

Teaching Portfolio



We construct the world and in return the world constructs us.- Michael Rotondi

Dr. Jessica April Ward (Schleifer) | TEACHING PORTFOLIO

Dr. Jessica April Ward (Schleifer) is an interdisciplinary designer, educator, and resilience researcher whose work integrates climate-responsive architecture, environmental justice, systems thinking, and community-based design methodologies across the Gulf Coast region.

CONTENTS

Interdisciplinary systems-based design research integrating environmental resilience, prototyping, digital technologies, community engagement, and climate-responsive pedagogy

01 - Gulf Coast Resilience + Adaptive Housing Research

02 - Systems Thinking + Climate-Responsive Studios

03 - Digital Documentation + Emerging Technologies

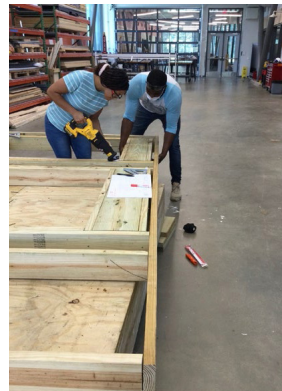
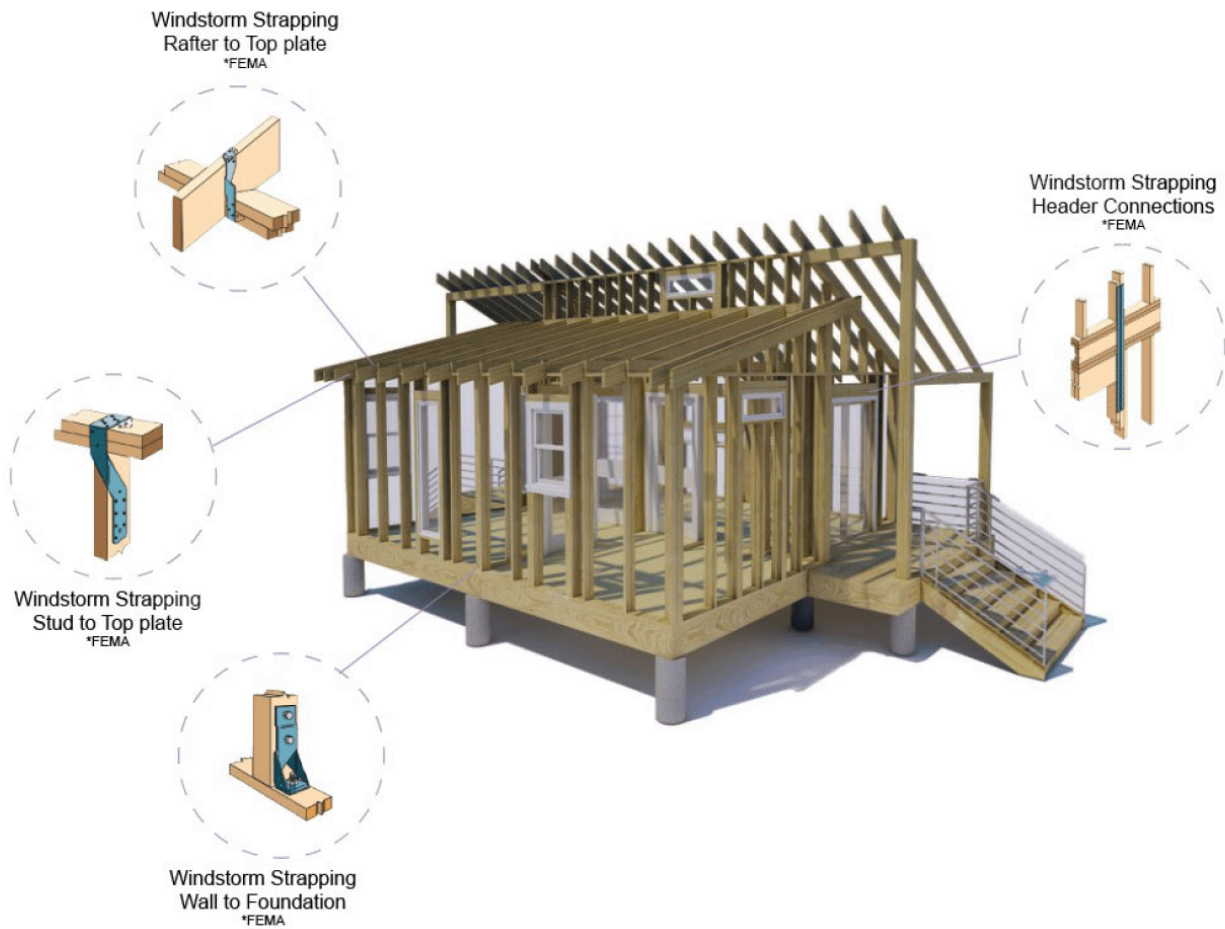




Materials + Methods, study in bending wood, Anderson Yauripoma

01 - Gulf Coast Resilience + Adaptive Housing Research

Upper-Level Architecture Studio:
Gulf Coast Region Climate Responsive, Community Informed, Infill Net-Zero Housing
Funded by the U.S. DEPARTMENT OF EDUCATION



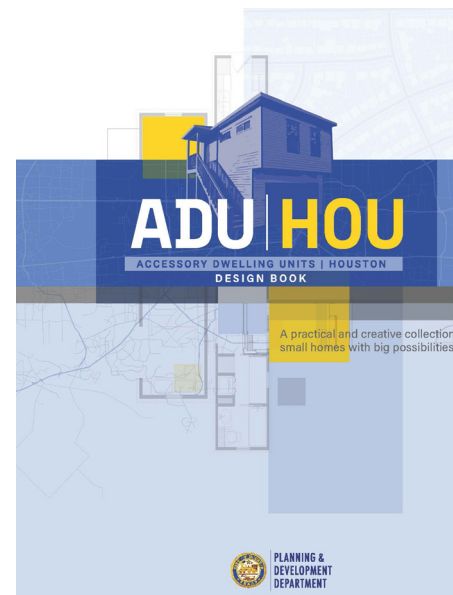
Developed as part of an interdisciplinary systems-based design pedagogy integrating environmental performance analysis, iterative prototyping, community engagement, and climate-responsive research methodologies.



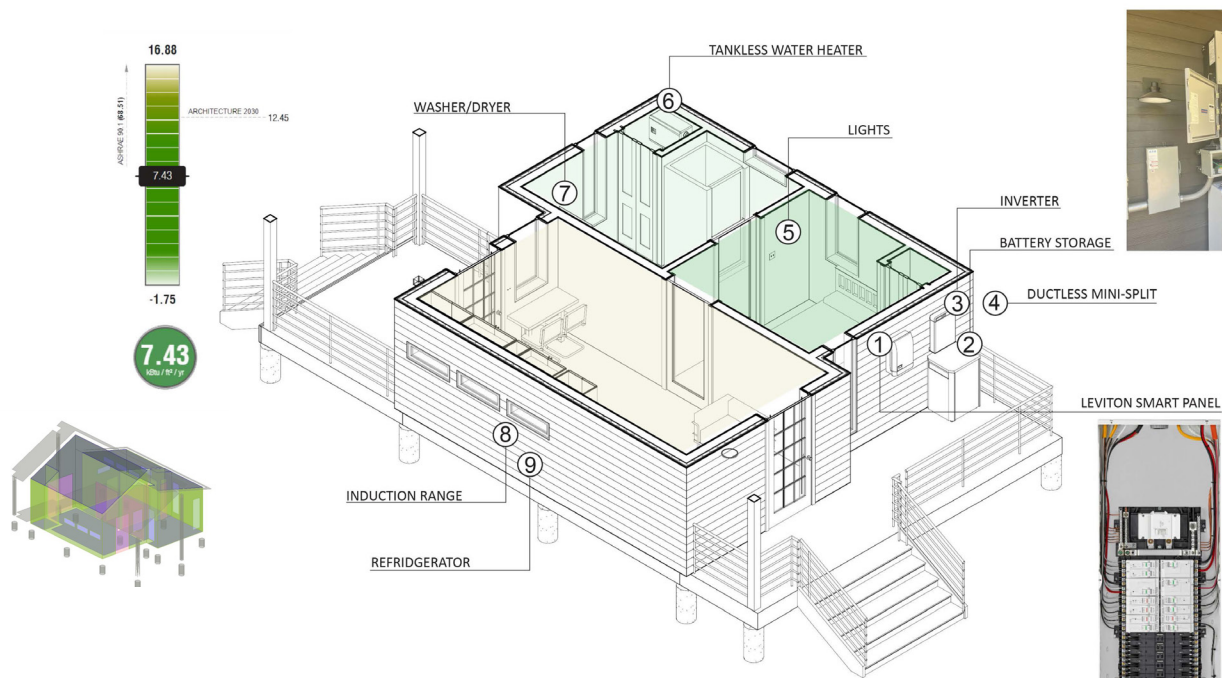
U.S. Department of Education Micro-Grid Lab Prototype on PVAMU Campus, 2023-2024



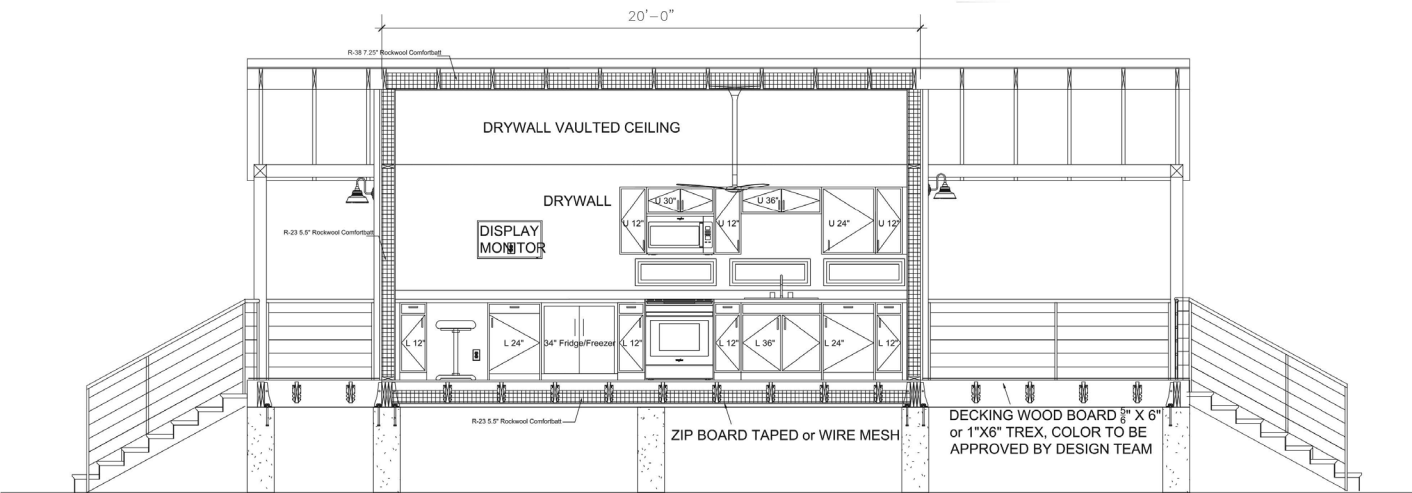
U.S. Department of Education Micro-Grid Lab Prototype on PVAMU Campus, 2023-2024



Prairie House 360



Jaylin Lee, Modular Micro-Grid Energy Diagram + Analysis in REVIT Insight



Campus Iteration Construction Drawings



U.S. Department of Education Micro-Grid Lab Prototype on PVAMU Campus, 2023-2024



Student Visualization for City of Houston ADU | HOU Design Book



*Research Assistants: Joe Livings +
Russell Lewis*



*Research Assistants: Jaylin Lee, Anderson
Yauripoma, Brooke Meshack, Christian
Duncan, Covington Thompson*



Student Full Scale Mock Up



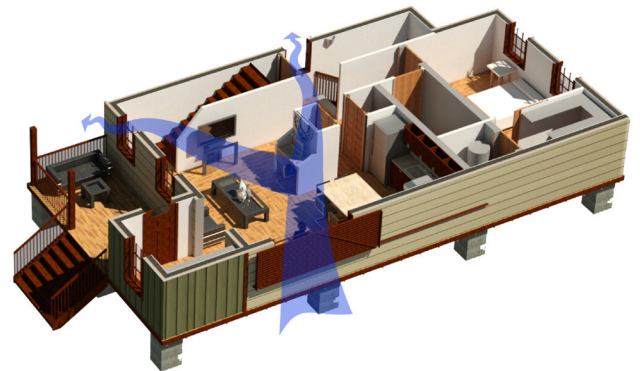
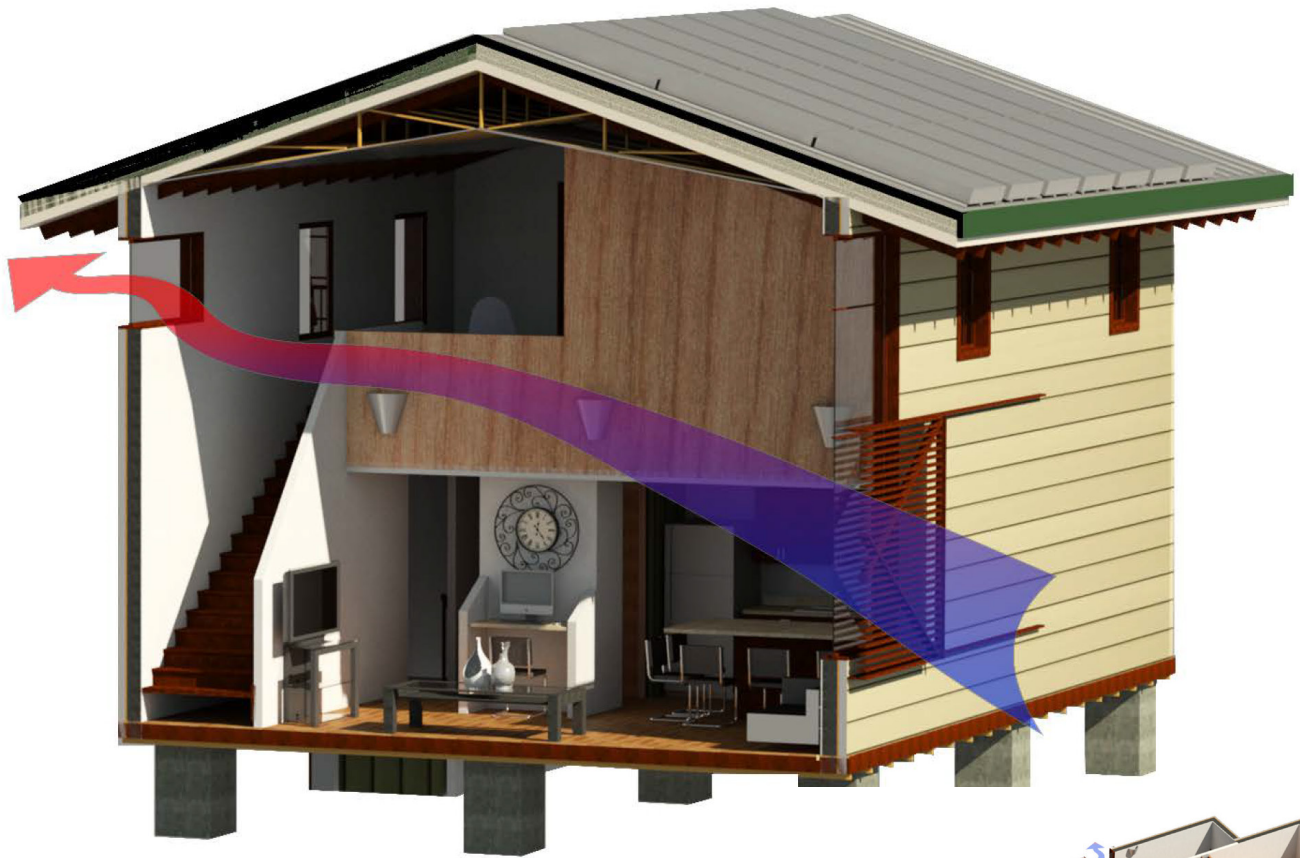
U.S. Department of Education Micro-Grid Lab Prototype on PVAMU Campus, 2023-2024



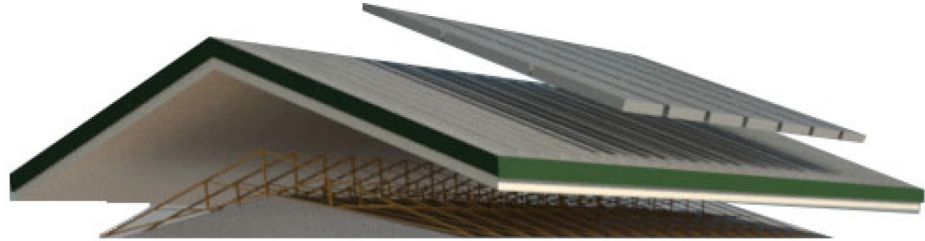
02 - Systems Thinking + Climate-Responsive Studio Investigations

*Upper-Level Architecture Studio:
Houston Region Climate Responsive, Community Informed, Infill Net-Zero Housing*
U.S. DEPARTMENT OF ENERGY + AIA COTE TOP TEN
Race to Zero Student Competition, 2016





The Double Barrel, 3D Model and air flow diagrams designed for Beauty's Community Garden, in Independence Heights, Houston, Grand Prize and Design Excellence for urban infill, single-family design (2016)



Upper-Level Architecture Studio:
Houston Region Climate Responsive, Community Informed, Infill Net-Zero Housing
U.S. DEPARTMENT OF ENERGY
Race to Zero Student Competition, [2018](#)

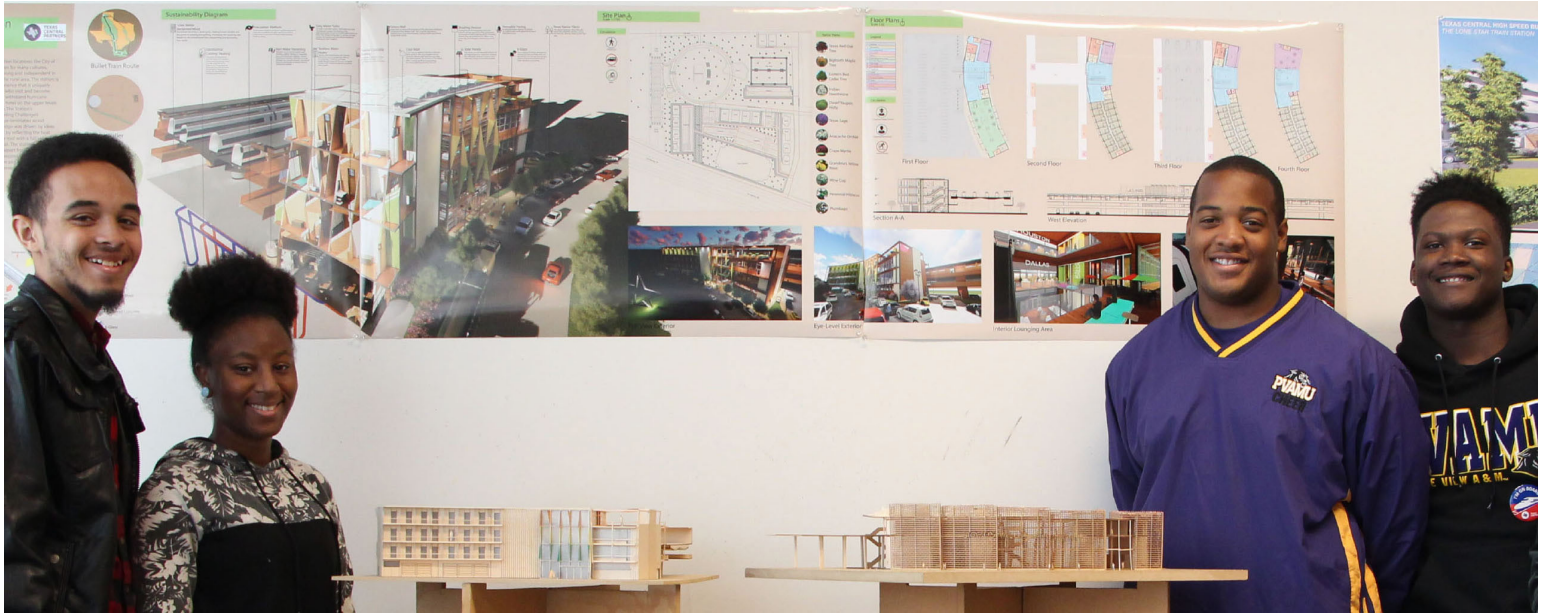
THE FLY FLAT
PRAIRIE VIEW A&M UNIVERSITY

ACRES HOMES WAS FIRST DEVELOPED BY AFRICAN-AMERICAN FARMERS THAT SETTLED IN THE AREA DUE TO LOW LAND PRICES SOLD IN ACRES. THE COMMUNITY HAS HAD MANY SHIFTS IN HOUSING STOCKS AND LACK OF INFRASTRUCTURE INVESTMENTS, RESULTING IN ABANDONED LOTS, DILAPIDATED HOUSING, AND HIGH RATES IN POVERTY. OTHER CHALLENGES FACED IN ACRES HOMES INCLUDE ECONOMIC RESILIENCY AS THERE IS LITTLE COMMERCIAL DEVELOPMENT. PRESENT DAY ACRES HOMES INCLUDES MANY ABANDONED VACANT LOTS THAT ARE OWNED BY THE LAND ASSEMBLAGE REDEVELOPMENT AUTHORITY (LARA) AND SOLD FOR THE COST OF ONE DOLLAR WITH AN AGREEMENT TO CONSTRUCT LOW INCOME HOUSING. TO ADDRESS THE NEED OF A SUPPORTIVE SOCIAL NETWORK IN CREATING HEALTHY FAMILIES, WE UTILIZE THE STRATEGY OF CREATING A POCKET COMMUNITY WITH INFILL HOUSING PROMOTING SOCIAL RESILIENCE IN ACRES HOMES. WE APPROACH THE PROJECT FROM A MODULAR PERSPECTIVE DUE TO THE COMPLETION OF OUR FABRICATION LAB AT PRAIRIE VIEW A&M. OUR GOAL IS TO DESIGN, ENERGY MODEL, AND BUILD VARIOUS OPTIONS TO PROVIDE AFFORDABLE, MODULAR, HIGH-PERFORMANCE HOUSING TO A LOW-INCOME COMMUNITY. THE CHOSEN SITE FOR THIS PROJECT SITS ACROSS FOUR VACANT LARA LOTS ON CORA STREET. ALTHOUGH IT IS OUT OF THE FLOODPLAIN, WE DECIDED TO ADDRESS FLOODING BY INCORPORATING PIER AND BEAM CONSTRUCTION AND LOW-IMPACT DEVELOPMENT STRATEGIES, SINCE EXISTING DRAINAGE SYSTEMS ARE INADEQUATE.

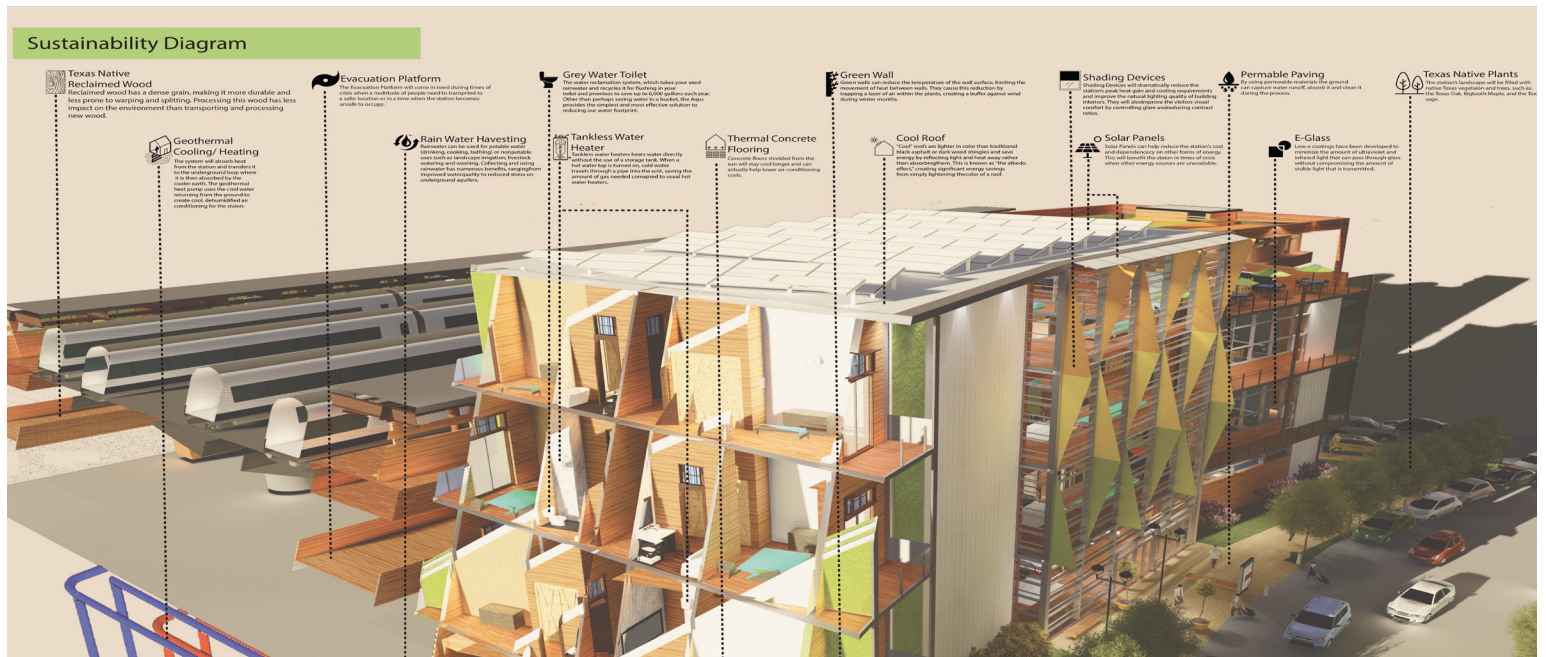


City of Houston and Houston AIA Building Community through Design Award; COTE Student Competition Winner; Department of Energy Race to Zero Student Competition Grand Winner ([2018](#)) Fourth Year Student Team

Upper-Level Architecture Studio:
Biomimicry
TEXAS CENTRAL BULLET TRAIN STATION
Student Competition, 2016



Sustainable Design First Place Award Team: Ledell Thomas & Kaylah Wesley (2016)



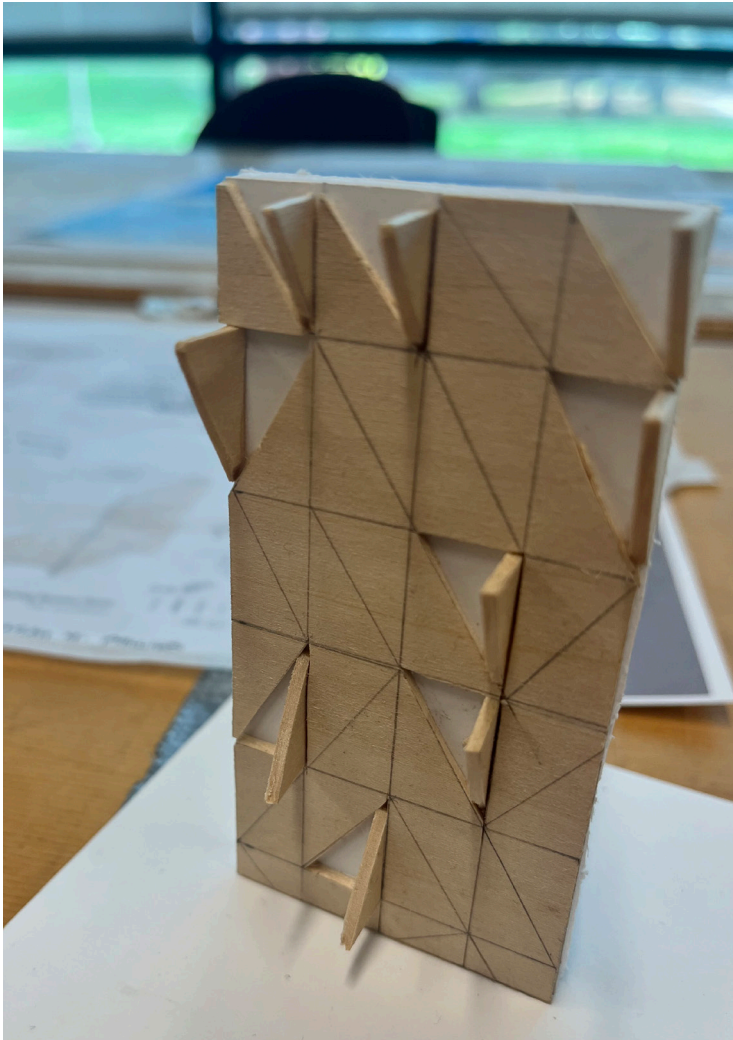


Honorable Mention Team: Isaac Watson, Roderick Henderson and Nadia Gooding (2016)



Studio investigations exploring transportation infrastructure through systems thinking, biomimicry, environmental performance analysis, second skin facades, section and climate-responsive design methodologies. Projects integrated iterative prototyping, digital modeling, physical fabrication, circulation studies, adaptive facade systems, and representational workflows to examine how infrastructure can operate simultaneously as environmental system, civic space, and regional identity framework.

Jaylin Lee, Individual Bullet Train Station Project for Houston, Physical Study Model

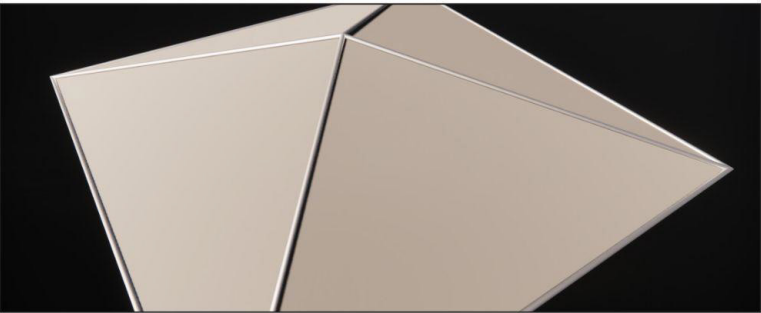


Jaylin Lee, Individual REVIT 3D Model Fall 2021, Fourth Year

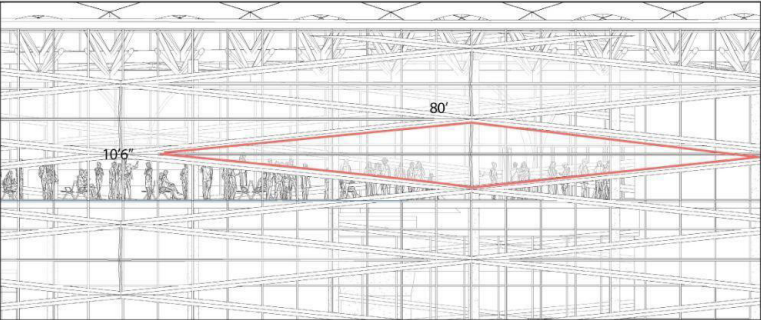


DESIGN DEVELOPMENT

Facade Development



SHADING DEVICE



MEASUREMENT OF RHOMBOID FIGURE
ON THE WALL

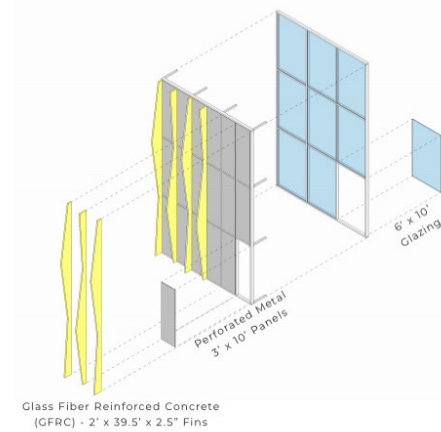
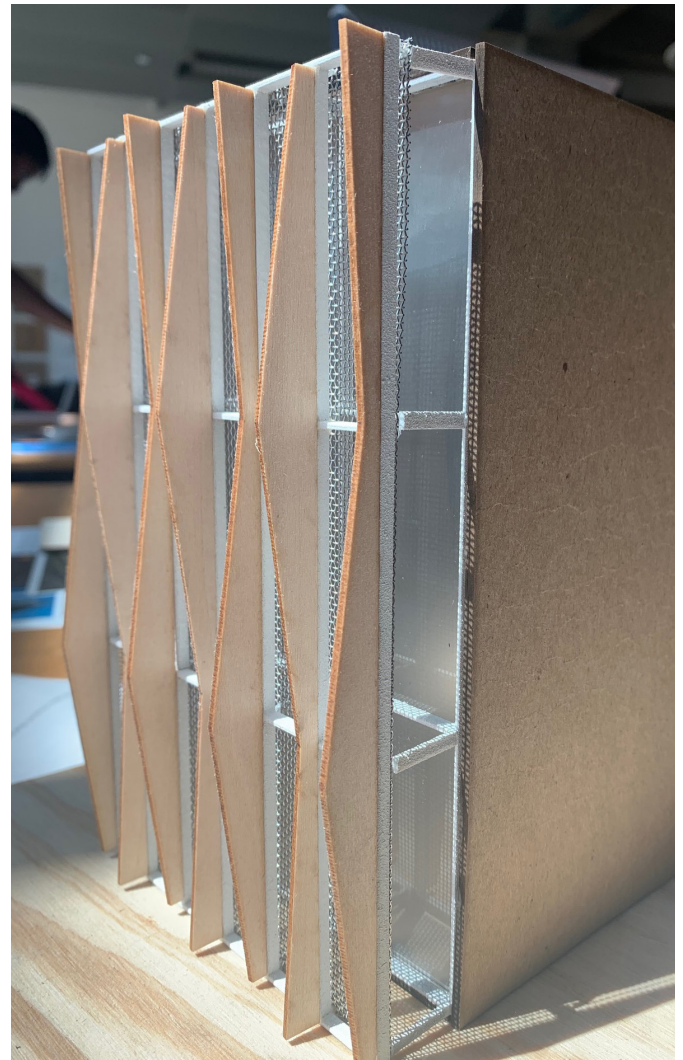


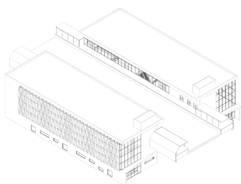
AXO / STRUCTURAL OF SHADE SKIN/ DEVICE



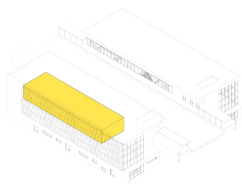


Individual Bullet Train Station for Waller County by Alan Jauregui (Fall 2021), Fourth Year

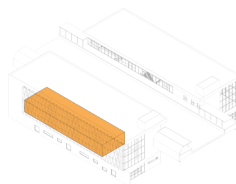




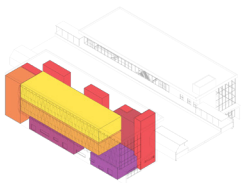
Massing



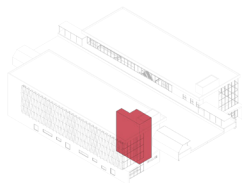
Waiting Area
View to pond + tracks



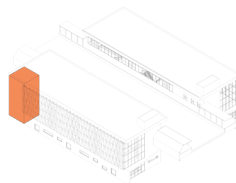
Food & Retail Kiosks



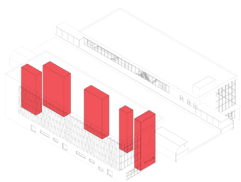
Program



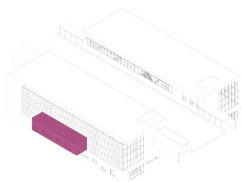
Building Support
Mechanical + Electrical + Storage



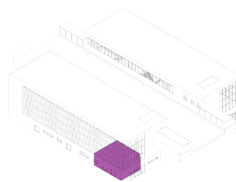
Restrooms



Vertical Circulation
Elevators + Escalators + Stairs



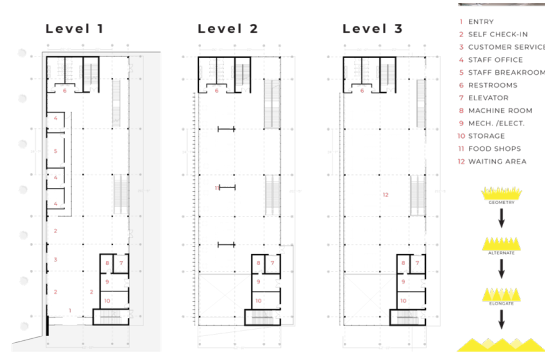
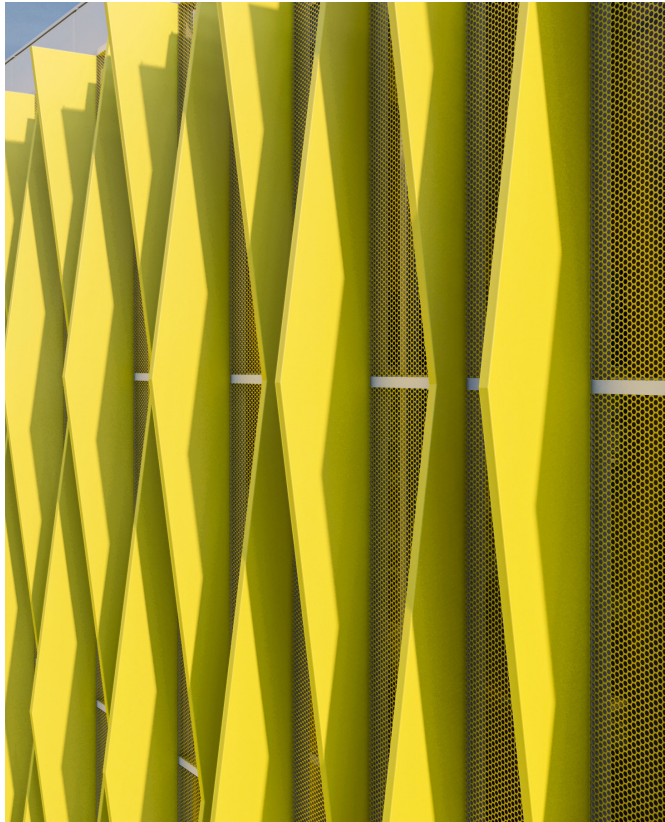
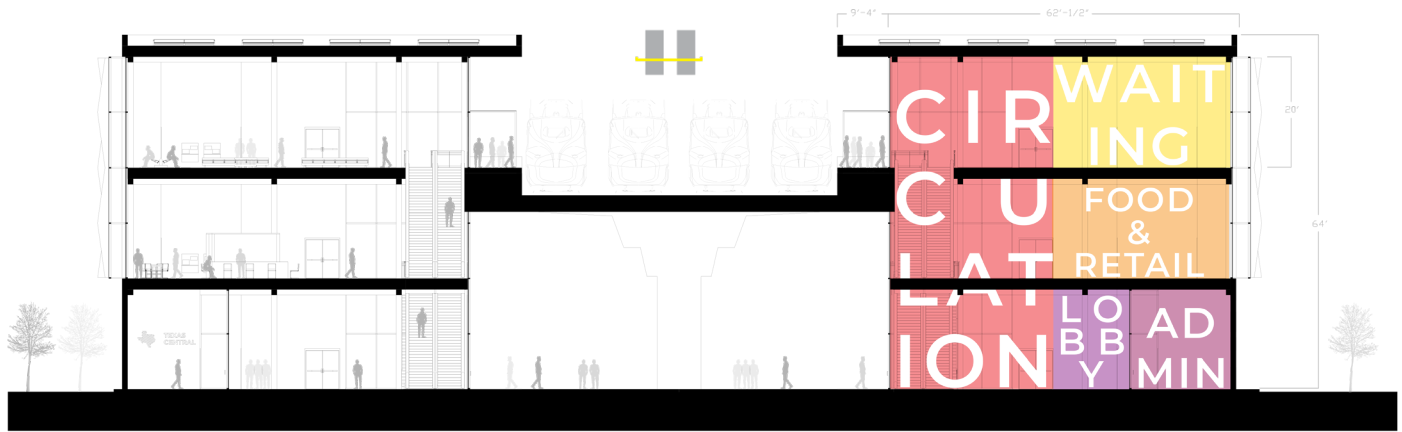
Administration
Office + Lounge



Lobby
Self checkout + Help desk

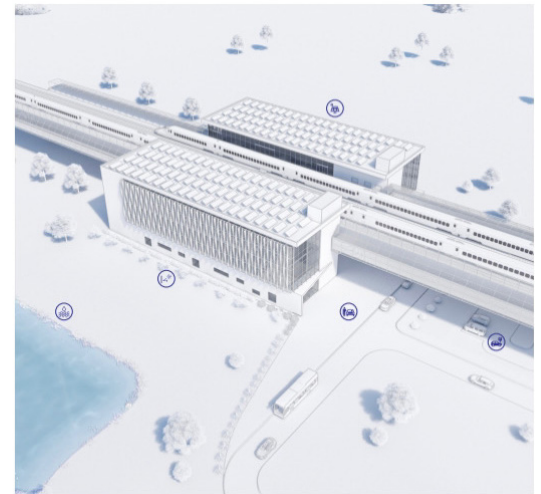


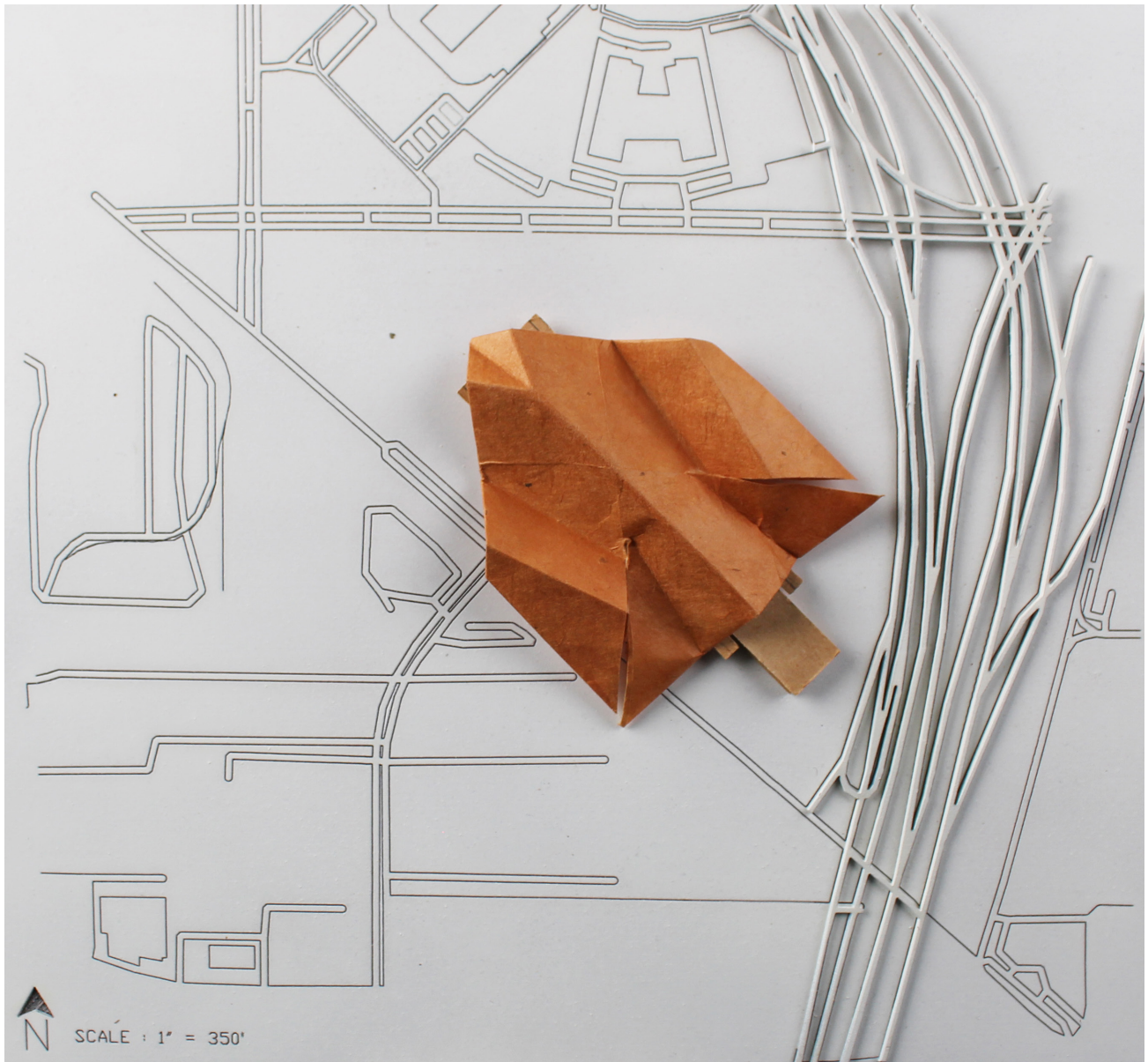
Architectural drawings, renderings, and diagrams by Alan Jauregui (Fall 2021)



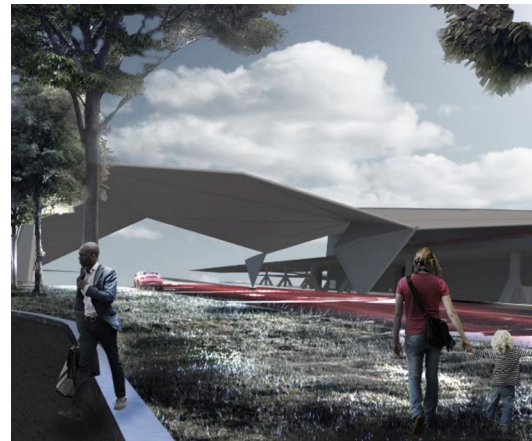
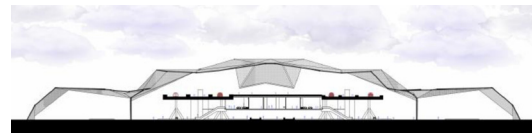
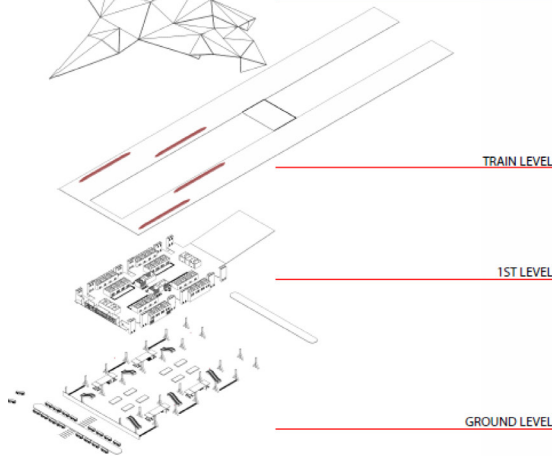
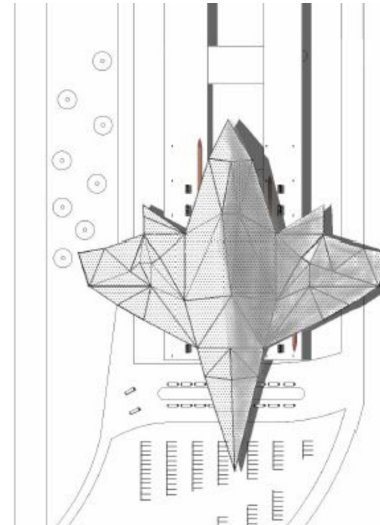
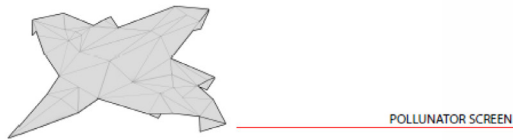
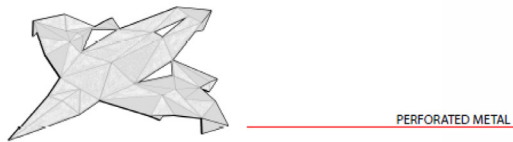
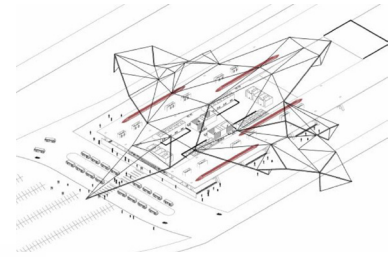
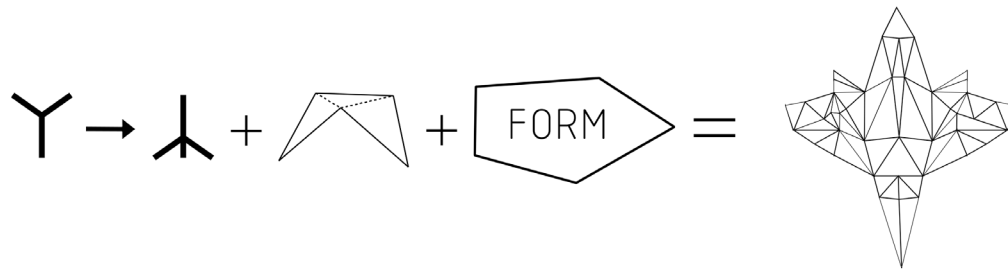
SITE PLAN

- Solar Array
- Double Skin Facade
- Constructed Wetlands
- Dropoff / Pickup
- Parking

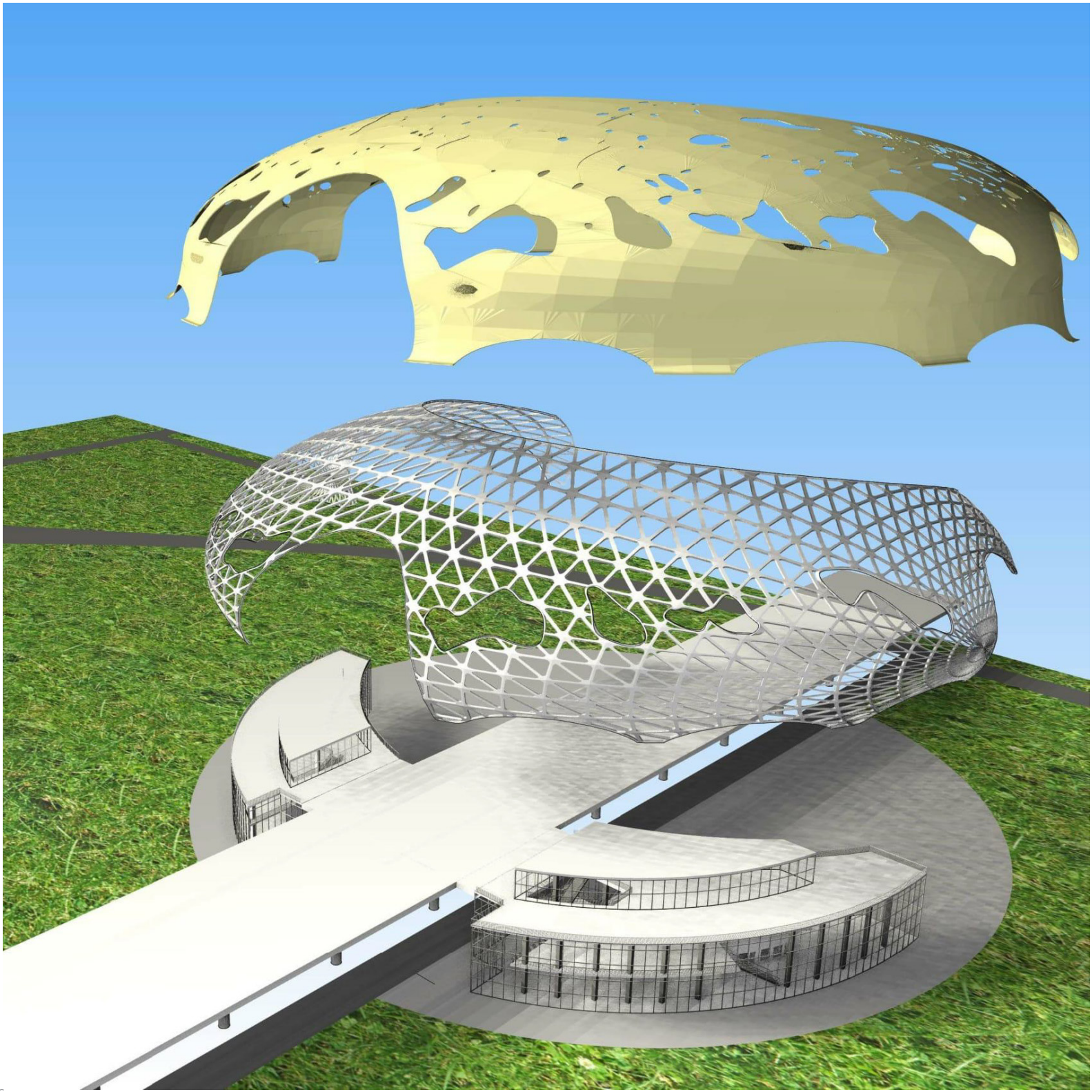




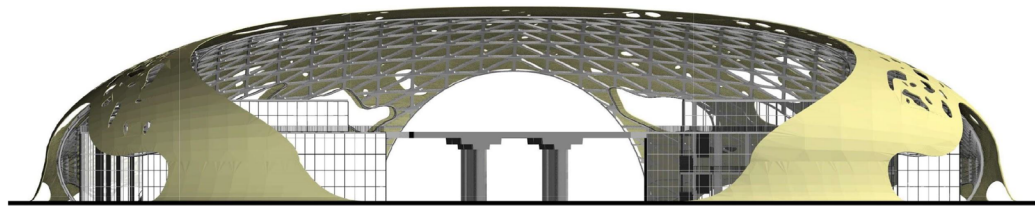
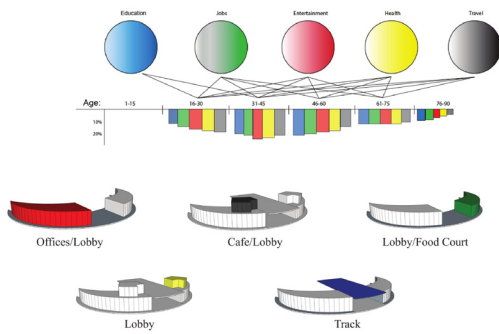
Individual Bullet Train Station for Houston. Study model, renderings, and diagrams by Reuben Cheeks (2017, Third Year)



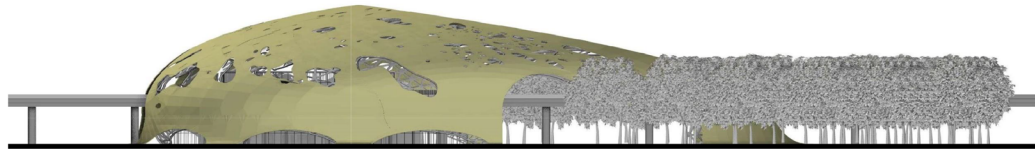
Individual Bullet Train Station for Houston. Study model, renderings, and diagrams by Reuben Cheeks (2017, Third Year)



Bullet Train Stockholders Diagram

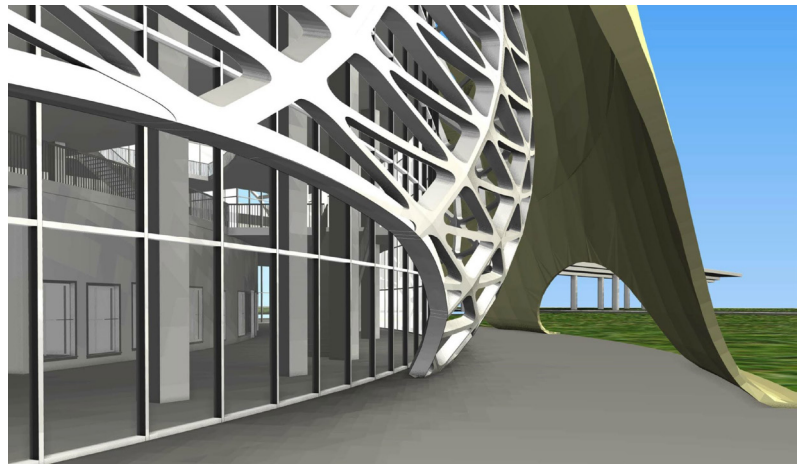
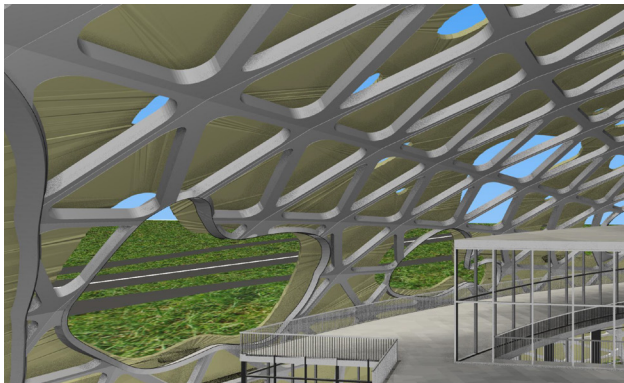
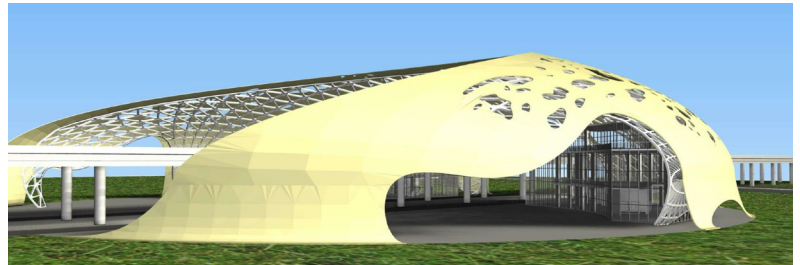


Northern Elevation
Scale: 1/8" = 1'



Western Elevation
Scale: 1/8" = 1'

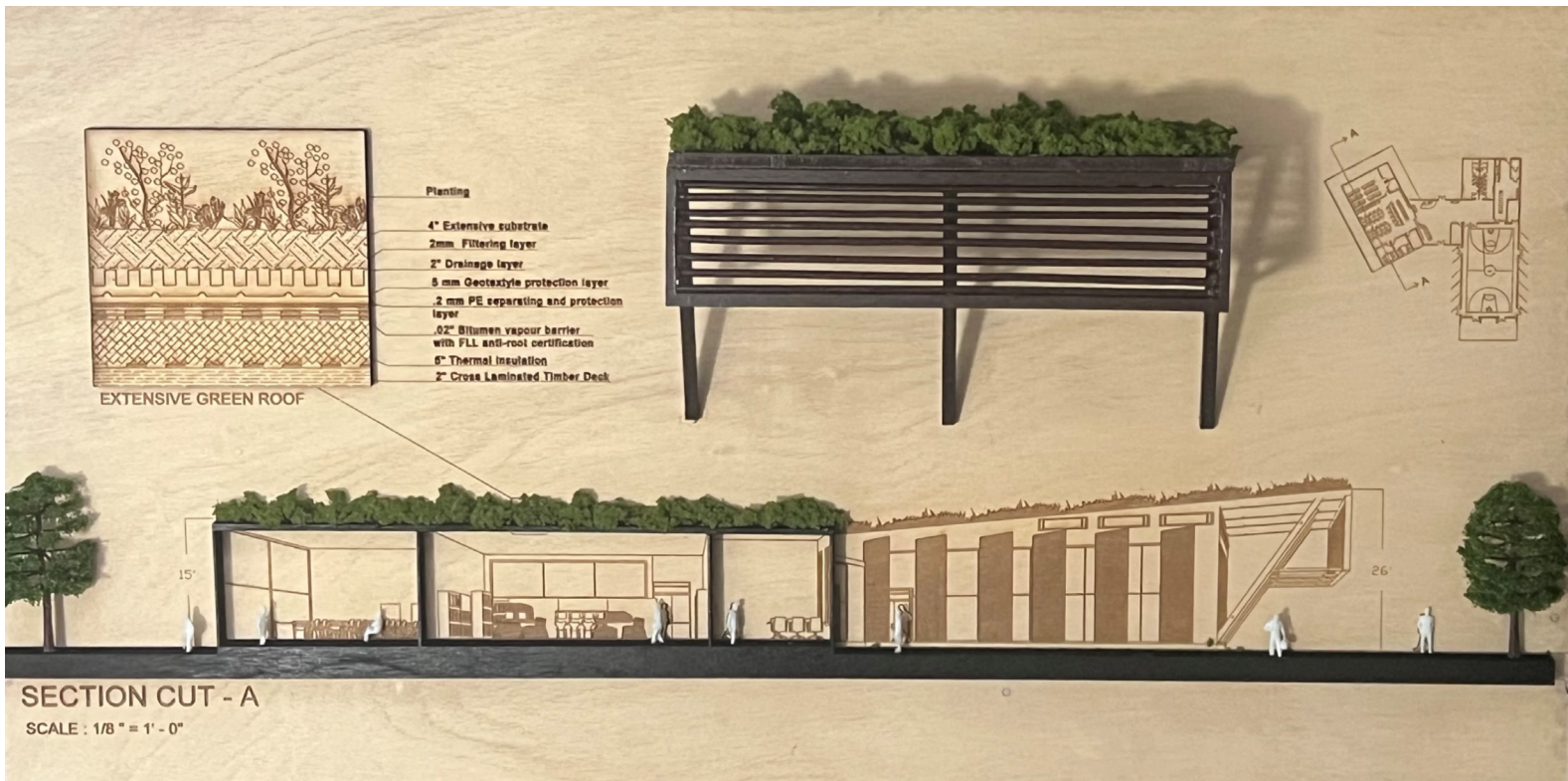
Individual Bullet Train Station for Waller County Diagrams, 3D Rhino Model and 3D Printed Model by Jeffery Simmon (2017, Third Year)



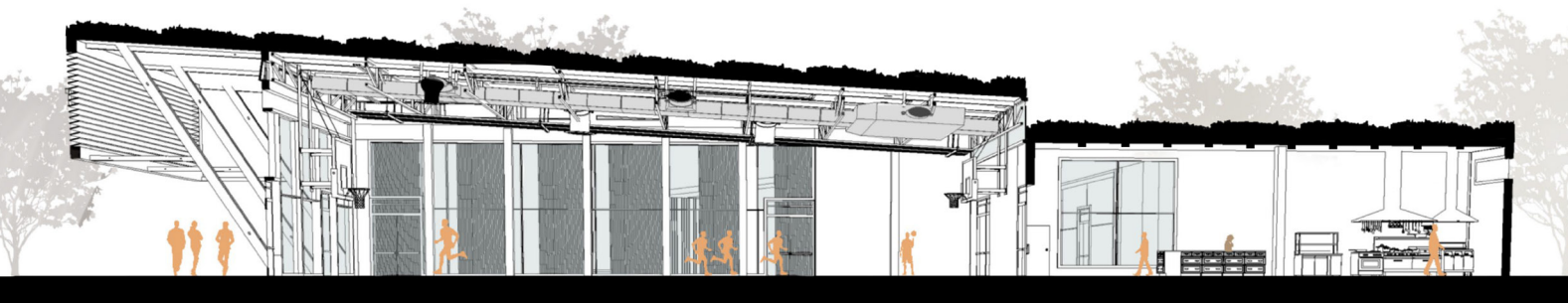
Upper-Level Architecture Studio:
COMMUNITY DRIVEN RESILIENCE + NET POSITIVE INFRASTRUCTURE



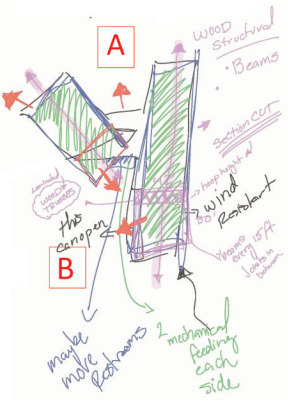
Jorge Cardoza (Spring 2023)



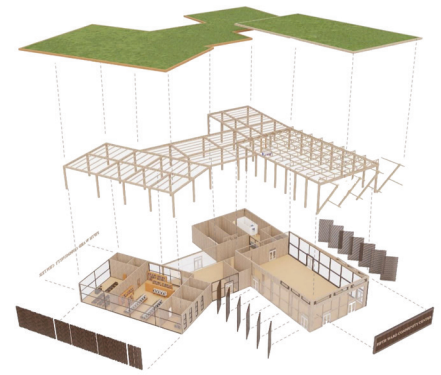
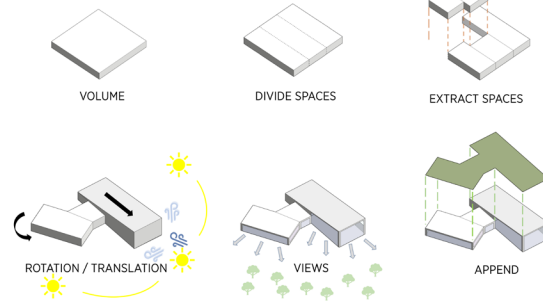
Multi-media Physical Model: Jorge Cardoza (Spring 2023)



Jorge Cardoza (Spring 2023)

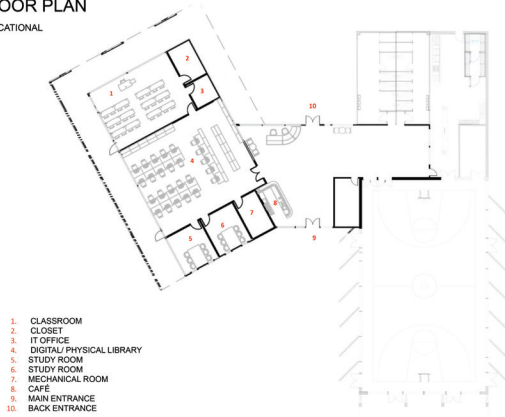


DIAGRAM



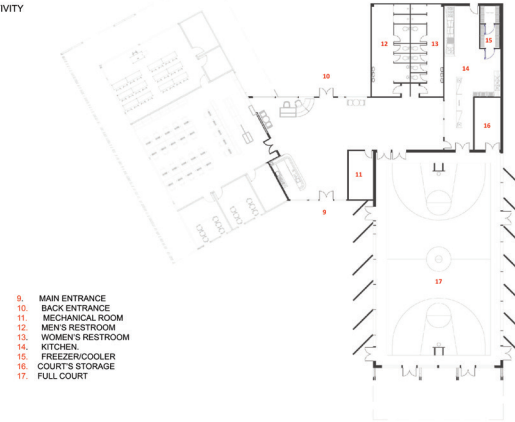
FLOOR PLAN

EDUCATIONAL



FLOOR PLAN

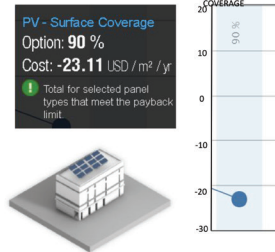
ACTIVITY



RENEWABLE ENERGY ANALYSIS

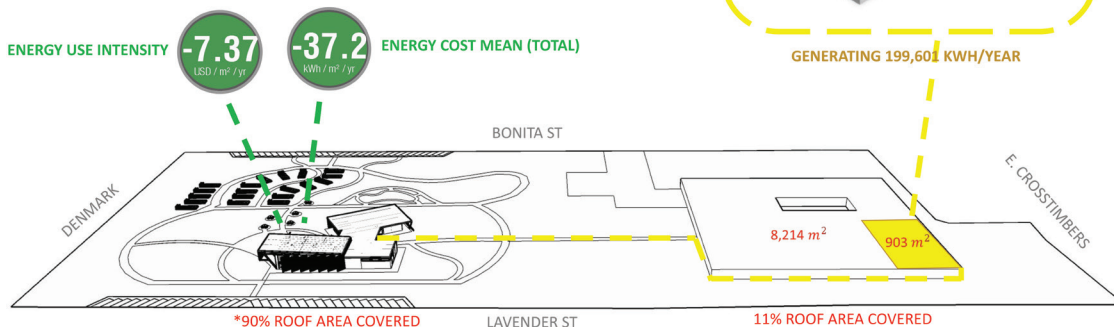
MONTH	SOLAR RADIATION (KWH / m ² / DAY)	AC ENERGY (KWH)
January	3.89	13,381
February	3.84	12,057
March	5.29	17,485
April	5.69	19,841
May	5.94	18,946
June	6.08	18,473
July	6.31	19,791
August	5.71	17,859
September	5.79	17,690
October	5.36	17,237
November	4.89	15,433
December	3.96	13,676
Annual	5.21	199,600

PV SURFACE COVERAGE ONLY



GENERATING 199,600 KWH/YEAR

ENERGY USE INTENSITY **-7.37** **-37.2** ENERGY COST MEAN (TOTAL)





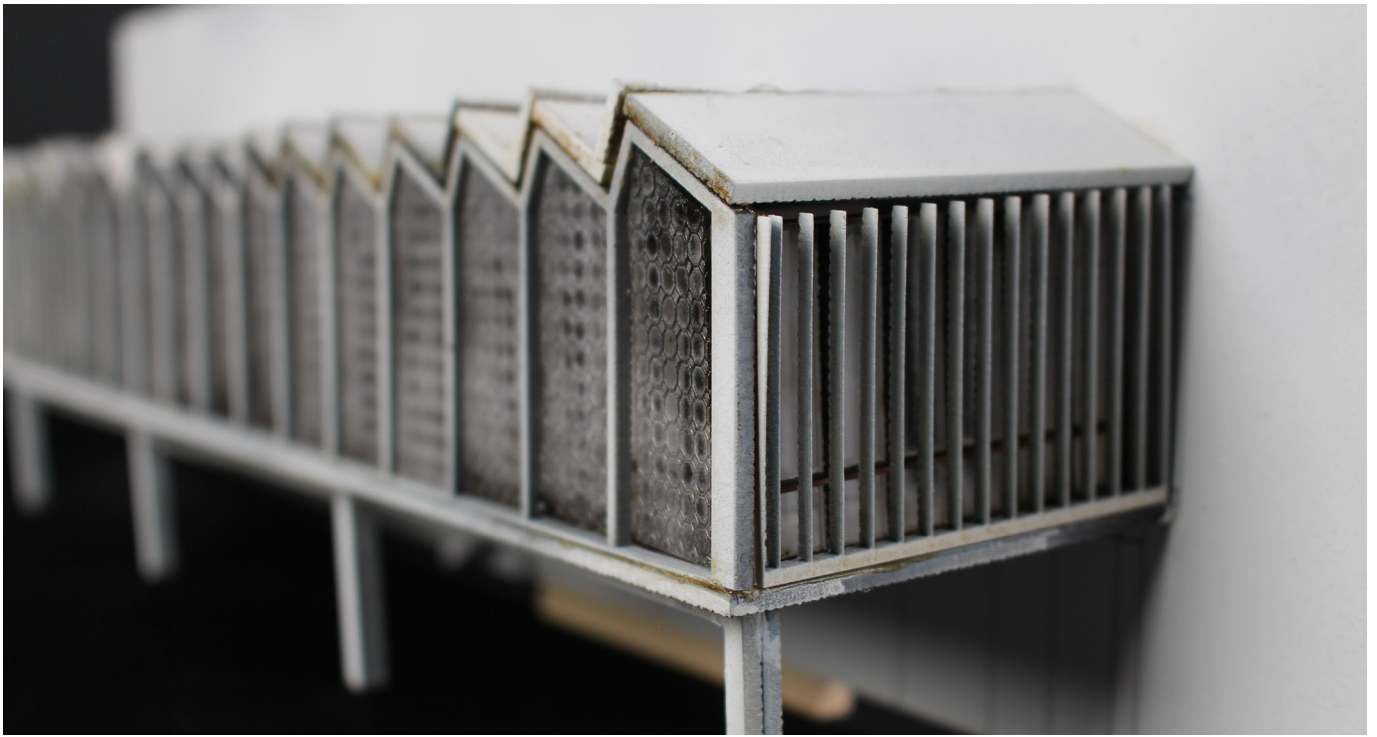
[Click link for Animated Fly through by Jorge Cardoza \(Spring 2023\), Fourth Year](#)

Studio projects exploring climate-responsive community resilience centers as adaptive civic infrastructure integrating environmental performance, renewable systems, public gathering space, and neighborhood support networks. Through iterative design methodologies, systems thinking, biomimicry, environmental analysis, sectional explorations and community-based research, students investigated how architecture can function as both ecological infrastructure and social resilience framework within vulnerable Gulf Coast communities. Projects align with the American Institute of Architects (AIA) Committee on the Environment (COTE) Design Excellence principals and case studies.

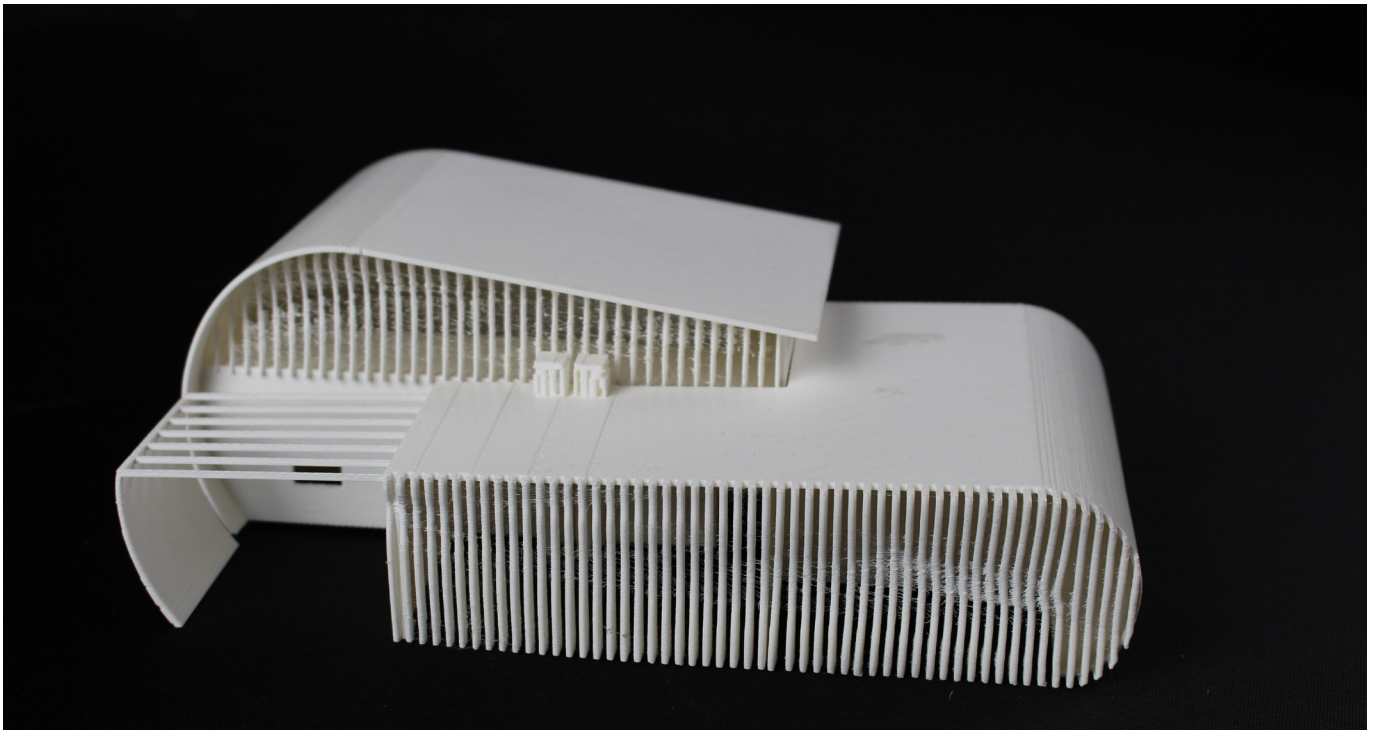




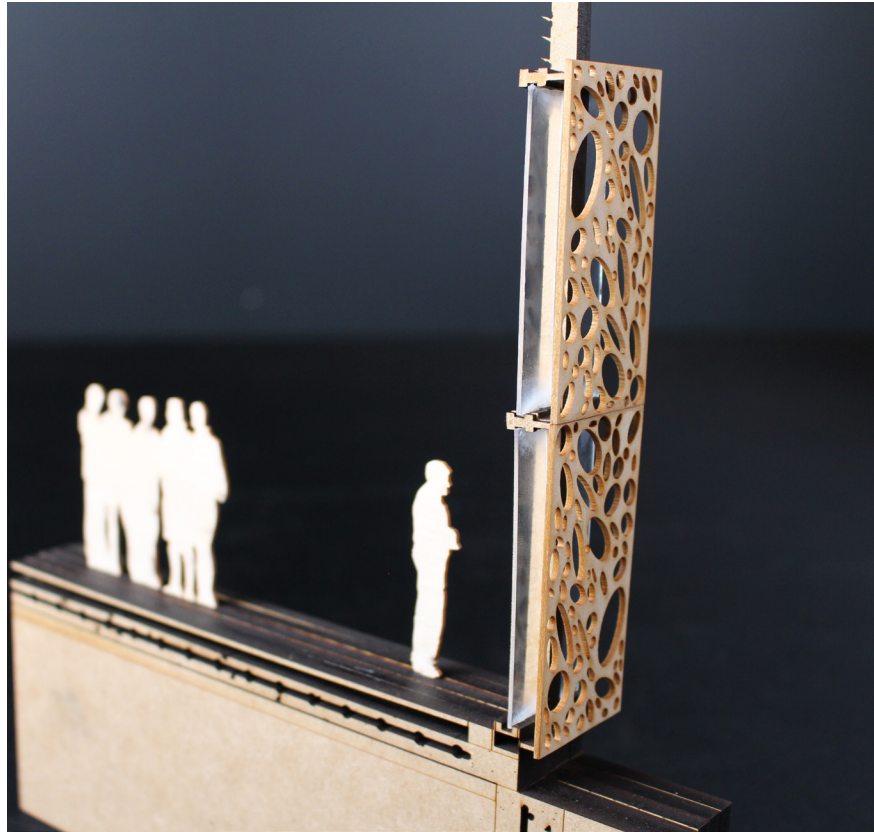
Independence Heights Community Center 3D Render by Eric Mata (2017), Fourth Year



Physical Study Model Independence Heights Community Center and Skating Rink by Brooke Meshack (2019), Fourth Year



3D Printed Independence Heights Community Center, Fourth year

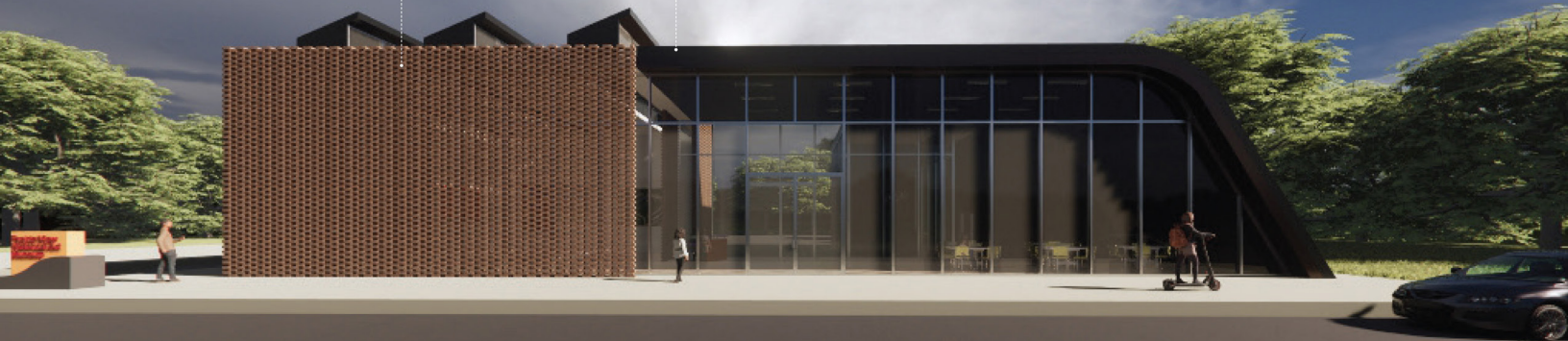


*Community Center, Physical Section Study Model, Abraham Rodriguez (2019),
Fourth Year*

African American Cultural Commissions Museum

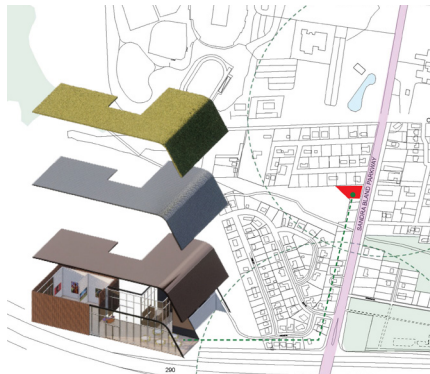
The African American Cultural Commissions Museum, located on Sandra Bland Parkway, will serve as a center for learning, reflection, and community engagement. Visitors will have the opportunity to connect with history, engage with contemporary issues, and find inspiration for the future in this welcoming space dedicated to honoring African American heritage.

Featuring a brick facade and skylights, the museum will house exhibitions, educational programs, and events that celebrate the resilience and contributions of African Americans. Its mission is to inspire dialogue and action toward social justice.



DESTINY YEARWOOD | PRAIRIE VIEW A&M UNIVERSITY SCHOOL OF ARCHITECTURE
STUDIO V | PROFESSOR DR. WARD | PROJECT LOCATION: CITY OF PRAIRIE VIEW

Destiny Yearwood Third Year, (Spring 2024), Resilience Hub + Cultural Museum for the City of Prairie View



Ai generated iteration



DESTINY YEARWOOD | PRAIRIE VIEW A&M UNIVERSITY SCHOOL OF ARCHITECTURE
STUDIO V | PROFESSOR DR. WARD | PROJECT LOCATION: CITY OF PRAIRIE VIEW

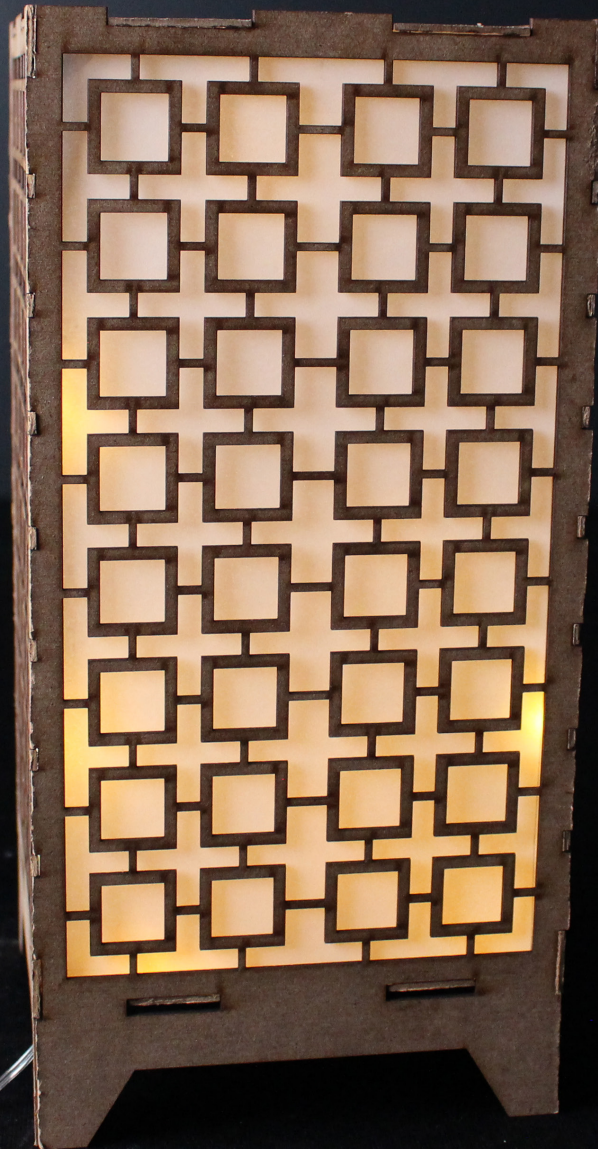
*Destiny Yearwood REVIT Model (Spring 2024)
Selected for the Texas Society of Architects 85th Annual Conference Digital Student Work Exhibit, 2024*



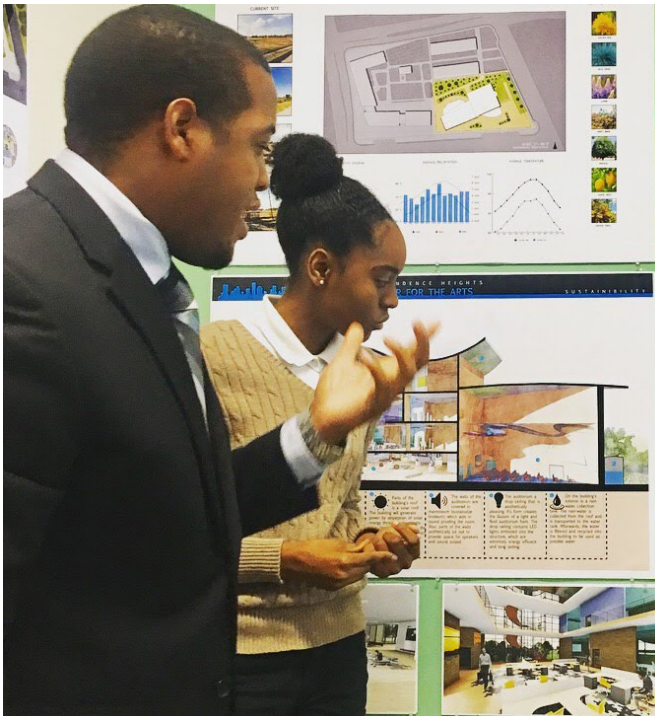
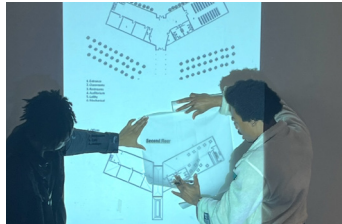
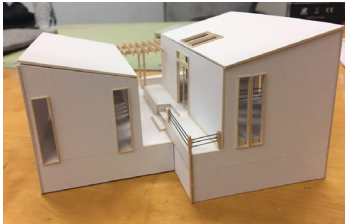
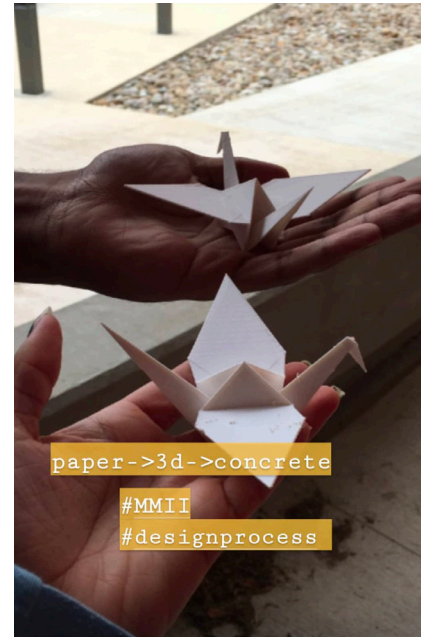
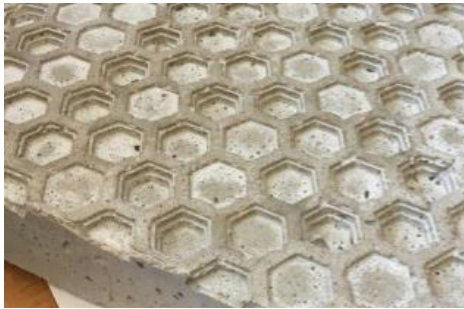
*Shelby Skinner, Third Year and Carlos Arboleda, Graduate Student,
(2017) Gulf Coast Green Student Competition Second Place*

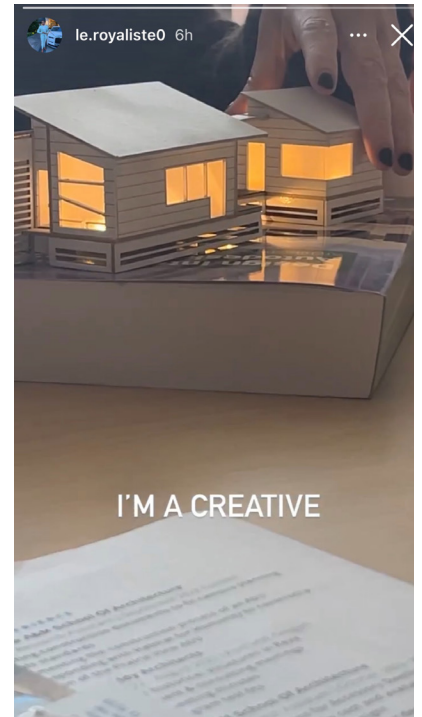


Shelby Skinner, studies (2017)



Laser cut lamp, Reuben Cheeks





03 - Digital Documentation + Emerging Technologies

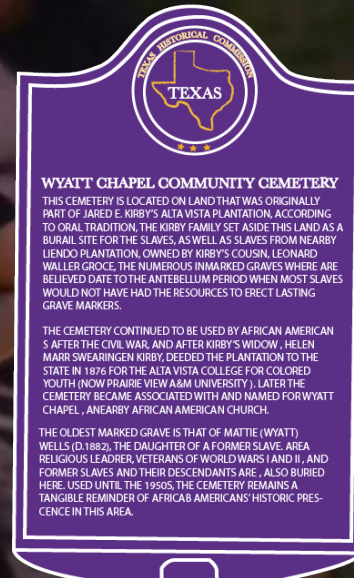
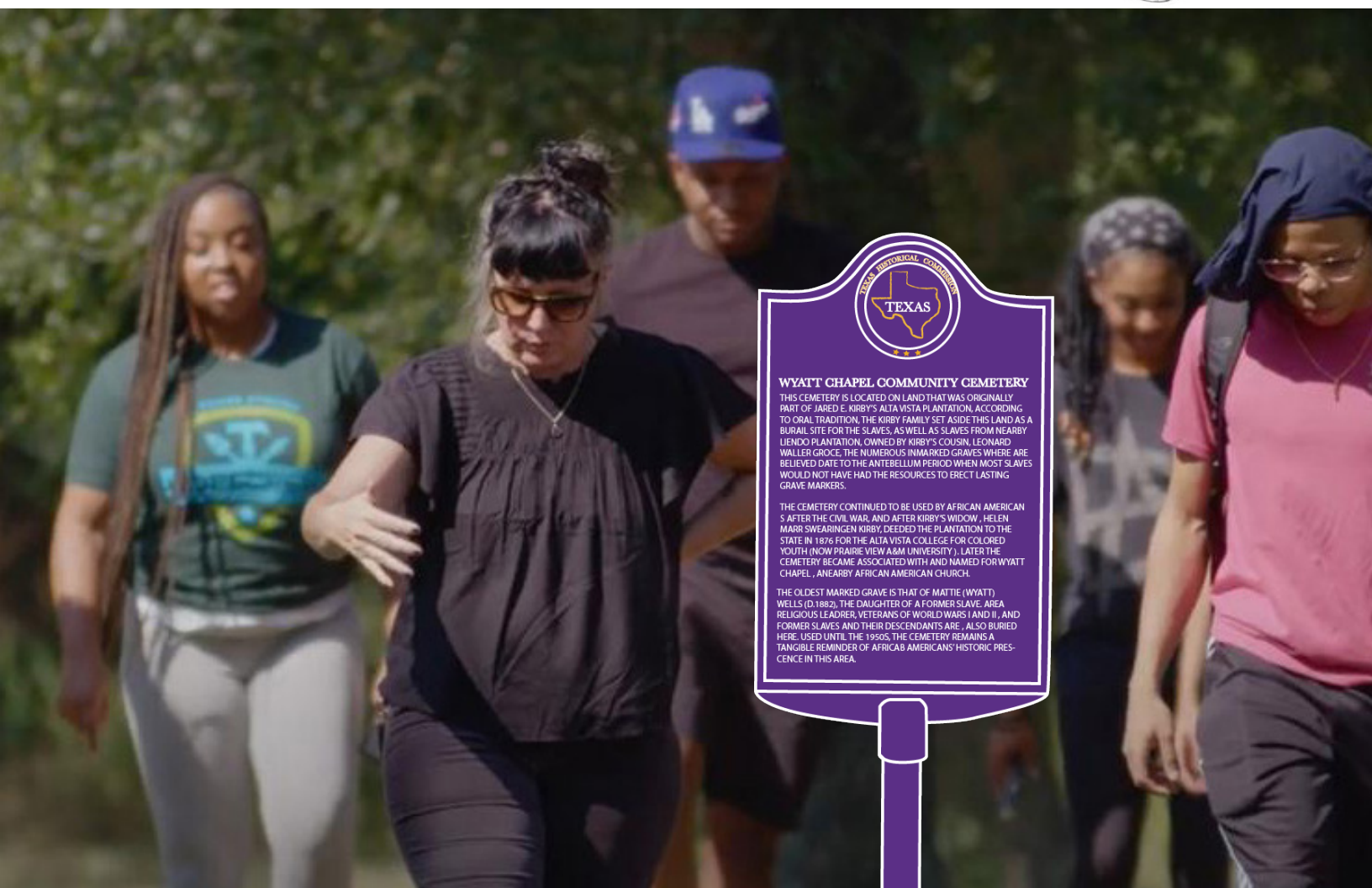
NATIONAL TRUST FOR HISTORIC PRESERVATION HOPE Crew Digital Documentation Fellowship + Workshop

2024 ([click for link to Interdisciplinary Fellow design booklet](#))

[Link to Trailer](#) | [Link to Documentary](#)

Interdisciplinary preservation and visualization initiative developed with the National Trust for Historic Preservation HOPE Crew team through Dr. Jessica April Ward's proposal integrating digital media arts, palimpsest mapping, augmented reality, spatial documentation, and PVAMU RISE research methodologies. The program incorporated collaborative design workshops, community-engaged documentation workflows, and emerging visualization technologies supporting award-winning student competition work by William McNeal and team.

CONCEPT OF **CONNECTION**





Follow QR Code for Augmented Reality and 3D model by William McNeal

