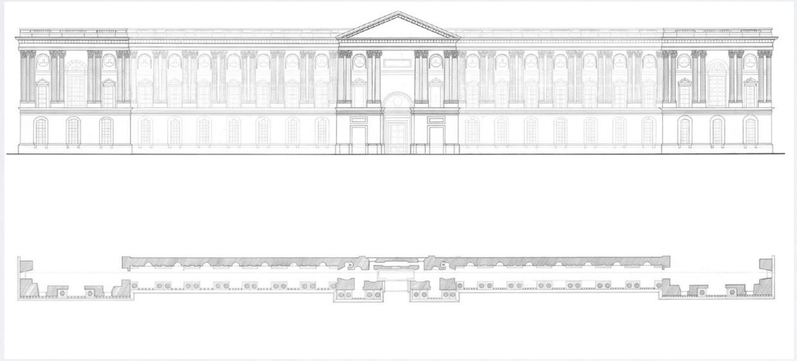
Student F

Design of a small gallery on a limited site (2nd Year Architecture students - second project)

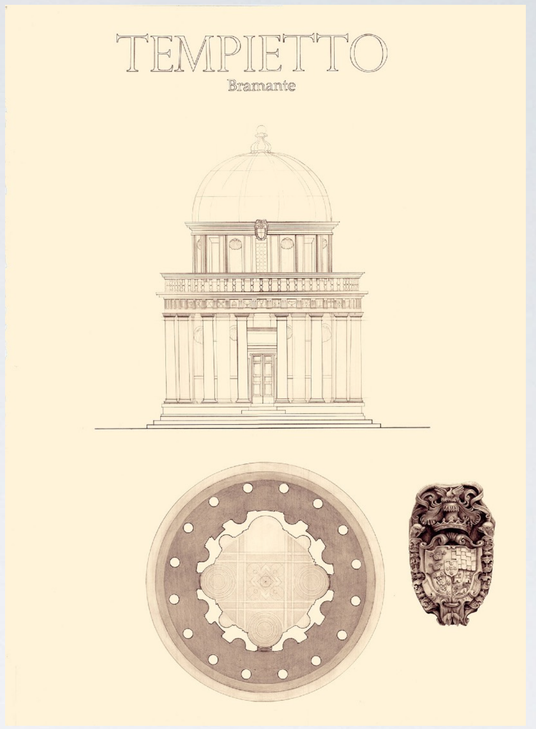
Collège de Quatre-Nations



Hôtel de Salm



East Facade of the Louvre

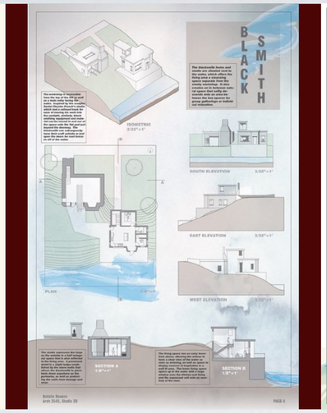


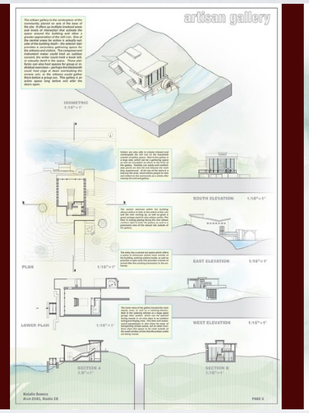
Tempietto

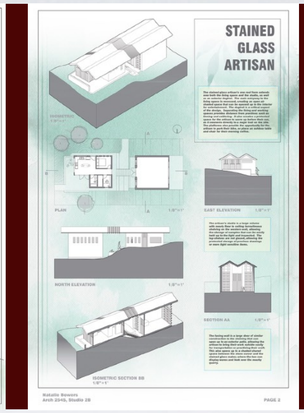
Tempietto (detail)

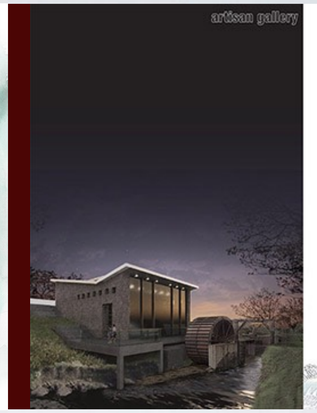
Architectural History II (our drawing exercise)

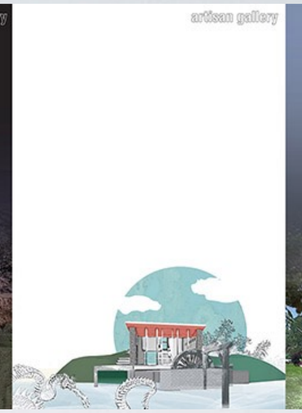
> In teaching Architectural History, I like to emphasize drawing, imagery, language, and publications. As part of my course I ask students to deeply investigate a building of their choice by drawing it in great detail. It's an excellent way to fully understand architecture as the program, the parti, the arrangement, the scale, and the details all become graphically evident in a careful drawing which can be a valuable portfolio contribution for the student.

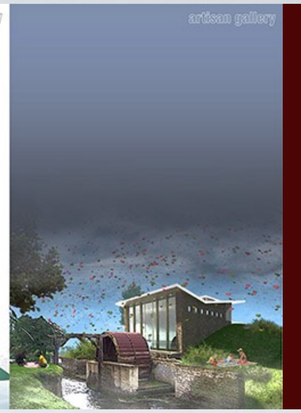




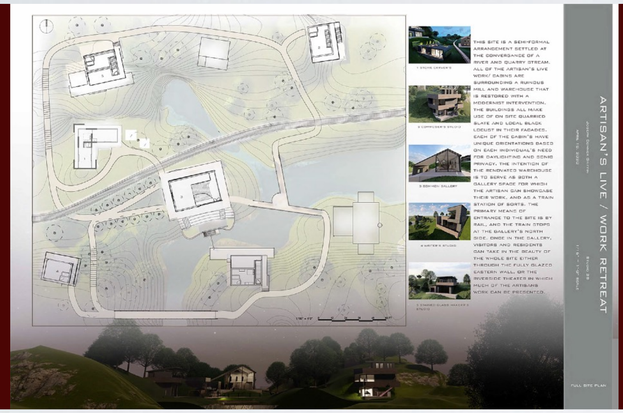


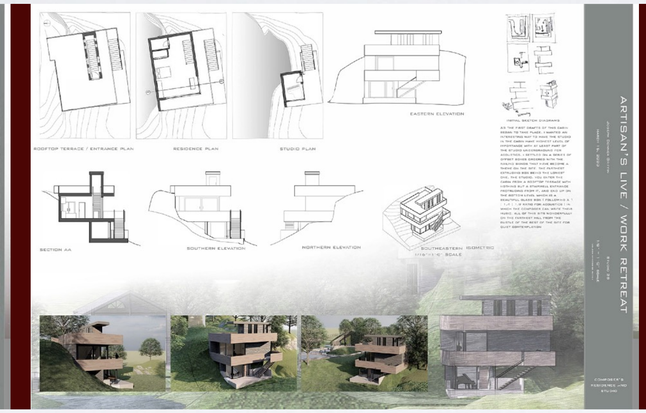


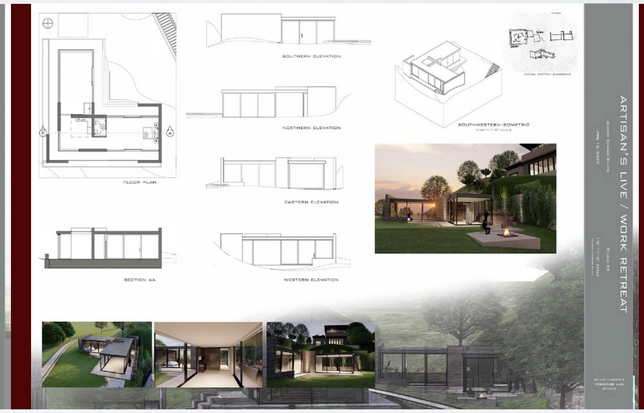


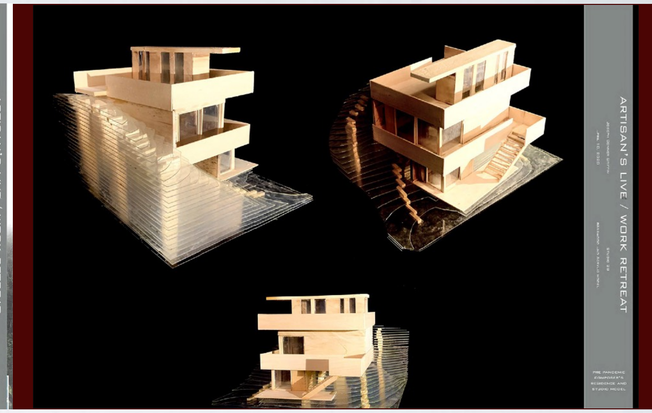


Student A





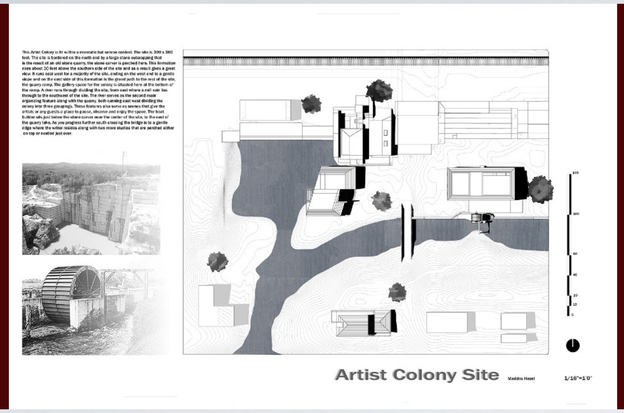


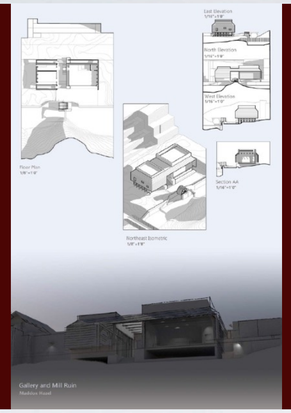


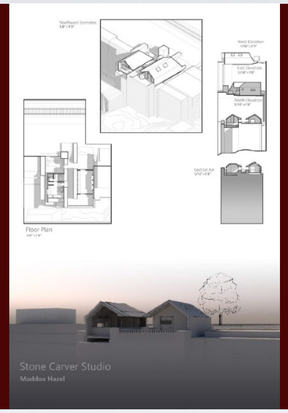
Student B

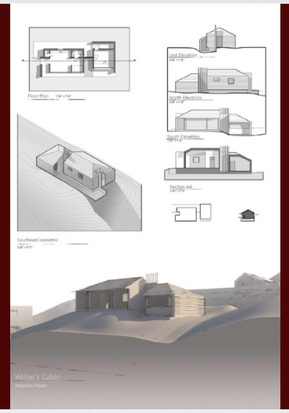
Design of an Artist's Compound on a topographically complex site with several preexisting features (2nd Year Architecture students)

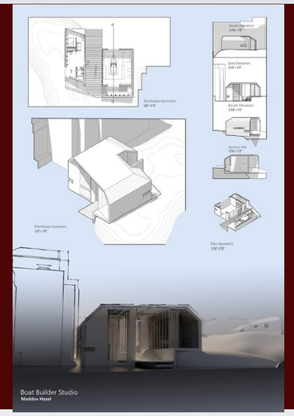
> The Spring semester began with a brief module wherein each student developed a three-dimensional prototype concept for a stair that could be employed later in the design portion of the project. This was done in a Rhino, which was new to them, and results were 3D-printed. > The next module was learning to generate hand-drawn perspectives using Renaissance methods, changing focal planes and distances, and learning to hand-render light, shade, and shadow on their forms. > The third module was learning Site Analysis for our subject site, including aspects of topography, exposure, views, drainage, and siting. > The significant portion of the semester was to design the Artist's Compound on our subject site with respect to topography, site conditions, and classic design principles of arrival, circulation, creating space, and integrating architecture with the landscape. Each student was asked to choose four artist subjects to focus on and design particular work/live structures that responded to the terrain, access to the site, and internal connections to other artists and to a central Gallery space. The Rhino stair design could be integrated into the house design and the Perspective exercises could be employed in the creative of final images either constructing or deconstructing the perspectival space by matching to model.



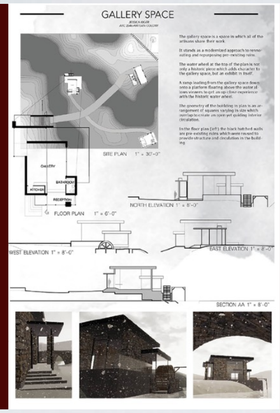


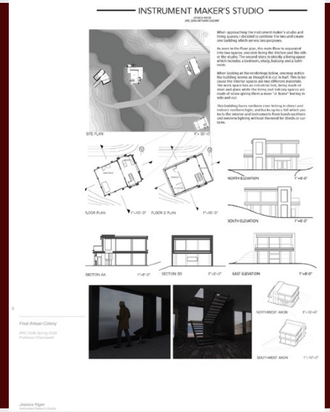


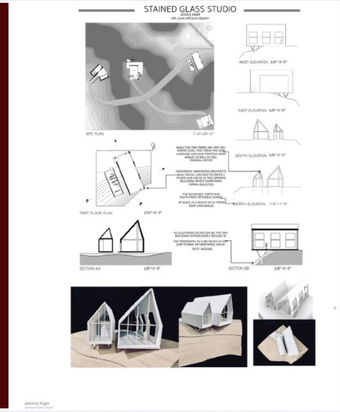


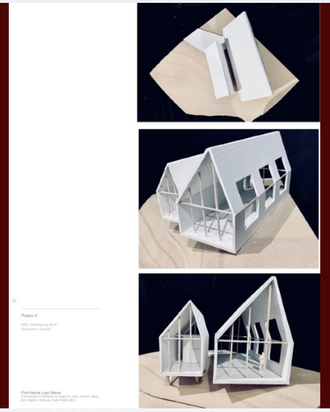


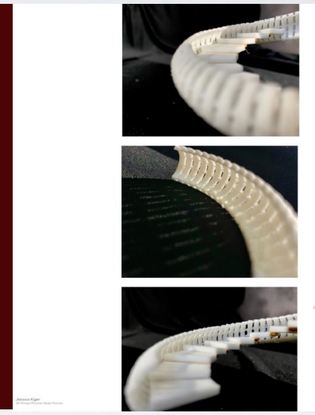
Student C





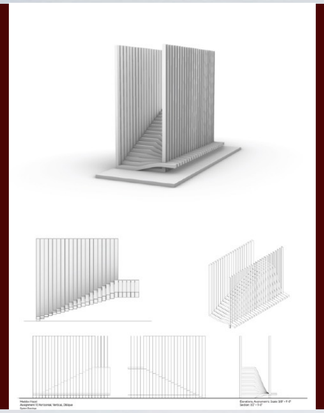


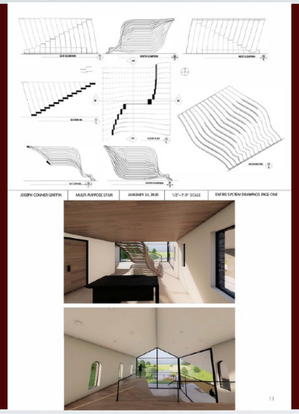


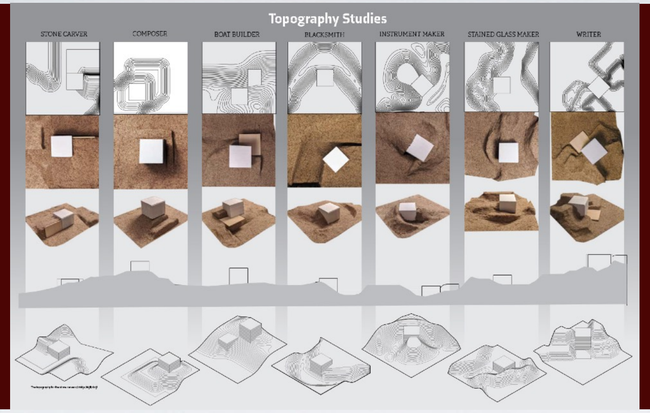


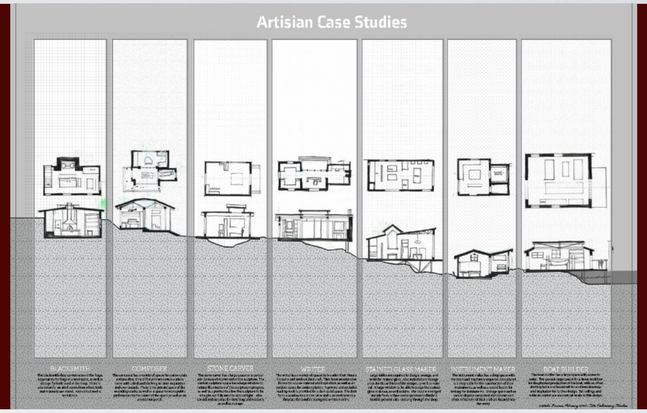
Student B

Design of an Artist's Compound on a topographically complex site with several preexisting features (2nd Year Architecture students)

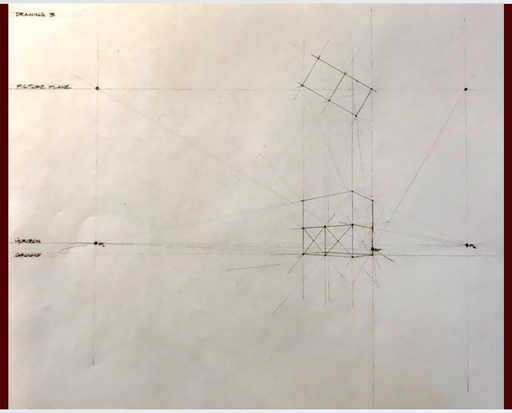


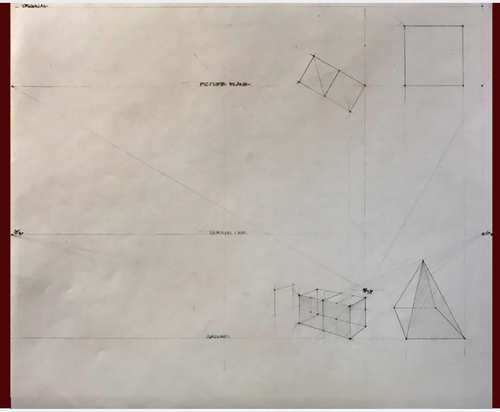


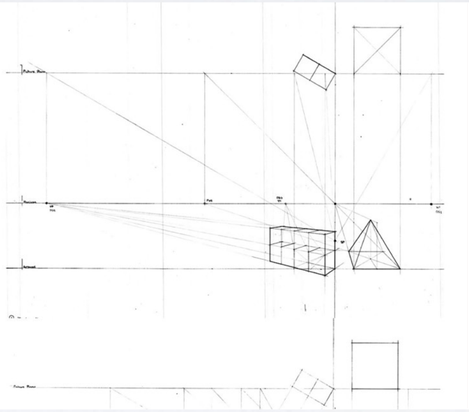


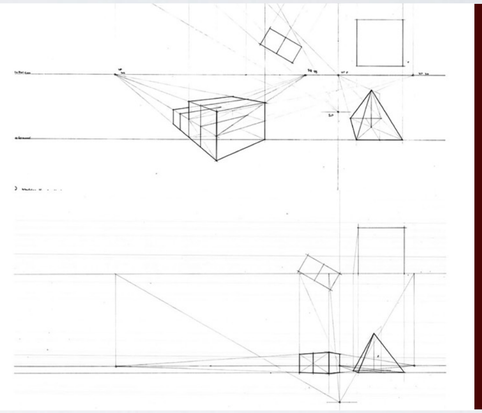


Examples of Rhino stair and Site Analysis



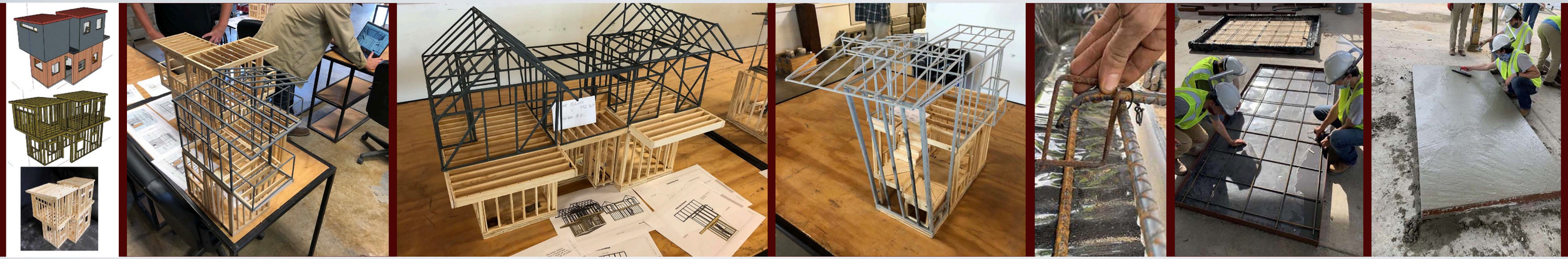






Examples of Perspective construction Renaissance style

Design of an Artist's Compound on a topographically complex site with several preexisting features (2nd Year Architecture students)



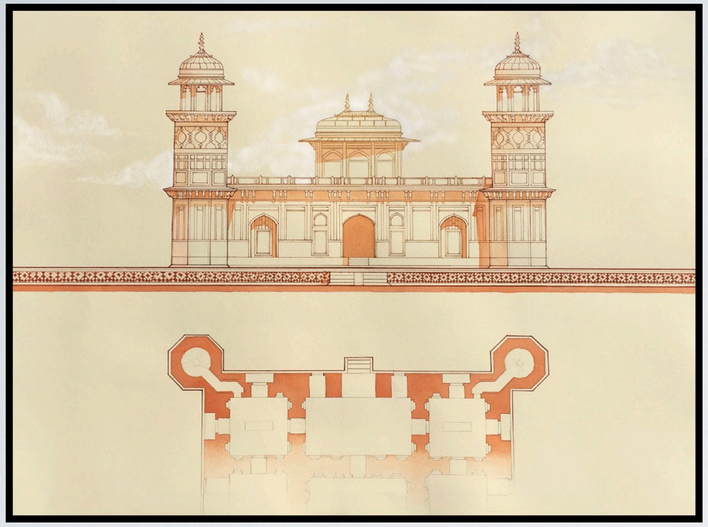
Design of modular 250-400 s.f. Tiny Houses: concept sketching, design, computer models, and physical models (1st Year BCS students)

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

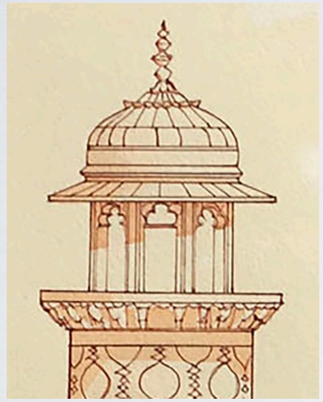
> The Fall (BCS 1116A) and Spring (BCS 1126B) studios for first-year BCS majors are integrally connected. One follows the other and the work continues. In the Fall students participate in a traditional lecture-test format interspersed with small projects that lead very quickly into the design and build of a modular *Tiny House*. If the class is large we build two Tiny Houses. The houses begin with lectures on measuring, drawing, surveying, foundations, concrete construction, wood, and steel. Students then build the first part of their houses - four modular concrete floor slabs for each house. As the slabs cure, we come back into the studio for an intensive module on architectural drawing, modeling, and lectures on design concepts and framing structures. > The class shifts into teams of two to design a modular house. After adding steel construction to the mix, a class-wide jury winnows down the design concepts to four for House #1 and House #2, respectively. The class now is reorganized into two large Teams and each Team creates a composite design from their four chosen designs. These final designs will be developed (detailed) using the Tiny House Codes of the IRC and shipping size parameters. > It's important for BCS students to understand how the design is generated and developed before we actually build it. Once we have our details in hand (in the form of Shop Drawings) we head back to the construction yard where the fun begins. We build the structural frames in light wood framing and welded steel. Each house's four modules are connected to the four slabs. Two upper modules for each house are fabricated in steel tube. Every module needs to be able to be moved around with a lull or a forklift, assembled and disassembled. Every module has to have a set of connection joints to each adjoining module. All connections must be accessible for disassembly and reassembly. By the end of the Fall semester we have our structures built and sheathed in Tyvec ready for the Spring and roofs, walls, and interiors.

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

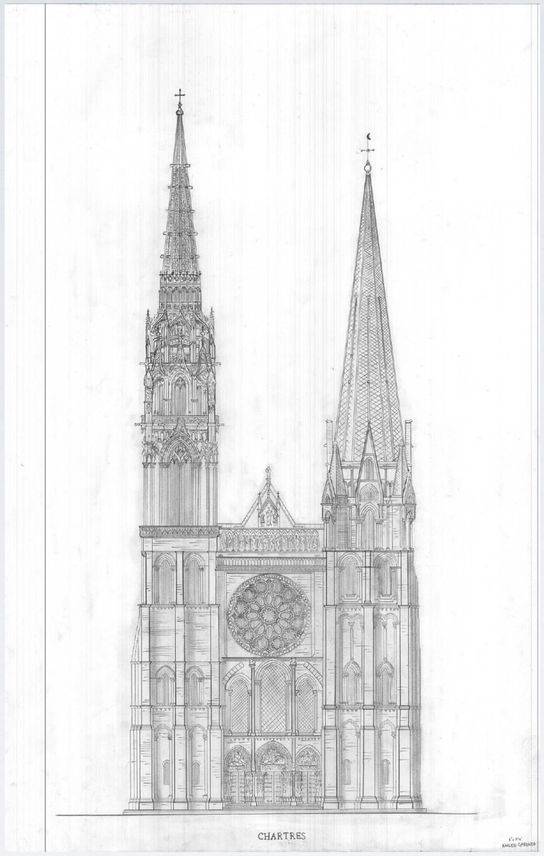
> End of Fall semester



I'timad-ud-Daulah



I'timad-ud-Daulah (detail)



Chartres Cathedral

Palazzo Chiericati

St. Peter's Basilica

St. Martin in the Fields

Architectural History II (our drawing exercise)

> In teaching Architectural History, I like to emphasize drawing, imagery, language, and publications. As part of my course I ask students to deeply investigate a building of their choice by drawing it in great detail. It's an excellent way to fully understand architecture as the program, the parti, the arrangement, the scale, and the details all become graphically evident in a careful drawing which can be a valuable portfolio contribution for the student.

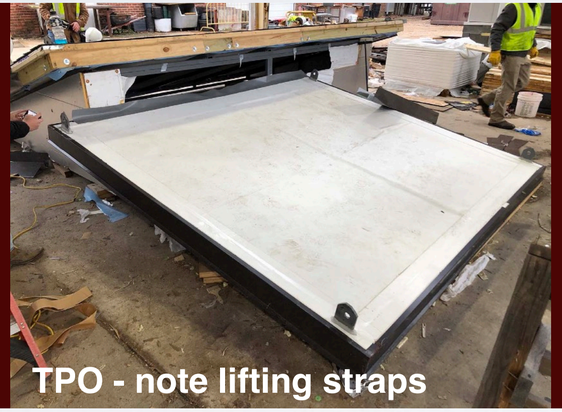

Asphalt shingle


Good drip-edge flashing

Standing seam

Head-wall & rake-edge flashing


EPDM w nice head-wall


TPO - note lifting straps

Standing seam above stair


Standing seam

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

> The Fall (BCS 1116A) and Spring (BCS 1126B) studios for first-year BCS majors are integrally connected. One follows the other and the work continues. In the Fall students participate in a traditional lecture-test format interspersed with small projects that lead very quickly into the design and build of a modular *Tiny House*. > When we came back for the Spring semester it was time for lectures on roofing and wall systems. Eventually we returned to our house projects. Students were asked to design and detail four roofing systems and four wall systems for each house. In general, it was thought that each module would become one of each type in some combination. In Spring 2021 our roof types were: standing seam panels, asphalt shingle, TPO, and EPDM. Our wall systems were: standing seam or steel shingle, Hardie Board, stucco, screw-down metal, and pre-cast concrete panels. All roof and wall systems were carefully designed and detailed to be properly flashed and we made all of our own flashing using the break machines. > Interiors were next. Students wired their houses for basic electric back to a 100 amp panel. Blown-in insulation and rough plumbing were donated by local contractors. Students drywalled the interiors and devised cover panels for the connection joints. Students designed and built railings for balconies and stairs.

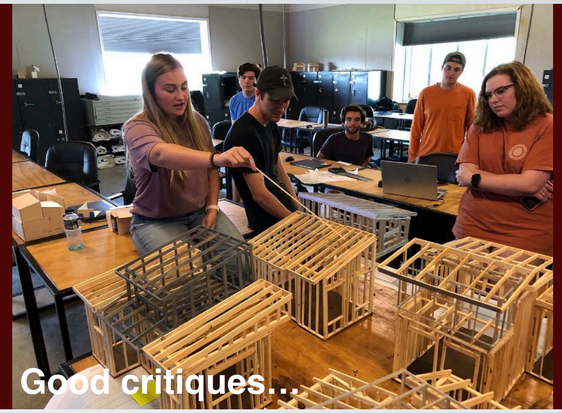
Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

> End of Spring semester


Preparing formwork


Pour day + hard-troweling

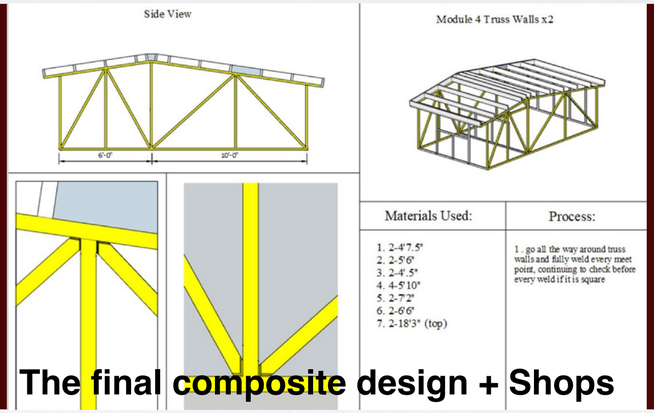

Back inside to design house


Good critiques…

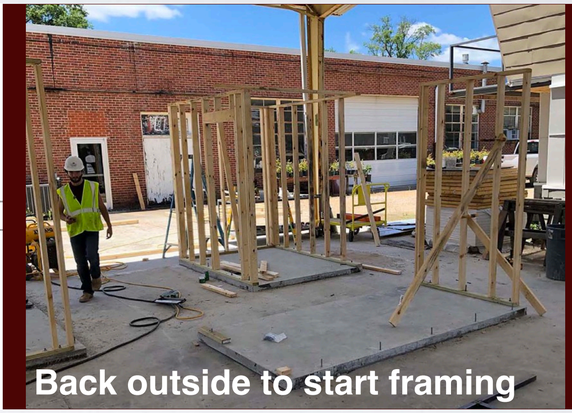
Design and Build of modular 250 s.f. Tiny House from initial design through construction (1st Year BCS students Summer Session)


Led to a better design


The final composite design



The final composite design + Shops


Back outside to start framing

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

> In the Summer Sessions, the course work is very intensive. Our studio meets from 8:00am - 5:00pm every day of the week. As a result, we move much quicker and our Tiny House (one house - sixteen students) is of slightly smaller scale and is completely designed and built between the start of June and the end of July - about 30 meeting days. BCS 1116A is in June and BCS 1126B is in July. Though the building goes much faster, we still have our requisite lectures and tests and projects designing and developing the Tiny House. A summer session house probably won't have a stair and a full second story, but it will have a ladder and a loft per Tiny House codes. Similar systems and procedures apply. The summer house had only three lower modules with concrete slabs and one upper module which in this case was a steel truss so we could gain space within the cantilever.


A jig screwed to concrete

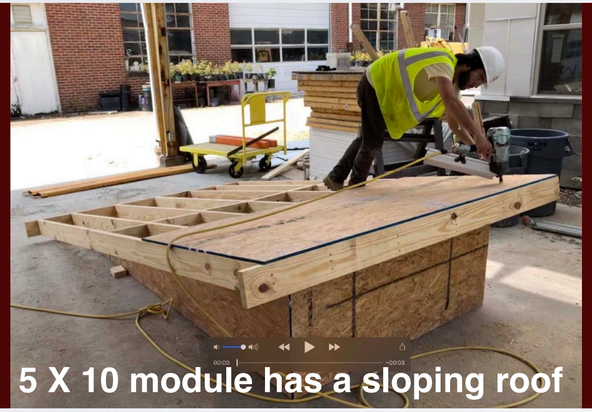

Steel cage w two trusses


6 X 8 module


10 X 10 module


5 X 10 module

Fitting two modules


5 X 10 module has a sloping roof

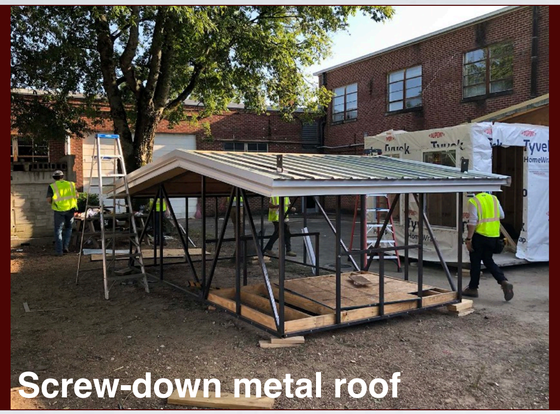

Steel cage is a 16 X 9 module


Cage on framing

End of first Summer Session

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)


Connections


Screw-down metal roof

Flashing on EPDM roof

Asphalt shingles at rear

Panelized Hardie Board

Roofing research, lectures, detailing, Shop Drawings were next, followed by our three roofs. Lectures, research, and detailing on wall systems followed roofing at which point we built the wall systems, again, with great consideration for proper flashing and connections of the modules.

Board-Batten w stucco base


Metal above
Concrete base panels below


Completion day

Design and Build of modular 250-400 s.f. Tiny Houses from initial design through construction (1st Year BCS students)

> End of Summer semesters