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# School of Architecture

Mississippi State University College of Architecture, Art, + Design



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# BARNWORKS

A Student Publication

Welcome to the 6th edition of BARNWORKS, a selected monograph of works produced, designed, and organized by our students . . . annually documenting the 24/7 studio-activities at the Mississippi State University School of Architecture (S|ARC) flagship program.

This edition marks a physical departure from the previous set of 5 volumes. This version places more emphasis on larger-scale and higher-quality documentation with minimal compositional distraction. Stripped down and focused on the artifacts.

The Giles Hall studio building (affectionately known as the Barn) has always been an intense, messy, and high energy-level environment. Originally purposed for: judging animals (in the 1920s), repairing vehicles for Agricultural Extension Services (in the1940s, 50s, and 60s), the Barn is currently serving as an amazing light-filled, brick armature for designing and making 'stuff' in the 21st century . . . where care, craft, intensity, and authenticity are its hallmarks.

Even though we were the first architecture program in the country to require student-owned laptops in the studio (1992 – Digital Nomads), S|ARC continues to consciously resist the abandonment of analog media; we are vitally committed to the physical and ecological realities of making. Often, a laptop can be seen alongside a circular saw or a charcoal sketch on a drawing board, emphasizing our School's understanding and commitment to the process and the duality of making artifacts in our analog+digital world.

S|ARC's reputation continues to be associated with applied research, with making, and a focused outreach into the state, addressing issues of Social Justice and Community Design and also to the dissemination of Collaborative Studio pedagogies with our sister program in Building Construction Science. The over-arching issues facing small towns and underserved populations of Mississippi are not limited to the confines of our research centers (Carl Small Town Center and the Gulf Coast Community Design Studio), they also inform and inspire the design studio pedagogies and student projects found in these pages. As a land grant institution, the MSU School of Architecture's primary mission remains focused on: teaching + service: which is integrally informed by research; in-turn, this triad directly translates into outreach to the state, the region, and the world. We provide a 5-Year professional B.Arch education that prepares students to think synthetically, act fearlessly, and understand practice as research . . . and, upon graduation, make a regenerative contribution to the world. The seriousness demonstrated by our students is unwavering; their honesty, their ruggedness, and inquisitive nature is relentless . . . it is this same work ethic and genuine craft often associated with the rural outlands of our region. Mississippi State University is a Carnegie Tier One (Very High Research Activity) Institution; it also holds the additional dual designation that few others have accomplished: Carnegie Community Engagement Institution.

In closing, I would like to personally thank the heroic efforts of the student editors of BARNWORKS (Ryan Fierro and Rachel Patronas) and their faculty advisors (Professors Zulaikha Ayub and Jeffery Roberson). A very special thanks also goes to the S|ARC Advisory Board for funding the publication and distribution.

Like the previous editions, this edition of BARNWORKS 14|15 is an abridged collection (an annual candid snap-shot) . . . presented again, without theme and (hopefully) without pretense. Enjoy!

Michael A. Berk AIA F.L. Crane Professor Director School of Architecture

#### Introduction

BARNWORKS



The brick barn studio is the iconic studio-space (and place) of our students, alums, and visitors. It is a fitting prefix to the students' work. To our school, the barn represents the joy, the energy, and the intensity of the study of architecture in Mississippi. A place where making had its academic roots before it permeated the academy. A place where pioneering digital nomads transformed the analog studio. It is work-place, village, and home filled with natural light during the day, emitting an electric glow at night. A beacon on campus.

#### Contents

BARNWORKS

- 8 First Year Fall Semester
- 14 First Year Spring Semester
- 26 Second Year Fall Semester
- 38 Second Year Spring Semester
- 48 Third Year Fall Semester
- 60 Third Year Spring Semester
- 68 Fourth Year Fall Semester
- 76 Fourth Year Spring Semester
- 86 Fifth Year Fall Semester
- 94 Fifth Year Spring Semester

- 112 History of Architecture II
- 114 History of Architecture III
- 118 Architectural Theory
- 120 Materials
- 122 Active Building Systems
- 124 Trashion Show
- 126 Independent Student Work
- 130 School of Architecture Appendix



#### 8 First Year Fall Semester

Composition Around a Void

Instructors: Andrew Tripp (coordinator) Erik Herman Jeffery Roberson Create a composition around a clear and distinct void. To do this, orthogonally intersect three planes on the X, Y, and Z axes, then subtract a single void that intersects all three planes. When you cut out a piece to create the void do not throw it away; instead, replace that piece somewhere on your composition so that it adds to the arrangement. Finally, intersect your composition with one larger plane. Your composition should be orthogonal and entirely aligned with a 3/16 x 3/16 inch grid, which you should draw on paper and mount to the planes. Furthermore, your composition should not extend beyond the boundaries of an imaginary 9 inch cube. Create three separate models showing three separate proposals. Develop one of these proposals into three more iterations.







Decide on your most successful composition, then on a sheet of 36 x 36 inch drawing paper draw the roof plan and the four elevations. Layout your drawing according to the handout. Draw these five views full-scale using zone line weights.

On another sheet of 36 x 36 inch drawing paper, arranged according to the same layout as before, draw a horizontal section and four vertical sections. Draw full-scale, with technical pencils, using zone line weights and solid black poche. Carefully and critically consider the location of the drawings within the page and relative to each other, i.e. consider the inherent logic of your design when locating the drawing within the boundary of the paper.

36" x 36" axonometric series

































Prem Patel Mitchel Hubbell Prem Patel

Rayce Belton Asher Paxton Patrick Greene

Emily Turner Laura Cole Prem Patel

Mitchell Hubbell Emily Turner Tahir Khan

9" x 9" x 9" basswood models



# 14 First Year Spring Semester

An Architecture of Several Orientations Pt. I

Instructors: Andrew Tripp (coordinator) Erik Herman Jeffery Roberson This project is about orientation. Orientation is both an instrumental (scientific) technique and a metaphoric (symbolic) condition. In either case, it refers to a fundamental premise of making spaces. The objective of this part of the project is to develop an ability to use the basic techniques of polar projection and solar orientation but also to develop an understanding of the role of metaphor in the design process. Part 1 will result in diagrams of the various macrocosmic orientations at a given place and time on earth. You will use these diagrams as a fundamental basis for the design project that follows. From a given place and time on earth (the precise location of your birth, in longitude and latitude to the degree, and time) locate at least the following celestial bodies using the azimuth and altitude to the degree:

	the sun
2.	the moon
3.	the sun-sign constellation
4.	the moon-sign constellation

Create a drawing that shows these bodies in their precise spatial relationships. Research everything about these celestial bodies and include all of your research on the drawing.



Consider that the alignment of these bodies is three-dimensional, but that a constellation is in fact a perspective view. Consider how you can compose different projective drawing techniques into a single drawing. Consider how you can represent the magnitudes of these bodies and how you might scale them relative to one another. Consider the differences between drawing the stars, the figurative shape of the constellation, and the astrological signs.

Consider the specific quantities and qualities of light and shadow. Consider how you can include your notes on the drawing. Consider if there are additional celestial bodies worth including. Consider the relationship between terrestrial and celestial horizons. Consider that the stars have been the basis of storytelling ever since our earliest beginnings. Consider the story your drawing narrates; its point of view, its characters, and even its plot. Consider keeping a list and naming everything that your drawing shows and organizing these things like a narrative. Consider the creation of a drawing that shows these bodies in their precise spatial and temporal relationships over the course of twenty-four hours.







An Architecture of Several Orientations Pt. II The objective of this part of the project is to develop an understanding of the actual and potential proportions of the human body. The goal is to derive a proportional system that will be used to relate the celestial to the terrestrial, or to bring the heavens down to earth. This will be done through bringing the macrocosmic diagrams into the realm of human spatiality.

Draw your body at full-scale in accordance with the coronal, medial, and transversal reference planes. Uncover an analogy of ratios—a proportion such that A:B as C:D. In other words, attempt to identify ratios existing between various parts of the body to each other and to the whole body.



Create a drawing of a specific body part at full-scale. Include its measurements and proportions in the coronal, medial, and transversal planes. Consider the body at rest and in motion.

Consider that the body in motion reveals many significant proportional relationships that are not necessarily revealed with the body at rest. Consider how both could appear in a single drawing.





An Architecture of Several Orientations Pt. III

Imagine that you have been commissioned to design a stargazer's retreat for you and another person (or persons). The retreat will consist of several significant spaces within your site. Close deliberations with your client have resulted in a number of other basic requirements, including that you must accommodate areas for cleansing, contemplating, nourishing, and sleeping. It was also decided that at least one of the significant spaces will be oriented to the sun (and/or sun-sign), and one oriented to the moon (and/or moon-sign). Furthermore, each of these will celebrate one of the four classical elements (earth, wind, water, fire), which are specifically associated with the constellations of the zodiac.







Fire is associated with Aires, Leo, and Sagittarius; Earth is associated with Taurus, Virgo, and Capricorn; Air is associated with Gemini, Libra, and Aquarius; and Water is associated with Cancer, Scorpio, Pisces. When considering these "elements" keep in mind how the different qualities of each might relate to the required areas above. In addition, you have been asked to give special attention to the passages and thresholds between spaces. You have been required to include a horizontal passage and a vertical passage; and you were also required to carefully consider the sequence of entry, passage, arrival and departure. Consider these questions: How does one enter the site? How is entry into the spaces defined? How is it celebrated? How does one move through and between the site and the spaces? At what point do spaces and passages interact? How does one exit the space and the site? How is exiting different from entering? Where does the exit lead?

































Danielle Castaneda Asher Paxton Annabelle Neville

Hannah Hebinck Marian Cancio Mitchell Hubbell

gesso-coated foam and chipboard model



### 26 Second Year Fall Semester

Lightning Shelters: Panelization

Instructors: Emily McGlohn (coordinator) Lee Carson (BCS) Hans Herrmann Tom Letham (BCS) The second-year fall semester was a collaborative studio between second-year architecture students (SARC) and second-year building construction science students (BCS). Over a four-month period students worked together to design cladding systems and build two lightning shelters on the Mississippi State University Golf Course.

During the first part of the semester students explored design, fabrication and installation of panelized cladding. Using either wood or concrete, each student designed and built full-scale mock-ups of their proposed cladding panels.

18" x 32" full-scale concrete panel mock-ups















27

Additional research was divided among students who were responsible for presenting and disseminating the information to their classmates.









Lightning Shelters: Construction

Beyond cladding and finishing, foundations, framing, and roofing were all covered in great detail. Students were encouraged to become active learners who could demonstrate a synthetic knowledge of the fundamentals of building design and construction.

Throughout the semester there was a particular emphasis on how architectural design and construction are both informed and propelled through an engagement with materials and construction. Students were asked to consider construction as an act of architectural design, and architectural design as an act of construction.





Though Mississippi State University's Golf Course was renovated and expanded to 18 holes in 1985, no permanent restrooms have ever been available on the course during a round of golf. In these 30 years, no protection from rain or sun has been available. Two new shelters at the University Golf Course, complete with men's and women's ADA accessible accommodations and cart parking spaces, now rest on holes four and twelve.



Started and completed during the fall of 2014, 49 second year architecture and construction science students designed the cladding systems and built the shelters in four months.

Students from both disciplines participate in two mandatory, six credit hour collaborative studios during their academic career. This design/build studio is the first studio in the sequence.

Students designed specialized cladding systems for the restroom pod. Each system is designed for durability and ease of maintenance. All contributing students for both shelters listed on following spread.



Charles Barlow Ebony Batchelor Diondria Bingham Matt Bowen (BCS) Quincy Brown Ashtyn Bryant Elizabeth Bueche Sarah Buice Davis Byrd (BCS) Josue Carrion Jarred Creel Will Daniels (BCS) Maria Degtyareva Hunter Frierson (BCS) De'Andre Gaskin Danielle Griffin Kimball Hansard Aaliyah Hawkins Zachary Henry Austin Hubbard Savannah Ingram Andrea Jankowski Rudy Lazarus (BCS) Taylor McKinney Owen McVitty (BCS) Nathan Miley



Greg Moore (BCS) Cory Moxley Joshua Overstreet Sara Peppers Omkar Prabhu Abbie Raper Curtis Reed D'Shari Richardson LeAndra Santos Austin Schnitzlein William Shoemaker Claire Sims

lan Smart Angel Thompson Mark Varnado (BCS) Nick Vezinaw Lara Lynn Waddell Tanner Wallace (BCS) Rob Warlick Kirkland Webber Ben Webster Gerald Wicks Ashley Wyatt 35

elevation of concrete shelter material details


























## 38 Second Year Spring Semester

Platonic Solids

Instructors: Justin Taylor (coordinator) Zulaikha Ayub Laura Smith Taylor The second semester of second year began with a rigorous drawing and modeling exercise of platonic solids. Having to negotiate between ideal mathematical forms and the imperfect nature of physical twoand three-dimensional construction was equally an exercise in craft and precision as it was in developing a critical disposition towards representation. Each solid was described orthographically through sections, elevations and axonometric, and in the spirit of Euclidean drawing propositions, were constructed using only a compass and straight-edge.

Danielle Griffin Rob Warlick Maria Degtyareva

exploded platonic solid studies











Research Pavillions: Noxubee Refuge, MS

The second project spanned the rest of the semester, beginning with a class-wide site analysis of the Noxubee Refuge. Students examined the various phenomena and morphology present therein, including the calculation of climate, soil type, species of flora and fauna, micro-ecologies and hydrological systems.

Armed with this information, students were then tasked with the design of a single living and research space that would house a particular scientist (i.e. ornithologist, hydrologist, entomologist, etc.) engaged in direct observation at the refuge.







The following provisions were to be provided for: Rest, Cleansing, Nourishment and Study. Projects were concentrated around an existing spillway and radial gate structure that was built to mitigate the changing water levels of Bluff Lake.

This significant man-made infrastructure provided a means of relating or situating the proposal to an existing composition establishing a particular language of tectonic, proportion and repetition.







































Ben Webster Danielle Griffin Claire Sims

Jarred Creel Charles Barlow Maria Degtyareva

mixed-media platonic solid models



## Third Year Fall Semester

Multi-Family Housing: Chicago, IL

Instructors: Justin Taylor (coordinator) Zulaikha Ayub The central concern of the first semester of third year was housing—particularly in an urban context. Beginning first with a short exercise on the making and expression of a facade as the primary driver of an architectural idea in a city, students had to eventually design a multi-family apartment situated upon a narrow lot adjacent to the 'L' in Chicago's Lincoln Park neighborhood. After an extensive site analysis examining demography, transportation, zoning, climate, and architectural contexts and precedents, each student was responsible for the myriad of requirements involved in successful residential design—space planning, threshold, engagement with the city, integration of building systems, planimetric and sectional composition, etc.









Each building contained a range of unit types—studios, 1- and 2-bedrooms, and penthouse, and had to negotiate its relation to the complex network of urban development and infrastructure surrounding it. Projects were also required to abide by fire code, FAR, height, ADA and egress requirements as dictated by local laws.



















0		L			



Rachel Patronas building plins building elevatori









Kapish Cheema building years building elevators

































Zac White Rachel Patronas Nathan Thomas

Anna Barr Kapish Cheema Ria Bennett

Caleb Fearing Zach Busman Ryan Fierro

Garrett Yelverton Ashton Aime Walt Carter

1/32" : 1' - 0" building models



## 60 Third Year Spring Semester

Fire Station: Starkville, MS

Instructors: Emily McGlohn (coordinator) Alexis Gregory Tom Letham (BCS) This semester marks the final portion of the collaborative studio series and will develop the skills necessary for a final project proposal. Building on the knowledge and understanding developed in previous semesters, each team will bring their structure and form together in an optimized final design, cost estimate, schedule, and constructibility analysis. The design and constructibility information produced at this stage relative to your material choices should be informed by what was learned during the reviews of the work done previously in the semester. It is expected all teams will have fully developed arguments supporting their material choices for the form and structure.

Walt Carter Ben Marshall Will Sparks (BCS)

rendered perspective



At the final stage of the project the majority of work should be produced through Building Information Modeling software. The models will serve to further develop the team projects while reinforcing collaboration through the use of technology. Due to the complexity of this assignment, the final products will be broken up into multiple parts consisting of project developments, complete building design, structural design, and a 1°-1° detail mockup This proposal is a collaborative venture. Each team should develop a proposal/ presentation addressing how they intend to meet the requirements of the client while providing the best value. All team members must understand and be able to speak competently to any aspect of their proposal.

building plan building section building simution assumbly distal section





Brent Gaude (BCS) Rachel Patronas Bradlord Treviño

building plan building elevation



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Anna Barr Connor Goodson (BCS) Kirby Lockard

building plan building elevation rendered perspective



Ryan Fierro Rashidat Morroh Garrett Yelverton Robby Keller (BCS)

exploded structurel avonometrics 1/10" - 1" - 0" structurel diagram models".

























SLENDERWALL CORNER DETAIL 3° = 1'





Ashton Aime Ria Bennett Jackson Parker (BCS)

Ryan Fierro Robby Keifer (BCS) Rashidat Momoh Garrett Yelverton

Kapish Cheema CJ Grish (BCS) Spencer Powell

Connor Ansley Aaron Ellzey Blake Jierski (BCS)

Samantha Goodwin Jarred Robinson Tim Sullivan (BCS)

Michael Carraway (BCS) Luke Marshall Zac White

Brent Gaude (BCS) Rachel Patronas Bradford Treviño

Walt Carter Ben Marshall Will Sparks (BCS)

Zach Busman Brandon Fairbanks Evan Fuller (BCS) Lucas Posey

Web Emerson (BCS) Yerix Morel Nathan Thomas

Caleb Fearing Kavid Kett Kyle Alford (BCS)

John Ford (BCS) Edward Holmes Joshua Johnson





## 68 Fourth Year Fall Semester

Ivywild Symbiosis Brewery: Starkville, MS

Instructor: Alexis Gregory Students were asked to design a mixeduse building based on the "lvywild" principles of symbiosis between functional, environmental, and community pressures. The project was funded by Build lvywild's James Fennell, AIA and Keith Findley, both MSU alumni. The program included a local microbrewery for Sweetgum Brewing, and a local bakery for DeRego's Bread. Additional programmatic elements included community gardens and spaces. Students were also encouraged to propose any additional program that they felt were needed to enhance community symbiosis.







Wastewater from the brewery is used by the community garden, and spent grain from the brewing process is used by both the bakery and community garden.

Community symbiosis is being achieved by sharing the products from the building with the community, as well as through educating the community on the functional symbiosis in the building. Functional symbiosis is being achieved by the sharing of building waste to prevent it from being placed into landfills. 69

Devin Carr building plan wooden site model conceptual diagram



CAAD Connector: Mississippi State, MS

Instructor: Jacob Gines The facilities of the College must reinforce and provide a positive and forceful environment that promotes the vision of the College. This connector building between The School of Architecture (Giles Hall) and Howell is the next critical step in the creation of a "design and construction complex" for the College of Architecture, Art, +Design (CAAD). Art, design, and construction connect humaniond to the world and to each other. This College has enormous potential and responsibility to advance art, design, and building, especially because it represents the only such academic unit in the State of Mississippi, and one of the few in the nation.





The College of Architecture, Art, and Design has become a significant resource for the University and the regional community. In a college that concentrates on the process of making, all four units have benefited from combined resources, synergistic research, and cross- discipline projects. The mission of the College of Architecture, Art, and Design is to promote and engage students and faculty in the following: conceptualization, craft, media & technology, history & theory, aesthetics, and ethical issues associated with making artifacts in the world.

The development of fundamental skills as the basis for further experimentation enables students to form individual philosophies that uphold the highest standards of architecture, art, design, and construction.






























Kevin Flores Ryan Mura Aryn Phillips

Stefan Balcer Sang Nguyen Carter Brown

rendered perspectives



# 76 Fourth Year Spring Semester

Public Library: Copenhagen, Denmark

Instructors: Jacob Gines Hans Herrmann The library – a place where knowledge is collected, curated and disseminated - is one of the oldest and most distinguished of building types. Ancient civilizations around the world painstakingly recorded and stored information on stone tablets, papyrus scrolls and animal skins. These collections of information were managed by the privileged and powerful – emperors, kings, generals, priests and scholars.

The library continues to evolve and embrace new forms of mass communication, which are reshaping our world. Like the building type, the book itself has changed dramatically – from treasured work of art to virtual electronic formats. In addition, libraries collect music, film and other audiovisual media. In addition to physical media, libraries have digital access to collections worldwide.



Since the turn of the century, Copenhagen has seen strong urban and cultural development, facilitated by investment in its institutions and infrastructure. Located in the historic center city on the waterfront, the library was the only project undertaken this term. The term was broken into ten distinct project development activities that, in many cases, relied upon students receiving specific consultation from faculty experts. The term was designed to test the students abilities to generate a system for decision making while verifying their ability to synthesis numerous design parameters within a regimented schedule. Schematic design was held to a brief period in order to press students toward a highly developed and detailed architectural solution that embodies the spirit of the fourth year comprehensive studio.













































Cody Smith Patrick Brown Ryan Bridges

Erica Cox Haley Whiteman Carter Brown

1/16" : 1' - 0" site models



## 86 Fifth Year Fall Semester

Light Reflectors

Instructors: Jassen Callender (coordinator) Mark Vaughan The penultimate studio in our five-year sequence introduces students to the problems and potentialities of mid-size cities and focuses on the role of architects in maximizing the latter. To best effect this outcome, the semester is typically divided into three interrelated projects, each addressing the relationship of city to inhabitant at a different scale. At the level of direct engagement, students are asked to produce artifacts that study physical realities of light, color, texture etc. In these pages you will see full scale sheet metal light reflectors and half-scale, 100 hour surface renderings made with three color pencils as evidence.





At the formal or conceptual level, students spend time mapping a portion of the city and developing a manifesto for its future growth. These lead to, literally, fantastic master plans for Jackson 2100. In the final five weeks of the semester, we ask the students to synthesize the two scales – direct engagement and conceptual planning – by designing one building within the master plan. Students are encouraged to pay considerable attention to the building's interface with the public: its form, its skin, the threshold, and the lobby. These building proposals, though never complete, set the stage for the spring semester Independent Projects.



100 Hour Surface Renderings







Jackson 2100

Brooke Dorman Melincta Ingram Rusty McInnia John-Taylor Shatthauser Larry Travia

proposal plan proposal sectors VVIII - 11 - C proposal model



























Tyler Baumann Michael Varhalla Rusty McInnis John Taylor Shaffhauser

colored pencil surface rendering details sheet metal light reflectors



# 94 Fifth Year Spring Semester

Independent Project: Jackson, MS

Instructors: Jassen Callendar (coordinator) Mark Vaughan The final studio of our five-year sequence is unique. It is not narrowly focused on a particular technical or experiential problem assigned by the faculty nor is it intended as a "summary" of all of that the students have learned in their academic career.

In this final studio, each student undertakes the project described in an architectural program prepared by the student in the preceding semester – one that is driven by his or her own interests while addressing a host of fundamental disciplinary concerns.



Students are required to develop that project to a level that demonstrates: a) an ability to grasp and incorporate multiple ideas and requirements into a single or multiple physical entities; b) an ability to resolve conflicting design issues in a manner that demonstrates a grasp of fundamental architectural principles that evidences

the student's fitness to enter professional internship including integration of enclosure, structural, and mechanical systems; c) an understanding of the life safety and health related responsibilities of design for the public domain and built environment; and d) an appreciation for problems and potentialities of mid-size cities. In many of the best Independent Projects a synthesis emerges. The technical and the aspirational converge to create new design approaches. Though these ideas often emerge late in the process, it is our hope that these new approaches serve as an imaginative launching point to the young professionals career.





To what extent can exterior wall systems form sustainable, symbiotic relationships with the local ecology and environment that ultimately edify both physiological and qualitative performance over time?

The research following this question is inclusive of six parameters of analysis, defining the scope of measure, comparison, and design of exterior wall systems. Quantitative enalysis includes study of economy, energy, and ecology, while qualitative analysis includes study of longevity, beauty, and meaning.

96

#### Biodynamic Wall Systems

Student: John Taylor Shaffhauser



Together, these six parameters of measure form a holistic "genome sequence" of which to measure the sustainability of a wall system or specific material, able to reveal hidden relationships between objective and subjective means of measure that ultimately compose the performance of walls. Through the study and revelation of these relationships within typical wall systems used within the Southeastern United States, both a standard of measure and understanding of how exterior wall systems perform can be used to design new wall typologies that embrace environmental symbiosis as a means of self-edification.





Greater Heights Youth Center

Student: Larry Travis

Communities are shaped and defined over time through generations. Although communities each have their own distinctive characteristics, a common entity that they all share is their youth. The design of Greater Heights Youth and Urban Development Center will help foster a sense of place, while renewing a vision of hope for the public. By investing in the academic, physical, and emotional development of children and teens in Jackson, the Center will revitalize the community by aiding youths in discovering their full potential through opportunities that require the participation of kids, parents, and the community itself in order to be successful.







A common issue with other youth facilities is how structured the events are that are offered. The youth of our city need a space where they can spend their time leisurely and not be forced to participate in activities. Aiming to stimulate change through the empowerment of youths, the program will focus on enriching the minds, bodies, and overall wellness of teens throughout the community.



# Metropolitan Point

Student: Brooka Dorman

The project seeks to formulate a set of architectural responses for the integration of long-term care facilities within metropolitan communities and their applications in future development, a largely neglected area of urban and architectural design. I aim to question the regional culture of aging and the reciprocated architectural responses cities cultivate for the dramatic increase in aging persona, 60 years and older. As the global elderly population expands to 2 billion by 2050, institutions of elderly housing will become a recognizable component of the urban landscape. The question of how designers ex-cogitate adaptive housing solutions for the aged represents a growing concern for the architectural profession, as 70% of all people will need some type of assistance in daily activities before dying, exceeding current industry and economic capacity.







Ideally located properties within urban settings marge relationships between aging persons and residents of the greater community, as the assisted living center. The Humanitis in the Netherlands achieves by renting rooms to both university students and elderly residents alike on account of its striking presence within the city. Projects across high population areas like Shanghai, a city looking at an 8 million a year increase in elderly growth alone, possess insufficient market capabilities to formulate the necessary architecture for current demand leaving millions in need of affordable and accessible long-term care. Surfacing innovative architectural responses within countries with little investment in elderly infrastructure means, commanding a necessary dialogue about how designers can adapt architectural solutions to the complex programmatic/ cultural demands of the design of metropolitan long-term-care facilities.



## Urban Portal

Student: Clay Cottingham

Located on axis with Court Street and on the edge of Jackson's natural boundary, the building maintains a strong visual connection to both urban and natural context. A public space is carved by the U-shaped form of the building catching the terminus of Court Street. Market programs open up onto the plaza, from which emerges a ramp condition that draws the pedestrian east up through to a vista of Jackson's natural boundary, the Pearl River Valley. The opening forms an urban dog-run that shelters a series of ramp terraces which look west through the city.







The building has several public levels of terraces and balconies that are flanked by retail, markets, and places to eat. Two towers of residential apartments float over the lower public areas, and a large area of commercial offices connects the two wings at the east end of the site. The building is clad in copper and limestone, with curtain wall glazing and concrete structure. The materials selected were chosen for their particular properties with respect to time. The building is designed to be a testament to Jackson in the year 2100.















#### Democratic Spaces

Student: Jared Barnett

American City Halls were built with out the knowledge of perhaps the greatest democratic space, the Pnyx in Athens. This is because James Stewart mislabeled his illustration of the space in the Antiquity of Athens due to the sites' ruinous condition. It was not until the turn of the twentieth century that archaeologists were able to identify the site as the Pnyx, Ancient Athens' democratic assembly space. The primary pattern book of the neoclassical has therefor misinformed generations of city hall designers, citing Stewarts' Pnyx illustrations as a "The Odium of Regilla ', a theater for drama. The Pnyx looks different than any democratic assembly space in America.

It is open with a strong visual connection back to the Agora, the city center. Such an urban condition allowed the democratic process to be on display to the rest of the city, representing the openness and accessibility of self governance. The ideas of the Pnyx should be brought into our contemporary democratic urban conditions. We must look back to look forward while noting that our democracy is not direct like the ancient Athenian Democracy.

Stuart, James, and Nicholas Revett's. "Of the Odeum of Regilla." The Antiquities of Athens. Vol. Three. Princeton, NJ: Princeton Architectural Press, 1762. Print.



The majority of American democratic spaces were conceived with strict adherence to the neoclassical style, especially the Greek and Roman revival styles. These architectural identities represent their own authoritarian societies yet we use them as our own in a our democratic society. The Greek and Roman temples that our City Halls resemble were stoic, opaque, and exclusive. A Democratic Space is therefore one that is light, transparent, and inclusive. This thesis aims to listen closely to Plato's critique on democracy: "Democracy is a charming form of government, full of variety and disorder, and dispensing a sort of equality to equals and unequals alike" (Plato 417). I understand this quote to identify the two main virtues of a democracy: general accessibility to the governing process and to knowledge for a well informed process. This project seeks to embody these two virtues in an architecture form through the design of a Municipal Archive, Council Chamber, and a Municipal Square for the City of Jackson, MS.

Plato. Republic. Cambridge, MA: Harvard University Press, 2013.






























Clay Cottingham Jared Barnett Rusty McInnis Larry Travis

rendered perspectives



# 112 History of Architecture II ARC 3313

Analytical Sketching

Instructor: Andrew Tripp This course is a survey of the major developments in architecture and city planning from the 14th through the 19th centuries in a global context. More fundamentally, this course is about describing and interpreting architecture as it exists with/in time. Consequently, this course has two objectives: the first is to exercise your ability to see and communicate what you see; and the second is to develop your ability to analyze and make critical judgments based on your study of historical context.





For this class you will be asked to draw the plans, elevations, sections, and/or three dimensional views (axonometric or perspective) for a number of significant buildings. Which buildings and drawings to complete are listed on the reading schedule below each quiz. Each of these drawings will be on 8 ½" x 11" paper that you will carefully and systematically organize into a 3-ring binder notebook. You will hand in this notebook at mid-semester and at the final, and it will be graded based on the completeness, accuracy, and organization of the drawings.

All of your class and reading notes should also be included in this binder. This means that during class and while you read you should be carefully drawing every example; some buildings will require additional research to find accurate drawings.



# 114 History of Architecture III ARC 3323

Formal Analysis

Instructor: Zulaikha Ayub This semester-long project was the study and formal analysis of a famous modernist precedents. Using Peter Eisenman's seminal work, The Formal Analysis of Modern Architecture, students were first tasked with carefully reconstructing their precedent through drawing and modeling. To resist simply retracing drawings as they appeared in other publications, students were disallowed from using a traditional architect's scale, and limited to a straight edge and compass. As such, they were to rather establish the dimensions of their project through a study of proportion and geometry. All drawings drafted at  $\frac{1}{2}$ ": 1'-0"

Brandon Fairbanks Spencer Powell Jared Robinson

Texas House IV John Hejduk





Kimball Hansard Zachary Henry Savannah Ingram

Steiner House Adolf Loos





### 118 Architectural Theory ARC 4313

Topical Response Paper

Instructor: Jeffery Roberson This course will introduce the student to the history of Western philosophy's ways of thinking about questions of reality, knowledge, truth, beauty, etc. and how such ideas have shaped architecture from classical Greece to the present. Some philosophical questions about architecture that will be raised throughout the course are: What is architecture? Does architecture differ from building? Must architecture be beautiful? Is architecture universal, or independent of culture? Are there standards of judgment for architecture, or is it only a matter of taste? Can architecture be true? How is architecture interpreted? Is architecture merely subjective? How does architecture relate to history, culture, politics, religion, and technology?

#### "Architectural Relativity - Opposition"

Human history has been shaped by the desire to understand and quantify the unknown. As scientific and natural knowledge have developed, man has begun to rethink his conception of the driving forces of the universe. Frequently over the course of human history man has brought some element or concept to a center about which each element of the universe revolves.

Einstein's theory of relativity was surely shocking to a world whose culture and technology were already shifting without warning. Relativity demanded no central reference point for the universe, instead making each object – each atom, even – have its own specific reference point. While the space-time implications of general and special relativity are rooted in gravity, speed, and time, an approximate concept of the theory boils down to references. Culturally and architecturally, the theory is an easily replicated one. Centralized and idealized geometric relationships and proportions succumbed to self-referential architecture and design.

The architecture and graphic design of the De Stijl are most fully invested in the new theory of relativism. With horizontal and vertical members slipping past each other, motion is implied throughout the composition. Each of the members has their own respective plane to move through, allowing them all to be defined not by their position in space, but by the relative motion to those elements that surround it. The velocities of the individual members or elements are less significant to the spatial composition, but the spatial and formal opposition between said elements carried great weight within the two- and three-dimensional spaces organized by the artists and architects of the movement.

Opposition in physics – whether theoretical or concrete – is of particular relevance. Newton described reactions as equal and opposite; as forces acting inversely on each other. Newton's laws were empirically proven and measurably universal in the natural world, but perhaps did not paint the whole picture of inter-relationships of bodies in the universe. Einstein's proposal of relativity is centered on physical interactions with respect to different reference points. After Einstein, even, quantum mechanics explored relationships of polar repulsion and strong forces within the atomic structure, challenging opposition at a microcosmic level.

Modernism exists because of and through opposition. Opposing compositions on a Cartesian grid – Mies; opposition to classical elements – Le Corbusier; opposing offset tartan grids – Eisenman. The very nature of modernism was opposition of the practice of architecture to both their contemporaries and classical formulation of architecture. Relativism in design manifests in both individual members of a specific piece of architecture and the larger operation of their designers. The Bauhaus existed as an opposition to Beaux Arts pedagogy on the most fundamental level. Without relativism and the resulting philosophies, perhaps modernism – and the even more decentered postmodernism – would not have reached their realized form.



### 120 Materials ARC 2713

Digitally Fabricated Japanese Joinery

Jacob Gines

This course aims to orient young architecture students to architectural thinking strictly through the knowledge of inherent material characteristics. Understanding material properties through physical manipulation is the driving force of this project. First, the students are instructed to construct a Japanese wood joint using only manual woodworking tools: a chisel, a mallet, a knife. Then, they are told to rework that joint into a form that lends itself to digital fabrication, either through a laser engraving machine, CNC router, or 3D Printer. Learning how the wood will behave when formed by hand versus how it behaves when machined cements the students' fundamental comprehension of the innate properties of the material, knowledge invaluable to the practice of architecture.





# 122 Active Building Systems ARC 3723

The Power of Light

Instructor: Emily McGlohn Active Building Systems concentrates on defining the active techniques available to architects and constructors for integrating thermal comfort, energy efficiency, and life safety into the built form. Students gain basic understanding of mechanical (HVAC) and plumbing systems, thermal comfort, indoor air quality, fire protection systems, and are able to make informed judgments regarding the appropriateness and performance of these systems as they relate to design. Students also gain an awareness of lighting, power, acoustics, vertical transportation, communication, and security systems.



Your task is to create and build an electrified object to accomplish a specific lighting task. This object must be first and foremost functional. Design in terms of its true definition is your main concern. This is not a typical architectural design project - where form and beauty are emphasized over function and utility. Beauty will come as a result of performance and material craft. This phototropic object must incorporate the following elements: concrete base, structural wood elements, envelope components of any material, electric parts (UL approved lamp kit), and connectors as necessary. These parts must not weigh over 35 lbs. This object must be designed to sit on a table.





National Organization for Minority Architecture Students (N.O.M.A.S.) NOMAS, the National Organization of Minority Architecture Students, works to supplement the design culture at the School of Architecture by providing a series of non-conventional design opportunities. In the fall, Architecture students involved in the Trashion Show produce an array of clothing items made completely from "trash" or repurposed materials.

MC

Students also design the set and a ceiling installation. The MSU Fashion Board works in conjunction with NOMAS by providing models and to help organize the show.

All photos with watermark taken by Blake McCullum www.blakemc.com















# 126 Extra-Curricular Student Work

Independent Design Projects

Jared Barnett

Faculty Advisor Jeffery Roberson

World War I Memorial Competition: Washington, DC

# # # # # # #









David Kett

Faculty Advisor Jeffery Roberson

Astronomy Center Redsand: Thames Estuary, UK



Independent Research Projects

Ria Bennett Cody Smith Bill Plott

Faculty Advisor Emily McGlohn

"The Leaky American Dream" Digital Print 32" x 40"



Ryan Fierro

Faculty Advisor Jacob Gines

"Mapping the Regional Landscape of Building Materials" Digital Print 22" x 40"

# School of Architecture Appendix

BARNWORKS

- 132 School History
- 134 Advisory Board
- 135 Students
- 136 Faculty + Staff138 Editors' Letters

The School of Architecture (S|ARC) has evolved from a creative idea into a thriving, energetic program currently housed in modernist facilities that have received state and regional design awards. The School of Architecture, established in 1973 by the Board of Trustees of the Institutions of Higher Learning (IHL), offers the only professional degree in architecture in the state of Mississippi. After an advisory council consisting of state architects urged the three senior universities to submit proposals, the IHL Board designated Mississippi State University (a land grant institution) as the location for the new program. At the suggestion of the Mississippi Chapter of the American Institute of Architects (AIA) under the leadership of Robert Harrison, FAIA, a team of architects was appointed by the National AIA to visit MSU. This important action helped the University better understand the unique requirements of a professional degree program in architecture. It was largely due to this committee's report that MSU created the School of Architecture as an autonomous academic unit.

When the first group of architecture students entered the University in 1973, advising was provided by the College of Engineering. William G. McMinn, FAIA was named first Dean of the School of Architecture (S|ARC) and was charged with assembling a faculty. Initially, it consisted of borrowed classrooms and a few adventurous students and faculty members. In 1977, studio space was relocated from a renovated dormitory to a building originally designed as a livestock- judging pavilion (the BARN) and later used as a motor pool. Legislative approval in 1981 of \$4.9 million for construction and furnishings resulted in an award- winning addition to the previously mentioned BARN building conversion. Dedication of the new facility took place during May 1983 with the national presidents of AIA, ACSA, NCARB, and NAAB participating. This event culminated the School's first ten years of growth from initial idea to full development and national recognition.

Having been participants on the original advisory council, Mississippi architects continue to be extremely supportive of, and intimately involved with, the School's programs. Their participation in juries, reviews, and thesis preparation continues to benefit the consistently high caliber of both faculty and students. The visiting lecturer series and field trips, in addition to co-op and exchange programs, are considered fundamental to the School's mission and necessary given the School's somewhat isolated location. Following development of the undergraduate program and an initial five-year accreditation, the School expanded its activities through the establishment of the Center for Small Town Research (one of the first community design studios in the country - later renamed the Carl Small Town Center). This outreach component of the School of Architecture continues to focus local, regional, and national attention on problems and opportunities for small-town design. In 1996, the School established the Jackson Community Design Center, located at 509 E. Capitol Street, home of the Stuart C. Irby Studios and the Fifth-Year Program. This facility is a three-story award-winning complex in the historic part of downtown Jackson adjacent to the Old Capitol Building and Governor's Mansion. In the aftermath of Hurricane Katrina, the Gulf Coast Community Design Studio is housed in Biloxi, MS.

Following Dean McMinn's departure in 1984, James F. Barker, FAIA became dean. In 1986, Dean Barker departed to become president of Clemson University and was succeeded by John M. McRae, FAIA, who vacated his department chair at the University of Florida to become dean and was responsible for guiding S|ARC's development through its second decade. Upon his retirement in 2001, James L. West, AIA, became the School's fourth dean.

In the mid 1990's, the School was recognized nationally (in the Carnegie Boyer Report) for its pioneering pedagogical leadership in integrating computers directly into the design studio; its commitment to the innovative use of digital/analog technology continues to mature. In 1995, the School established a Master of Science degree in Architecture (under the leadership of Professor Charles Calvo) and established an advanced research and teaching laboratory for high-performance computing. As a result, the Design Research and Informatics Lab (DRIL) not only serves the undergraduate and graduate programs but also supports college, community, and university related research activities using digital media and the web.

In 2004, a new College of Architecture, Art, and Design (CAAD) was formed by the Provost with the idea of bringing all the design and fine art disciplines on campus under one umbrella and one dean; this college currently houses the School of Architecture, the Department of Art, the Interior Design Program, and the newly created Building Construction Science Program. These collateral

132 History

School of Architecture Mississippi State University units offer many new and exciting possibilities for the enrichment of S|ARC and its programs. With this new organizational structure, the School of Architecture (with full faculty support) had its first interim director appointed, senior faculty member David Lewis, PhD. After a lengthy national search in 2006, Caleb Crawford, AIA, (from Pratt Institute) was hired. In 2009, senior faculty member and F.L. Crane Professor Michael Berk, AIA, was appointed the director.

Over the years, S|ARC's focus has been applauded in numerous publications: Architecture (the journal of the American Institute of Architects in the 90s), Newsweek on Campus, Architectural Record, Architect, and The Boyer Report, to name a few. Its graduates have thrived in graduate programs at Harvard, Yale, Columbia, Rice, RISD, Washington University, Virginia, Virginia Tech, and Cambridge University in England, as well as in leading international design firms such as: HKS, TVS, SOM, Gensler, RTKL, Herzog & De Meuron, Foreign Office Architects, and Perkins & Will, to also name a few. Statistics derived from records of the National Council of Architectural Registration Board show that S|ARC alumni continuously score higher on their board exams than the national average for candidates seeking registration as professional architects.

A few additional noteworthy accomplishments include the following: in 2003, the School of Architecture received its largest ever gift -- a \$2.5 million endowment to the Small Town Center by Fred Carl of the Viking Range Corporation; in 2005, the School received its first endowed professorship -- the F.L. 'Johnny' Crane Professorship in Architecture; in 2007, the school received its first facility endowment (from the Bob and Kathy Luke) to rename the Giles Hall Library; in 2009, the School received the Robert and Freda Harrison Endowed Visiting Lecture Series; in 2010, the School also received an endowment (from the Harrisons) to name the SJARC Giles Auditorium; and in 2011, Professor David Perkes, Director of the Gulf Coast Community Design Studio, was awarded the most prestigious 'AIA Latrobe Prize' (\$100k) from the AIA College of Fellows and was also named a 'Champion of Change' by the White House.

S|ARC continues to make its mark. Recently, the School was prominently featured in two of the leading architectural professional journals of North America. The December 2009 Education issue of

Architect magazine identified our School as one of three programs leading the nation in the area of Community Design; we were also identified as one of six schools leading the nation in the area of Social Justice in the built environment. The October 2008 issue of Architectural Record featured the Gulf Coast Community Design Studio (our research center in Biloxi, MS) on the cover along with an in-depth multi-page article and images of their work.

The MSU School of Architecture offers the only NAAB accredited professional architecture degree in Mississippi. We have approximately 225 students with a student-to-faculty ratio of about 15:1. All of our students receive a dedicated 24/7-studio workstation space in the architecture building (Giles Hall). These studios are the center of all teaching, activity, culture, and life in our School. The School hosts a Visiting Lecture Series bringing in nationally and internationally recognized architects, artists, and philosophers. The student organizations regularly host Friday Forum weekly lectures, Movie Night Film Series, NOMAS Symposium, and other major events (like the annual Beaux Arts Ball). These events help shape the School and our place in the region and world. The School has also been the host to national and international conferences; most recently, the 34th Annual International Merleau-Ponty Circle Conference, FORMCities, an international urban design conference at the Jackson Community Design Center, and the A+CA symposium. In 2010, S|ARC received a full 6-year accreditation from NAAB; it has been continuous accredited since its inception in 1973.



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### 134 SJARC Advisory Board + Students

The BARNWORKS editorial team would like to graciously thank numerous members of the School of Architecture Advisory Board for their generous financial contributions to this edition of BARNWORKS.

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136 Faculty + Staff

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138 Editors' Letters

Barnworks Collaborators

It is with great honor and excitement that I write this letter as editor-in-chief of the sixth edition of our annual student monograph. BARNWORKS represents the fruition of tireless work from the student production team and faculty advisors who worked together to produce a document that comprehensively illustrates the ongoings of the School of Architecture at Mississippi State University. Noticeably different from the previous five years of print, this issue has been redesigned from scratch, a change which we believe has been instrumental in the revitalization of the books image to more faithfully—we believe—reflect the values and foci of our School.

The redesign has been implemented with the hope of simplifying the contents of the book both graphically and conceptually. Excess has been erased, and our effort has been rigorously focused on re-documentation and re-presentation of the artifacts and evidence of the ten semesters of design work. Yet each page, each spread, and each section aims to highlight not individual artifacts, but rather the entirety of the students' projects; to deliver a comprehensive and complete documentation of their intentions. From the studies of fledgling first-year students to the more rigorous investigations proposed by the now-departed fifth-year students, we sought to fairly and clearly delineate the activity of the students through all aspects of their education. We wished to show the all-encompassing history and theory courses alongside studies of the function and reality of building, complementing and solidifying the conceptual education of the design studios.

I would like to extend thanks to those whose work and help has been invaluable to the completion of this book: the Advisory Board, the design + documentation team, those students whose work has been included, and countless others. I can definitively say that this publication would not be sitting in your hands without the incredible support of Michael Berk, Director of the School of Architecture, who supported our overhaul of the journal and whose patience was wavering; co-design editor Rachel Patronas, whose intellectual and compositional insight has proven immeasurably valuable; and Zulaikha Ayub + Jeffery Roberson, our faculty advisors—though that description does not do justice to the indispensable value they brought the publication.

Finally, I would like to thank the School of Architecture for allowing me the opportunity to present the work of my classmates and friends. I only hope that the editors to come enjoy the challenge as much as I have.

Ryan M. Fierro Editor in Chief The work included herein was produced during the course of a single academic year, and spans all five year levels of the professional degree program in architecture at Mississippi State University. The work is presented chronologically, beginning with first year's emphasis on the fundamental principles of composition, and ending with fifth year's emphasis on the contextual specificities of site and program. In between, is a body of work that both consciously and unconsciously struggles with the tug-of-war between the rational and the empirical, the abstract and the concrete, the disciplinary and the professional.

On a personal note this journal marks the end of our Visiting Assistant Professorships with the School of Architecture at MSU. In our final year, we embarked on this ambitious redesign of Barnworks alongside student editors Ryan Fierro and Rachel Patronas. We believe it to be both a celebratory affirmation of exceptional student work and a kind of farewell and final word to our students. As educators committed to the virtues of clarity, precision and order coupled with a deep appreciation for how the past can inform the present, it was always our goal to get students to resist shallow formulations that engage only instrumental and technocratic forms of knowledge—to also be suspicious of the status quo and its relationship to power.

Most importantly, we implored our students to draw. Particularly in a time in which the death of drawing has already been announced, keeping the architect's drawing alive is a first order commitment. Scaled orthographic plans, sections and elevations are not simply instrumental means towards building construction, but have the power to mobilize the deep reserves and capacity of the human imagination in order to shape the world in powerful and unique ways. By isolating and foregrounding artifacts that embody this kind of commitment to representation, we hope that this issue of Barnworks can provide a glimpse into such a world.

Jeffery Roberson + Zulaikha Ayub Faculty Advisors