2020

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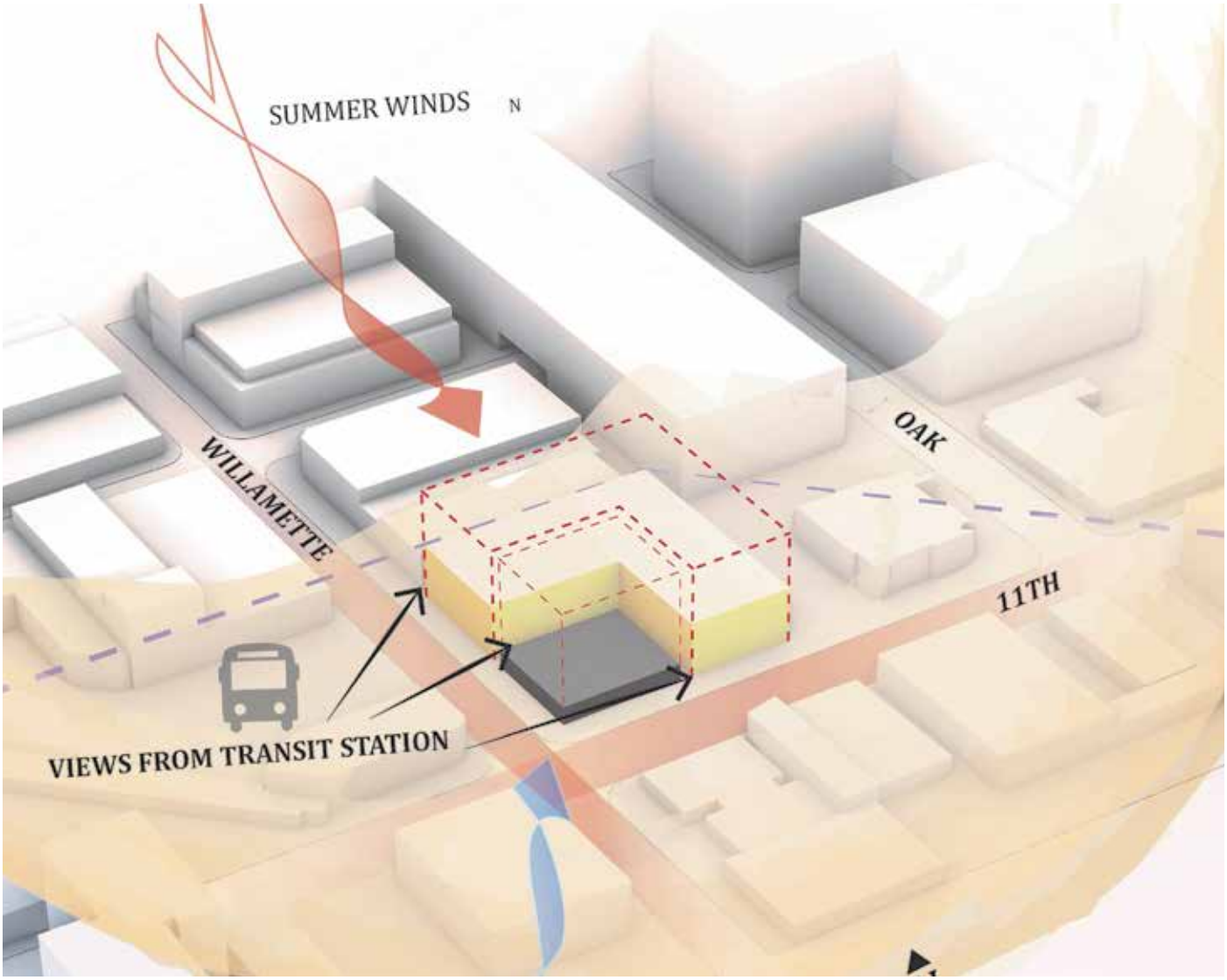
ARCH 683
Studio Report



SCYP
Sustainable City Year Program
UNIVERSITY OF OREGON
SCI

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Isabel Rivera, Instructor, Architecture
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01.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations that result in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

About SCI

The Sustainable Cities Institute (SCI) is an applied think tank focusing on sustainability and cities through applied research, teaching, and community partnerships. We work across disciplines that match the complexity of cities to address sustainability challenges, from regional planning to building design and from enhancing engagement of diverse communities to understanding the impacts on municipal budgets from disruptive technologies and many issues in between.

SCI focuses on sustainability-based research and teaching opportunities through two primary efforts:
Our Sustainable City Year Program (SCYP), a massively scaled university-community partnership program that matches the resources of the University with one Oregon community each year to help advance that community's sustainability goals; and Our Urbanism Next Center, which focuses on how autonomous vehicles, e-commerce, and the sharing economy will impact the form and function of cities.

In all cases, we share our expertise and experiences with scholars, policymakers, community leaders, and project partners. We further extend our impact via an annual Expert-in-Residence Program, SCI China visiting scholars program, study abroad course on redesigning cities for people on bicycle, and through our co-leadership of the Educational Partnerships for Innovation in Communities Network (EPIC-N), which is transferring SCYP to universities and communities across the globe. Our work connects student passion, faculty experience, and community needs to produce innovative, tangible solution for the creation of a sustainable society.

SCI Directors and Staff

Marc Schlossberg, SCI Co-Director, and Professor of Planning, Public Policy, and Management, University of Oregon

Nico Larco, SCI Co-Director, and Professor of Architecture, University of Oregon

Megan Banks, SCY Program Director, University of Oregon

About Lane Transit District

LTD provides more than 10 million trips per year on its buses and EmX Bus Rapid Transit line in Lane County, Oregon. Encompassing the Eugene-Springfield metro area, LTD is a special district of the state of Oregon and led by a seven-member board of directors appointed by Oregon's Governor. LTD also operates RideSource, a paratransit service for people with disabilities, and numerous transportation options programs to promote sustainable travel county wide, and Point2Point, an initiative that provides community members with the necessary information and resources to assist them in identifying opportunities to drive less by discovering transportation choices that meet their individual lifestyles.

02.

COURSE PARTICIPANTS

This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the City of Eugene and Lane Transit District. Text and images contained in this report may not be used without permission from the University of Oregon.

Course Participants

Graduate Students, Track II Architecture

Amy Arroyo
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Katherine Marple
Will Ogburn
Jocelyn Reynolds
Courtney Sigloh
Alex Tapia-Vargas
Kyle Tasik
Sean Thurston

EXECUTIVE

SUMMARY

Students planned and designed a new downtown “Enoteca,” Italian for a local and regional agricultural library, in Downtown Eugene, Oregon. The Enoteca is a space to educate the public about southern Willamette Valley wine production. In addition to the Enoteca, the program includes a ballroom and a restaurant providing farm-to-table cuisine. In addition to the program, students had the freedom to incorporate any other use they believed would enhance the city of Eugene lifestyle and needs. The location, on Willamette Street, would help enhance the LTD’s Eugene Station environment and expand an active part of Downtown Eugene.

The city of Eugene and LTD envision the site ideally including a housing component to increase housing density in Downtown Eugene. Currently, downtown is an “eight to five” business district; increased housing could help improve activity after business hours.

Sustainable design solutions were proposed, beginning with:
a) Setting a budget and a program.
b) Establishing a rule for the design solutions to include the AIA Cote Ten Measures.
c) Create a project schedule.

A budget is an architect’s road map. The measures are the soul of the project. The schedule is the “road map + soul = profit.”

INTRODUCTION

This report is divided into nine sections that include research about the site, climate data, history, and students' design solutions. Student designs focus on "green" strategies, incorporating the American Institute of Architects Committee of the Environment (COTE) ten Measures, listed on the following page.

Students were introduced to Eugene through research and presentations on the following topics: Eugene's History, Eugene's Architecture Form and City Organization, Eugene's Site Topography and Code, and Eugene's Climate. This report includes these findings and how the students incorporated them in their various designs and recommendations.

MEASURE 1 Design for Integration

MEASURE 2 Design for Community

MEASURE 3 Design for Ecology

MEASURE 4 Design for Water

MEASURE 5 Design for Economy

MEASURE 6 Design for Energy

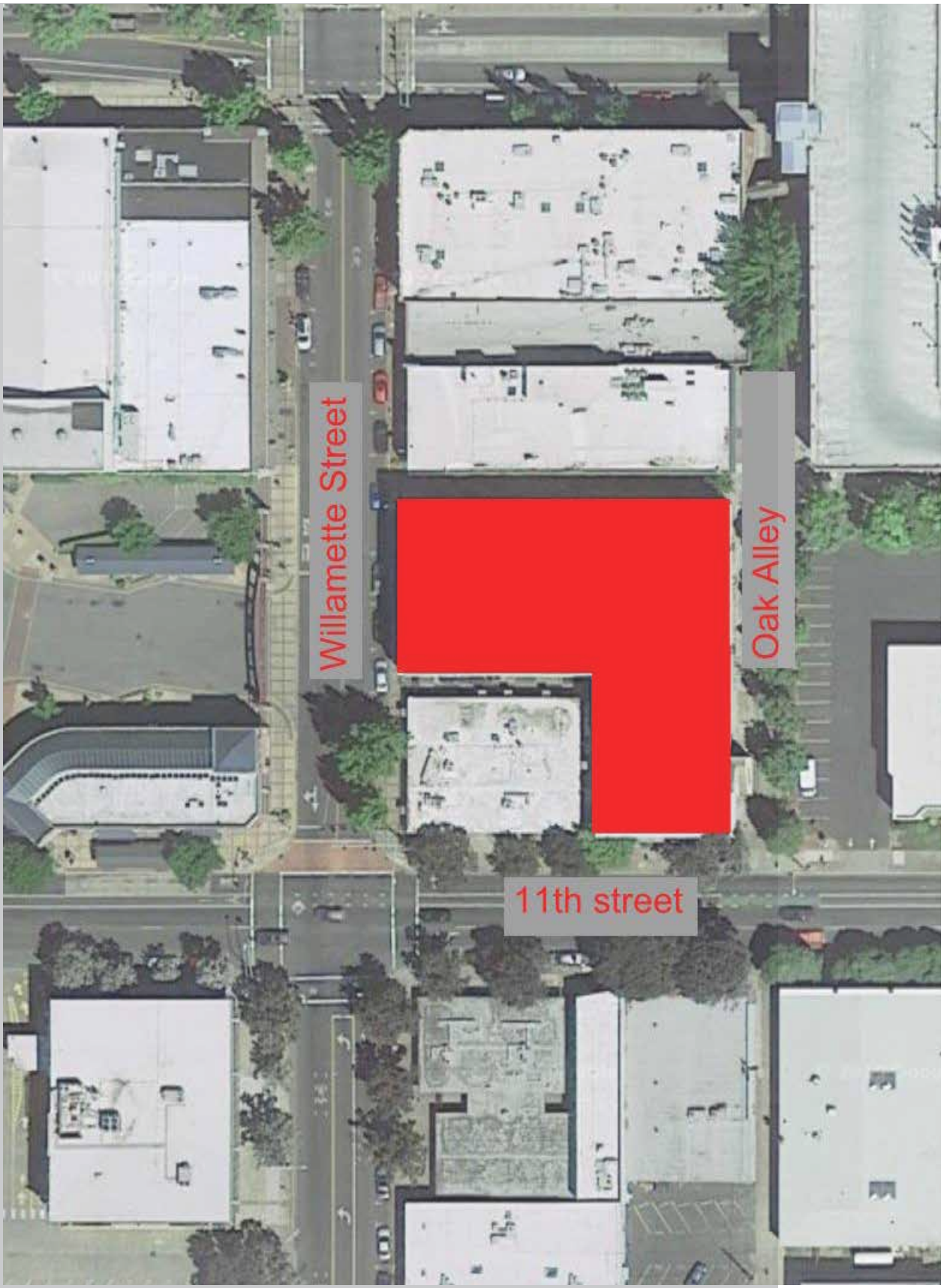
MEASURE 7 Design for Wellness

MEASURE 8 Design for Resources

MEASURE 9 Design for Change

MEASURE 10 Design for Discovery

03.



SITE

The site is located at Willamette Street and West 11th Avenue in Downtown Eugene. Since the early 1900's, Willamette Street has been Eugene's main business street. In 1910, the street was paved and 6.2 miles of road were added across the city. Electric lighting came in 1912 and the first water line was added in 1914. The city built concrete sidewalks in 1915.

A pair of streets, 11th Avenue and 13th Avenue, are considered minor arterials while Willamette Street is considered a neighborhood collector.

MAJOR ARTERIAL

MINOR ARTERIAL

MAJOR COLLECTOR

NEIGHBORHOOD COLLECTOR

LOCAL STREET

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NEIGHBORHOOD
HISTORY

By the turn of the 21st century, more ornate buildings, such as the Montgomery Ward Building, were replaced by simpler façades. The scale and volume of the buildings frequently remained the same.

CHANGES IN THE URBAN FORM

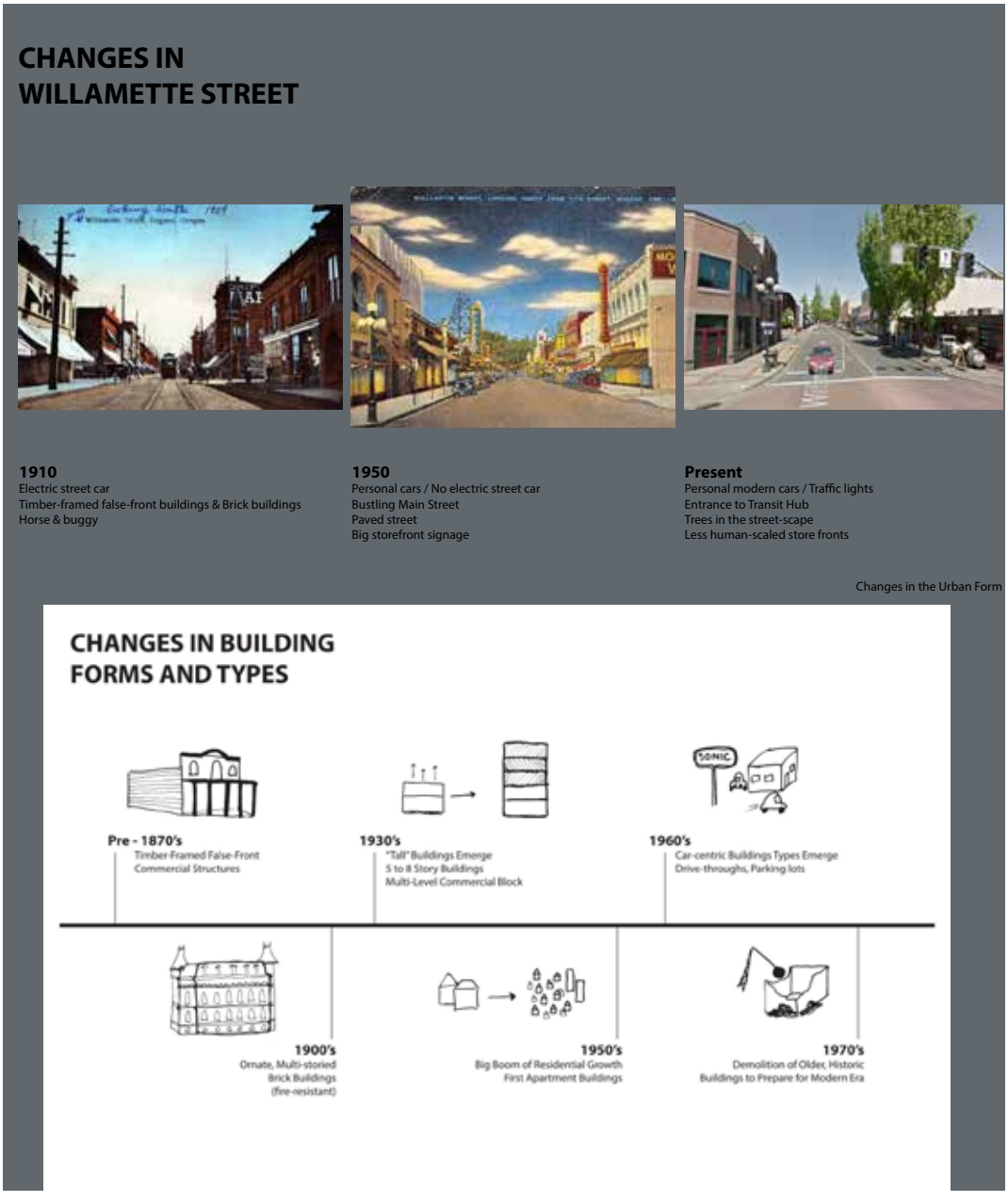
View of Willamette Street from Skinner's Butte

Top RIght - **1910**
Middle Left - **1950**
Bottom Right - **2018**

NEIGHBORHOOD

CHANGES

Before the 1870s, timber-frame dominated the building industry. By the 1930s, taller buildings started to appear in downtown. Willamette Street buildings remained smaller scale, most at 30' to 35' in height. Additionally, most of the buildings on Willamette Street are brick.



HISTORIC BUILDINGS

ON WILLAMETTE

3. US POST OFFICE
Stripped Classical (Art Deco) - 1937

This Stripped Classical, Art Deco style building was designed by government architect Gilbert Stanley Underwood and built 1937-39. Underwood is known for designing other prominent federal buildings, such as the Seattle Federal Courthouse and the Los Angeles Federal Building. Several murals can be found at either end of the lobby- they are the work of an internationally renowned Oregon artist, Carl Morris.

7. MCDONALD THEATRE
Classical Greek/Roman (Mediterranean) - 1925

Built in 1925, the McDonald Theatre is the sole architecturally intact example of a movie palace remaining in Eugene. Of the four original movie houses in town, the McDonald was the largest with a seating capacity of 1,400. Designed by Lee Thomas, a Portland architect, the stage was made to accommodate live theatre and motion picture productions. The McDonald Theatre represented the largest endeavor of the McDonald-Schaefers Company. The space is now a performing arts theater as well as a music venue.

8. SCHAEFERS BUILDING
Modernistic (Art Deco) - 1929

This building was constructed in 1929, the single example of a modernistic style applied to a commercial building. The design of the building was the product of Truman Phillips, a recent graduate of the University of Oregon's School of Architecture. The Schaefers brothers were important to the development of the local downtown business community. The building is now a Senior and Disability Services center.

TRANSPORTATION

CHANGES

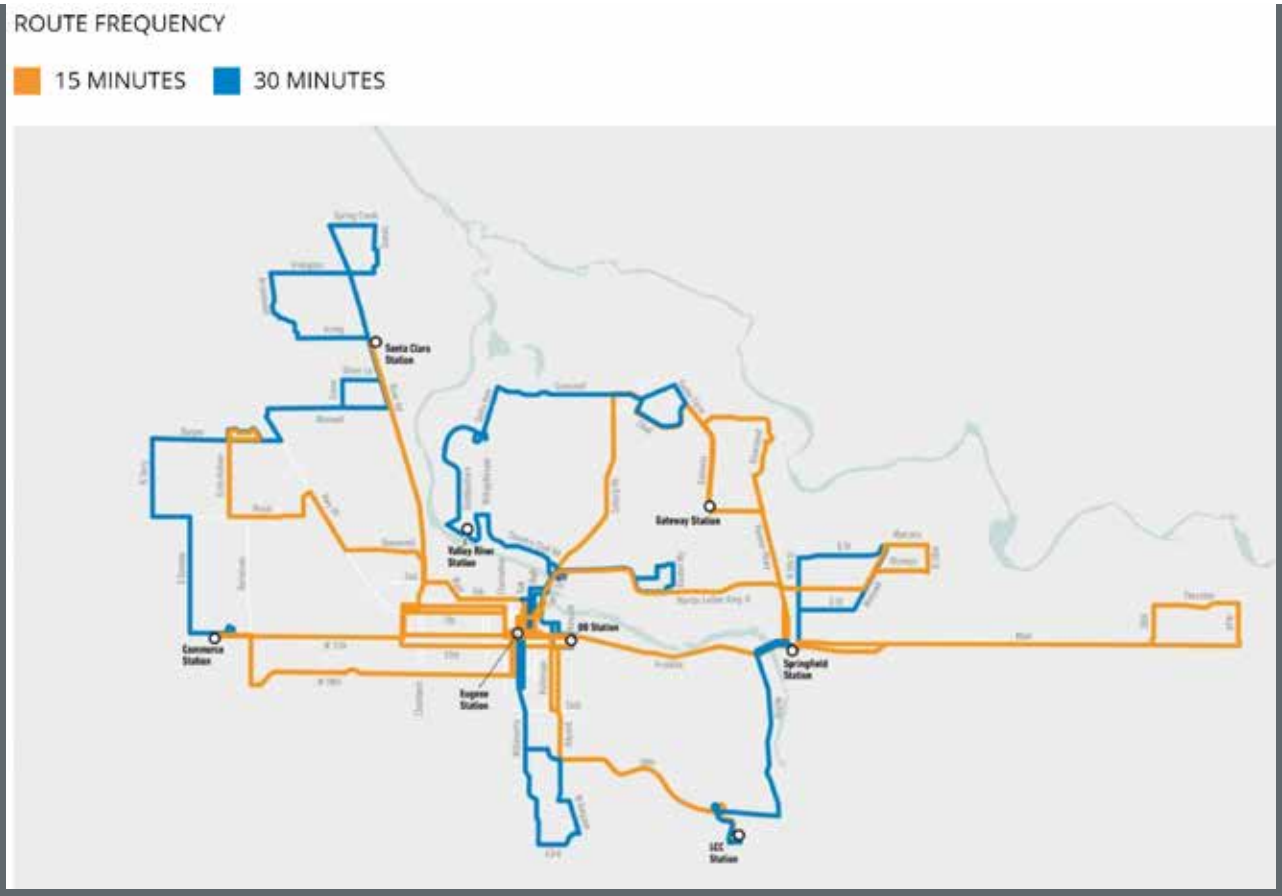
CHANGES IN URBAN TRANSPORTATION

1907 & 1910
Electric Street Car beings operating
& passes directly beside site on Willamette

TRANSIT

TOMORROW

LTD knows the importance of a healthy transit system. LTD is taking steps to improve ridership in Eugene by decreasing wait times, expanding carrying capacity, and planning for the future. Their main downtown station is across the street from the site redesigned by students.



Site Aerial View

LTD Downtown Station

EUGENE

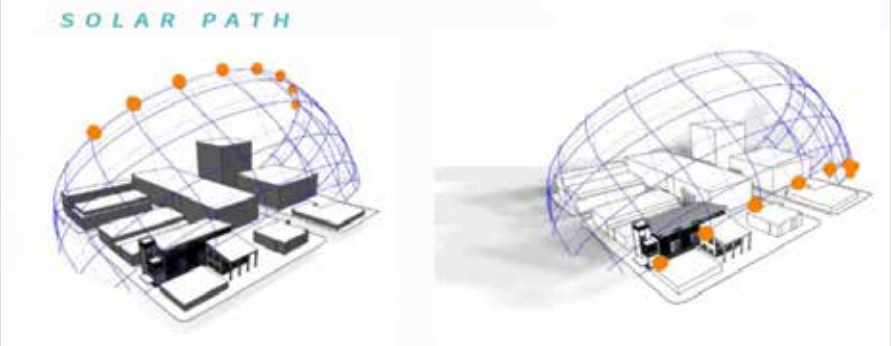
CLIMATE

HOW WILL EUGENE'S CLIMATE CHANGE?

CLIMATE ACTION PLAN 2.0

Changing Climate in Eugene

Eugene's Climate Action Plan discusses the potential changes of Eugene's climate in temperature, snow levels, drought, and wildfires. As designers, students remained aware of these changes and encourage green strategies for LTD throught their designs.

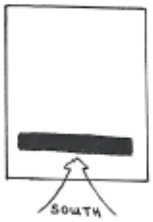


For climate analysis, the students used ASHRAE Psychometric Charts and usclimatedata.com. These analyses on climate data accompanied diagrams that explain the various building form needs to meet human comfort.

Passive Heating

Indoor Fireplace

Rain Protection

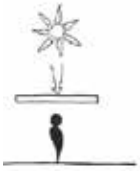


South Wind Protection

S & N Wind Protection

SW & North Wind Protection

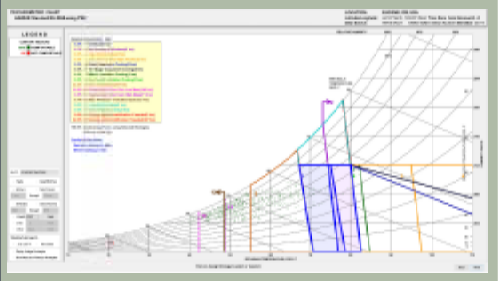
Direct Sun



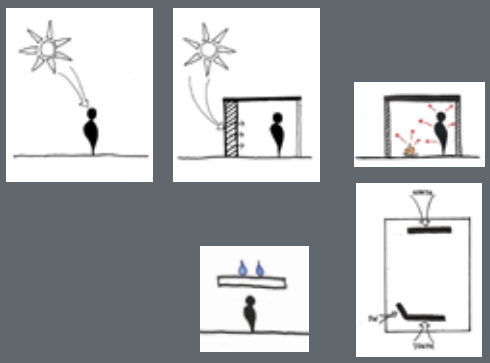
Outdoor Sun Protection

Interior Sun Protection

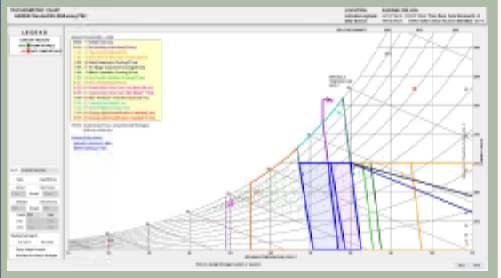
MAY



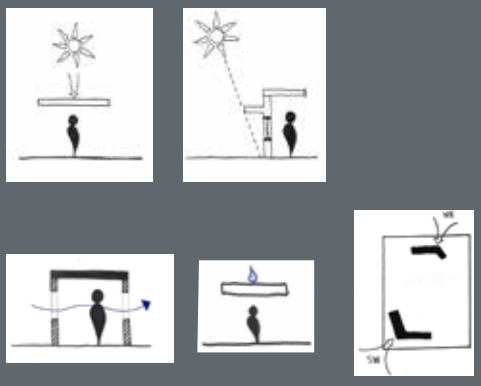
Average Temperature:
Low: 43.8 F
High: 67 F
Average Rainfall:
Rainfall Days: 11.7 days
Amount: 2.7"
Average Daylight:
Daylight Hours: 15 hrs
Sunshine Hours: 9 hrs
Relative Humidity:
60%
Wind:
25mph Southwestern



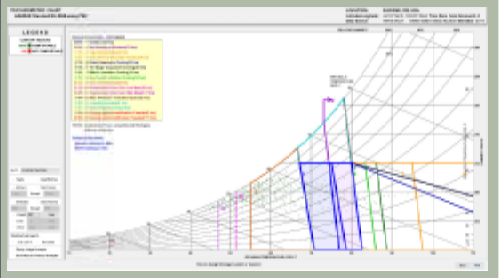
JUNE



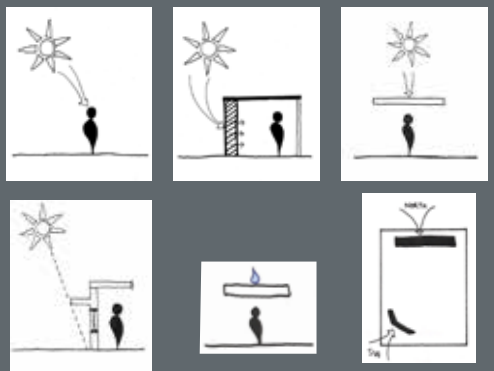
Average Temperature:
Low: 47.9 F
High: 73.2 F
Average Rainfall:
Rainfall Days: 7.9 days
Amount: 1.5"
Average Daylight:
Daylight Hours: 15 hrs
Sunshine Hours: 11 hrs
Relative Humidity:
56%
Wind:
20mph Western Wind



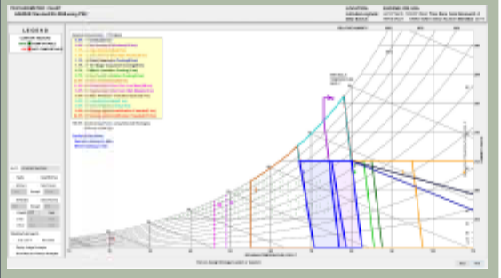
SEPTEMBER



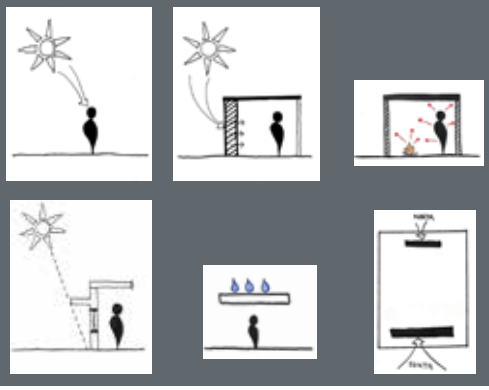
Average Temperature:
Low: 47.3 F
High: 76.9 F
Average Rainfall:
Rainfall Days: 5.4 days
Amount: 1.3"
Average Daylight:
Daylight Hours: 12 hrs
Sunshine Hours: 9 hrs
Relative Humidity:
50%
Wind:
20mph Northern Wind



OCTOBER



Average Temperature:
Low: 64.2 F
High: 41.5 F
Average Rainfall:
Rainfall Days: 11.4 days
Amount: 3.3"
Average Daylight:
Daylight Hours: 11 hrs
Sunshine Hours: 6 hrs
Relative Humidity:
49%
Wind:
20mph Northern Wind

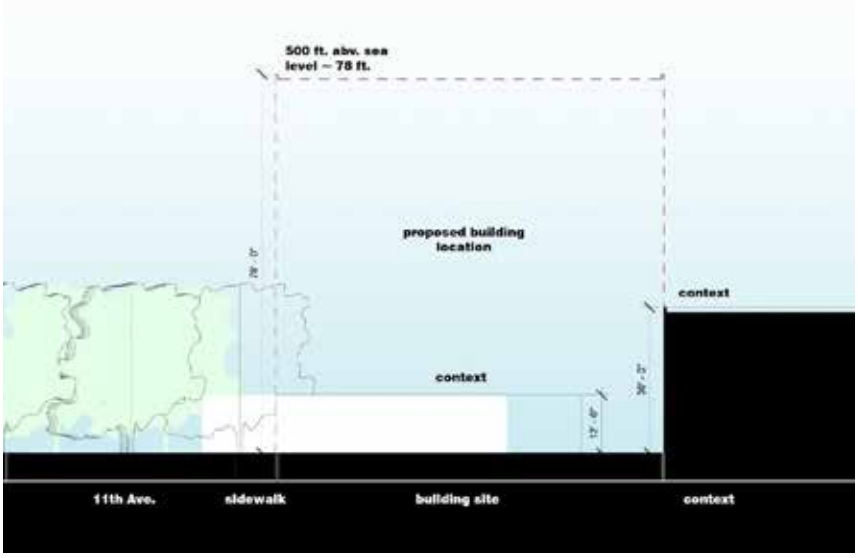


04.

WILLAMETTE STREET AS A

FRONT DOOR

Willamette Street serves as the front door to many businesses, past and present. The street contains wide lanes for cars and bikes, wide sidewalks, and space for parked cars. Wide sidewalks make it a more pedestrian-friendly street than West 11th Avenue. Therefore, students recommend orienting the main entrance of the new building towards Willamette Street. LTD's main station is across the street. Hundreds of thousands of riders travel through the hub each year, making this site a very visible location.



This diagram illustrates the maximum allowable height in this district.

STUDENT SOLUTIONS FOR THE

FRONT DOOR

The following images illustrate the students' creative designs for the building facade on Willamette Street. The site is framed by LTD's downtown station, therefore students paid special attention to its composition and character. Students hoped to inspire Eugene residents with designs that are worthy additions to the neighborhood.

Will Ogburn Design

David Deussen Design

Jocelyn Reynolds Design

Kyle Tasik Design

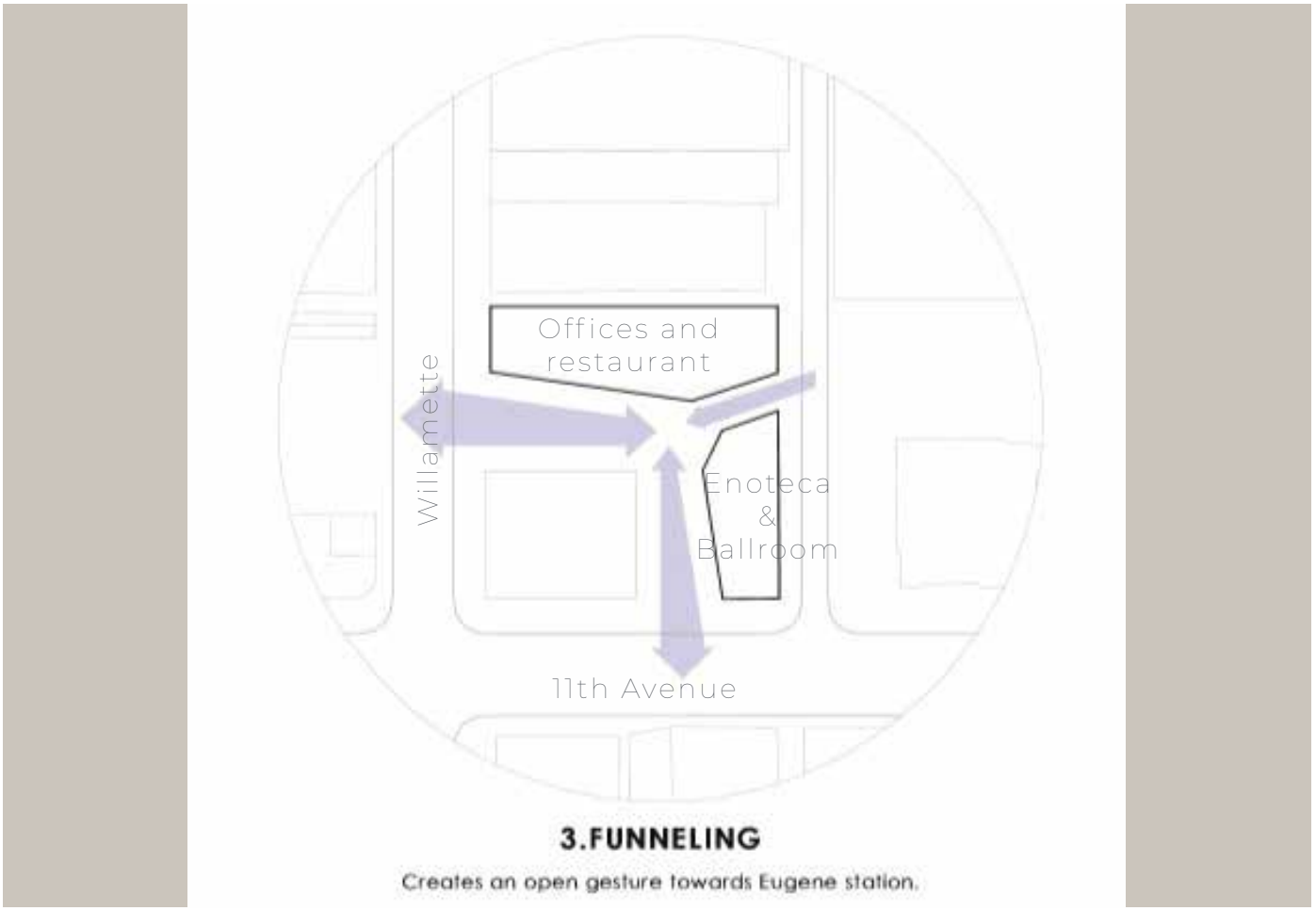
Alex Tapia Design

STUDENT SOLUTIONS FOR

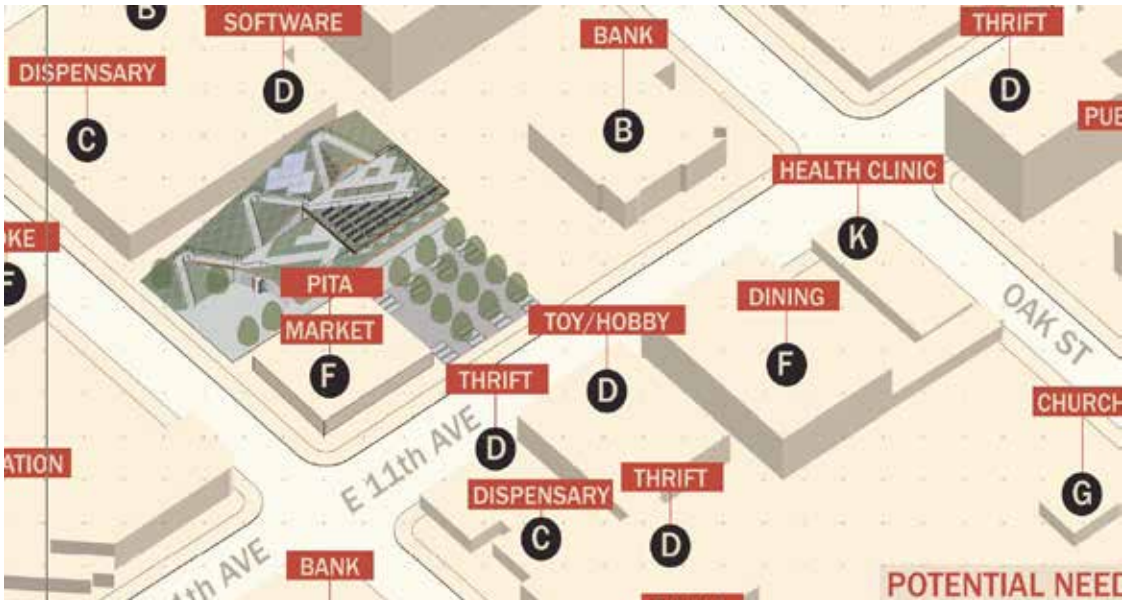
MIXED-USE PROGRAMS

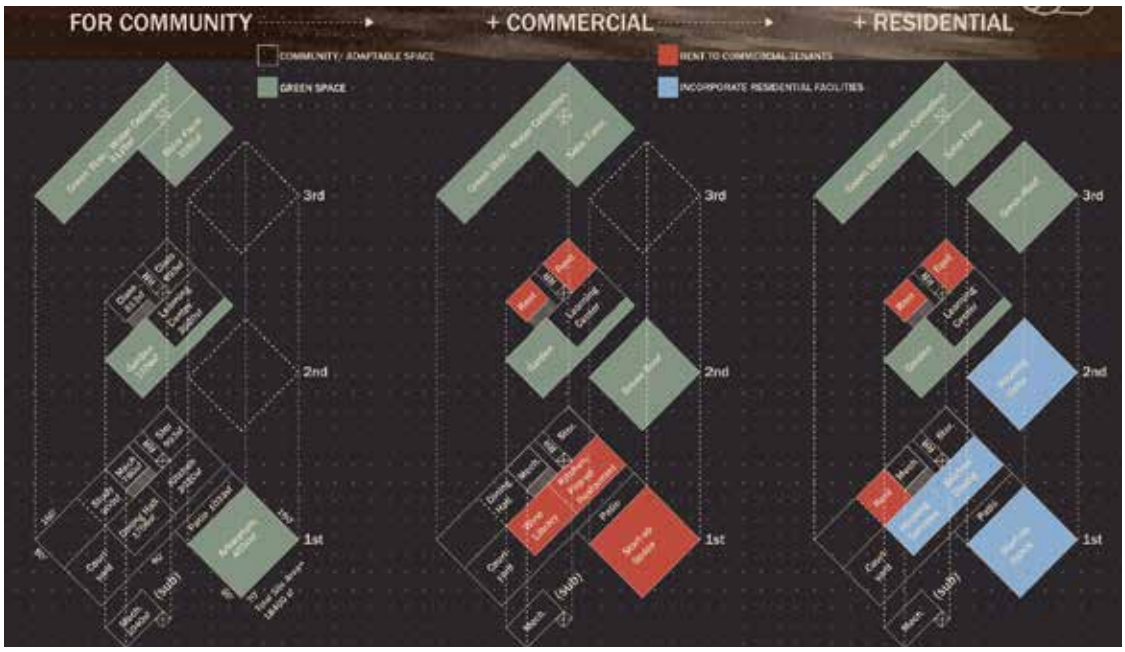
Mixed-use can create community partnerships and vibrant neighbohoods by offering a variety of services to residents within the same block. Mixed-use developments may include apartments, offices, coffee shops, retail, restaurants, and event spaces. The site is easily accessible with parking along Willamette Street, bike lanes on 10th and 11th Avenues, and transit access across the street. Students considered these transportation assets when creating their designs. The following student designs incorporated class objectives to create a space for an enoteca, a restaurant, and a ballroom.

David Deussen Design



This student created a site that users can enter via three main points: Willamette Street, 11th Avenue, and Oak Alley. A central plaza is nestled between the three entrances and is the perfect spot to enjoy a drink or meal without vehicle or noise pollution.



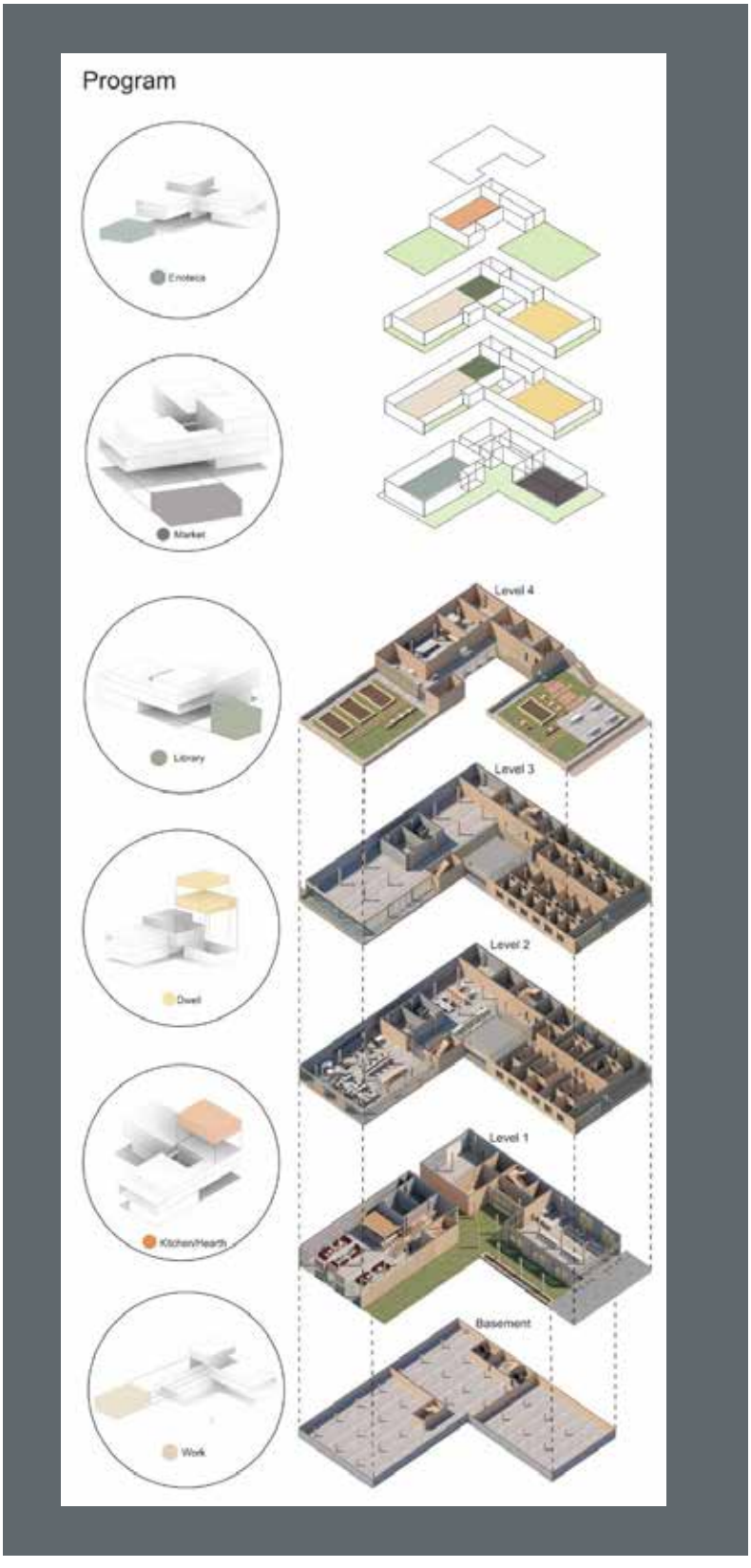


Katherine Marple Design

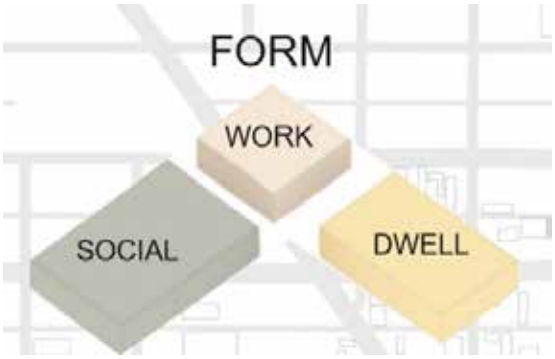
This student planned a block that incorporates green space in downtown Eugene, creating a park-like setting where residents and visitors can relax.

STUDENT SOLUTIONS FOR

MIXED-USE SOLUTIONS



Vayle Khalaf Design



This student planned her program using the existing building structure. She designed social gathering spaces, work spaces, residential units, and outdoor spaces. The image above depicts the main view at street level on Willamette Street. The image below shows work spaces on second floor facing Willamette.

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GREEN

STRATEGIES

Students also incorporated sustainable elements into their designs. Students utilized the AIA COTE 2020 Student Competition standards as their main performance measures for their designs.

These ten measures are briefly highlighted in this section. Student boards depict the full extent of their design decision and solutions.

M1 Integration

M2 Community

M3 Ecology

M4 Water

M5 Economy

M6 Energy

M7 Wellness

M8 Resources

M9 Change

M10 Discovery

MEASURE 1

DESIGN FOR INTEGRATION

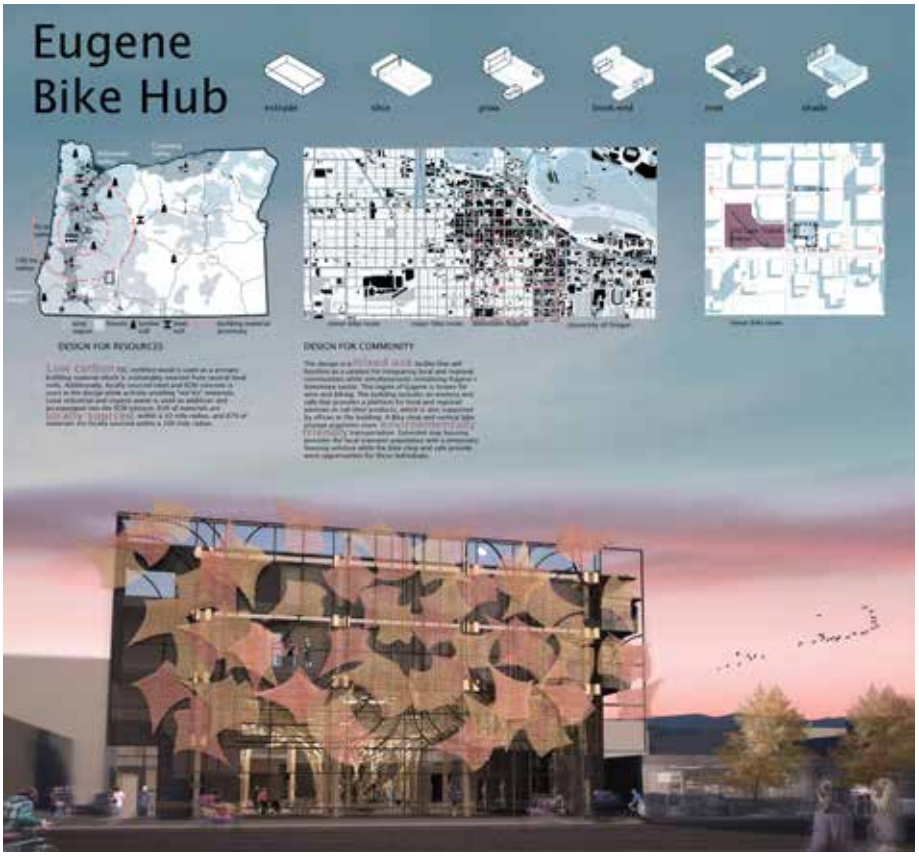
Student designs incorporated buildings into the existing buit and natural environment. Integrated designs promote sustainability and create a more attractive building.

This student's design incorporates seven sustainability strategies: solar panels, thermal mass, rain water collection, solar shading, vegetative roof, cross ventilation, and daylight.

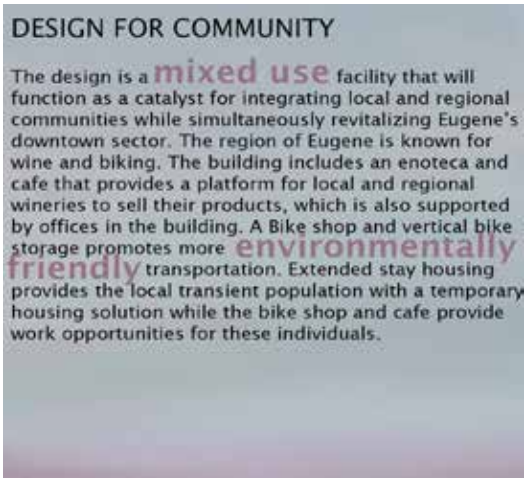
MEASURE 2

DESIGN FOR COMMUNITY

Students included design aspects that contributed to community wellness. These included aspects that improved walkability, human-scaled design, as well as aspects to address equity. Students also sought to reduce emissions by incorporating sustainable transportation modes into their designs. LTD's station across the street helped students better incorporate sustainable transportation.



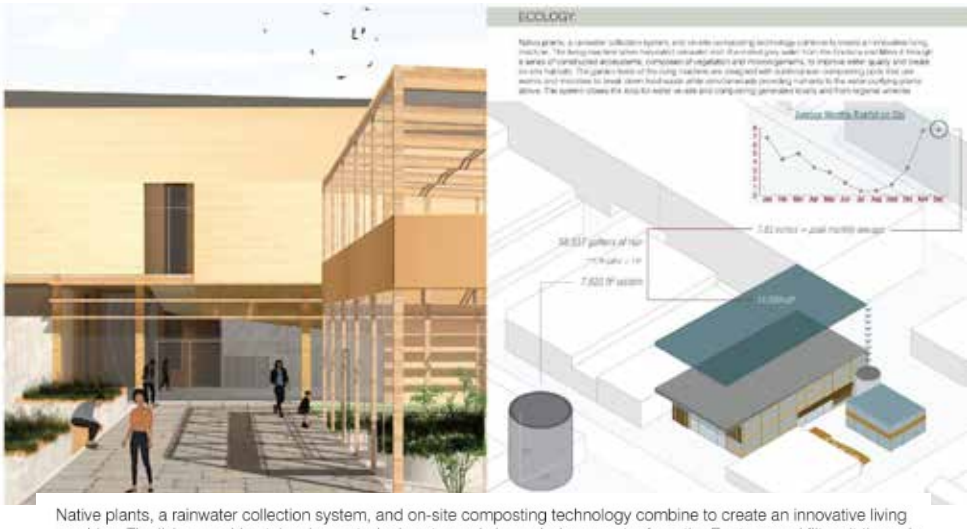
Will Osburn community solution and Words



MEASURE 3

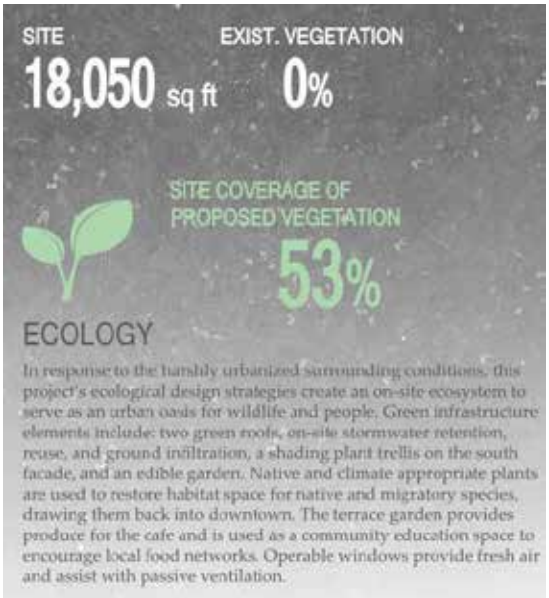
DESIGN FOR ECOLOGY

Students designed buildings that benefit the natural ecosystem and habitat. Designs included rainwater harvesting and vegetation into the building design to promote integration with the surrounding ecosystem.



Native plants, a rainwater collection system, and on-site composting technology combine to create an innovative living machine. The living machine takes harvested rainwater and channeled grey water from the Enoteca and filters it through a series of constructed ecosystems, composed of vegetation and microorganisms, to improve water quality and create on-site habitats. The garden beds of the living machine are designed with subterranean composting pods that use worms and microbes to break down food waste while simultaneously providing nutrients to the water-purifying plants above. The system closes the loop for water on-site and composting generated locally and from regional wineries

Courtney Sigloh Design for Ecology and words

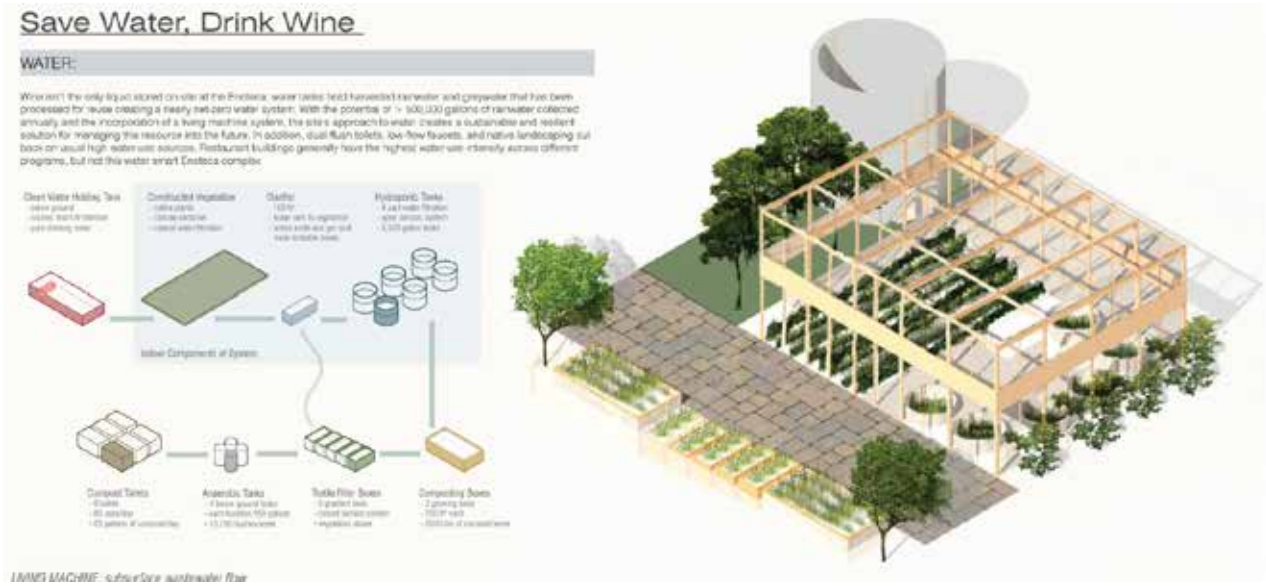


Jocelyn Reynolds Design for Ecology and Words

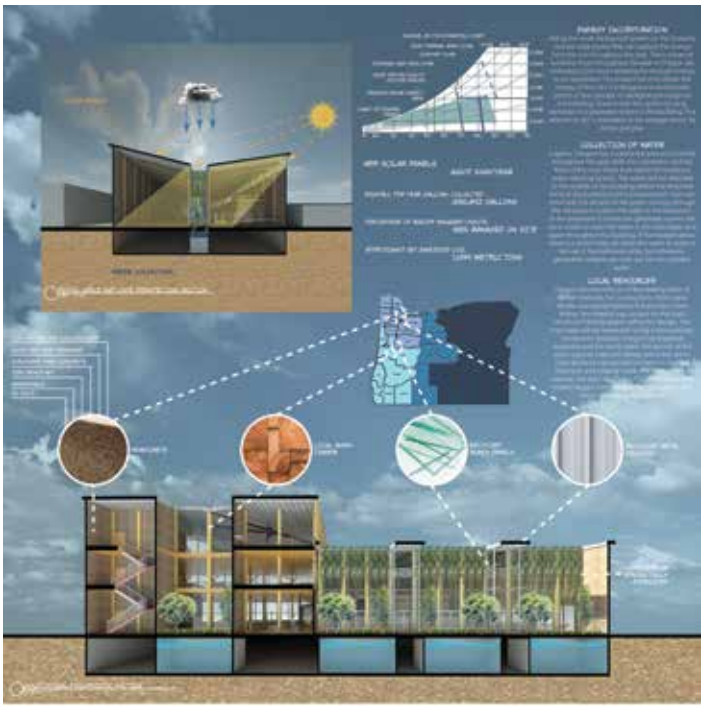
MEASURE 4

DESIGN FOR WATER

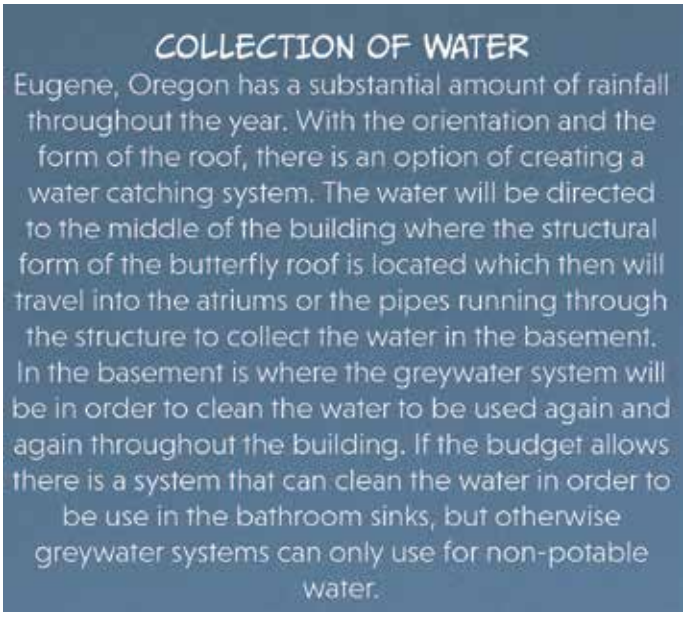
Designs incorporated water conservation methods including rainwater harvesting, natural water filtration elements, and greywater reuse systems. These elements could help the builiding save up to 500,000 gallons of water annually.



Courtney Sigloh Design for Water



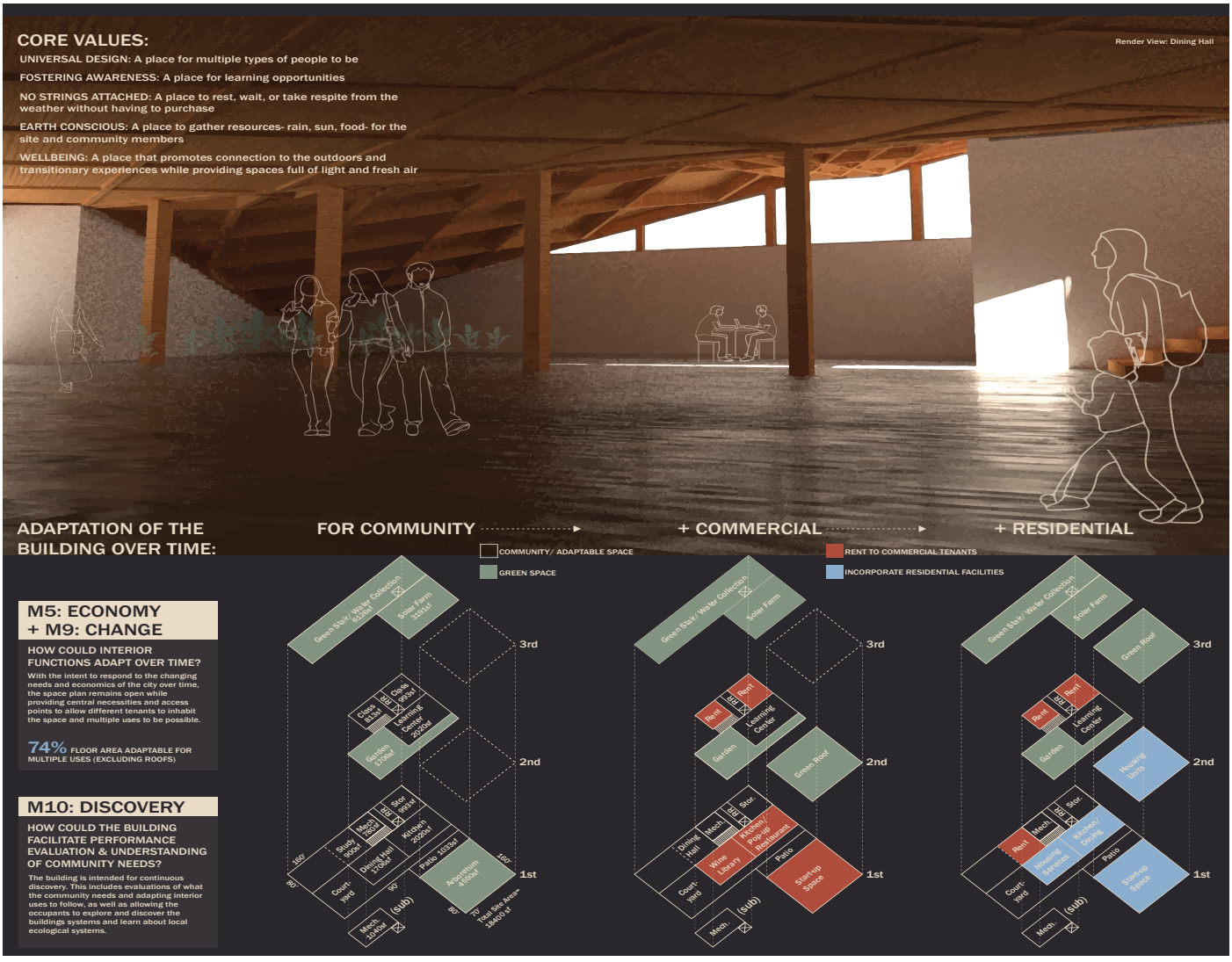
Emma Davis Design for Water and Words



MEASURE 5

DESIGN FOR ECONOMY

Students created an economically sustainable space by incorporating spaces that can be used for a variety of purposes over time. Creating adaptable space creates a building that can remain economically sustainable well into the future.

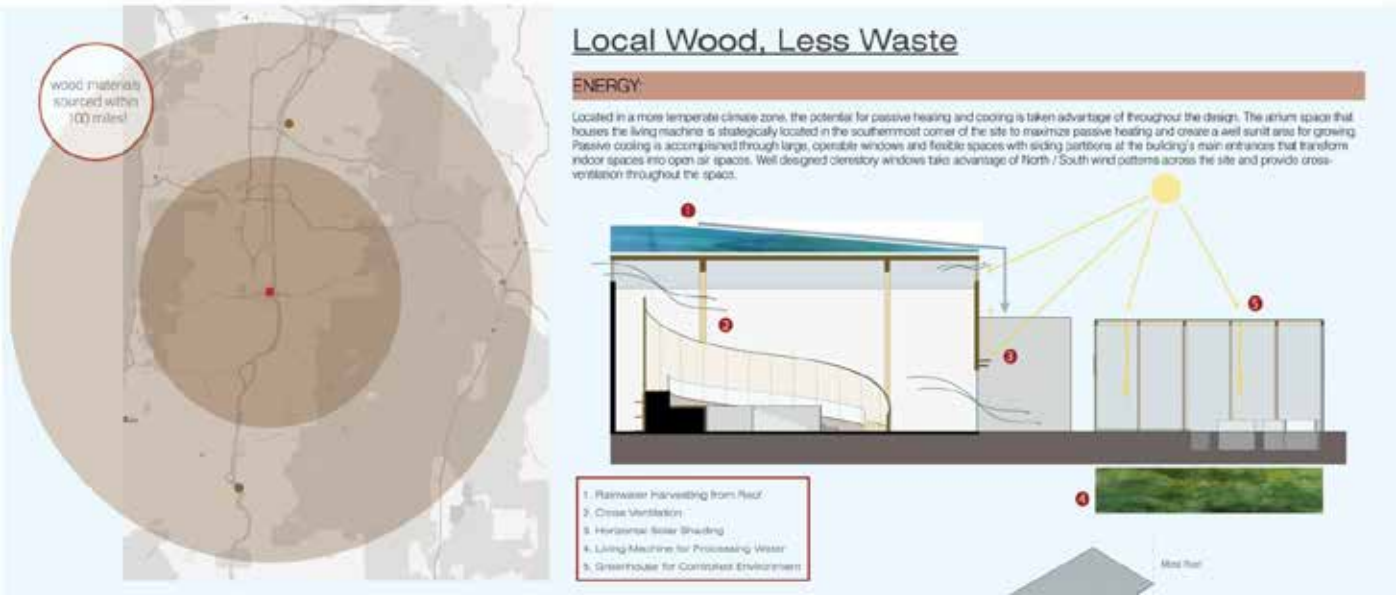


Katherine Marple Design for Economy-Percentage of Reusable Space

MEASURE 6

DESIGN FOR ENERGY

Students sought to minimize energy use in their designs. Student designs embraced passive heating to promote more sustainable energy use and used operable windows to improve building ventilation. Additionally, students recommended using materials from within 100 miles of the building site to promote the local economy while utilizing more sustainable materials.



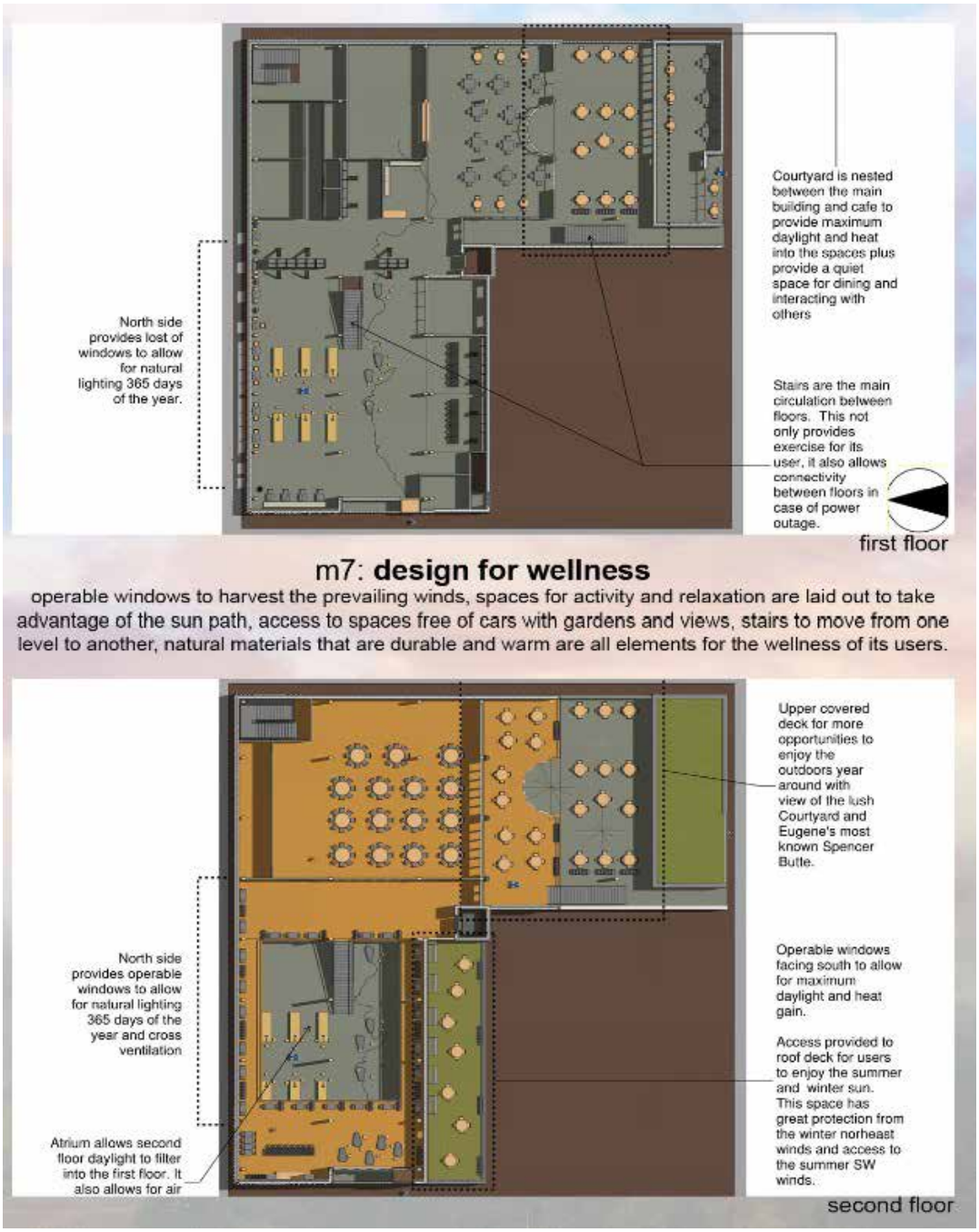
Located in a more temperate climate zone, the potential for passive heating and cooling is taken advantage of throughout the design. The atrium space that houses the living machine is strategically located in the southernmost corner of the site to maximize passive heating and create a well sunlit area for growing. Passive cooling is accomplished through large, operable windows and flexible spaces with sliding partitions at the building's main entrances that transform indoor spaces into open air spaces. Well designed clerestory windows take advantage of North / South wind patterns across the site and provide cross-ventilation throughout the space.

Courtney Sigloh Design for Energy and Words

MEASURE 7

DESIGN FOR WELLNESS

Student designs promote resident and user wellness. Student designs included operable windows, access to green spaces, use of natural light, and spaces for activity and relaxation. These features incorporate human activity and wellness into the built environment.

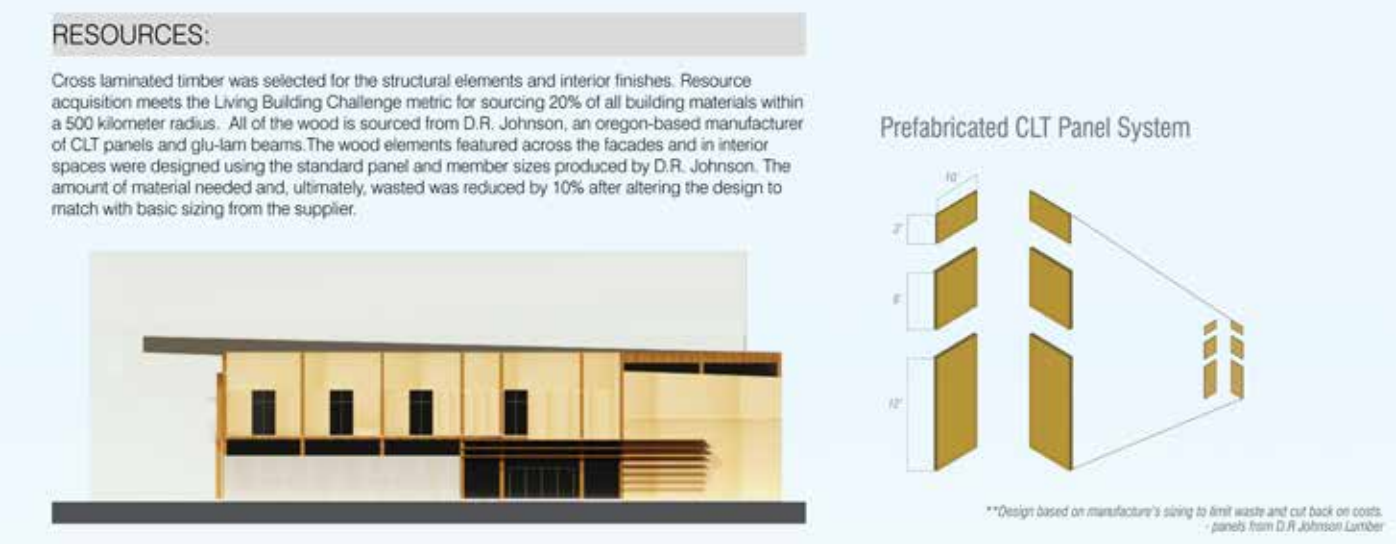


MEASURE 8

DESIGN FOR RESOURCES

Student designs emphasized the use of sustainable resources, in particular cross laminated timber (CLT), hempcrete, and cork materials. These materials have similar durability to common materials like concrete and steel but come from more sustainable resources. Additionally, these materials are recyclable and give the structure embodied carbon savings.

Vayle Khalaf Design for Resources

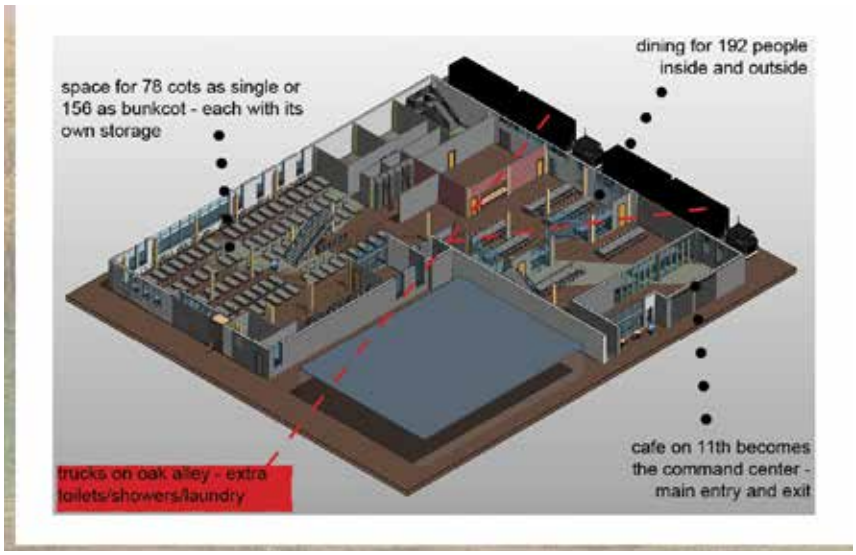


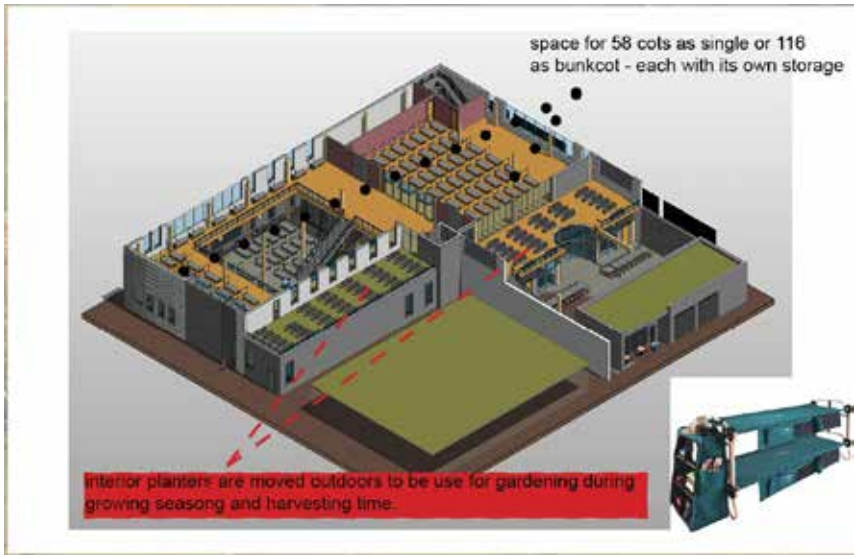
Courtney Sigloh Design for Resources

MEASURE 9

DESIGN FOR CHANGE

Some student designs incorporated potential changes in the event of an emergency. These designs included space for cots, restrooms, dining, and other spaces that could be useful during an emergency. Designs also included resources that would be sustainable in an emergency situation, including: water harvesting and storage; solar panels; and operable windows. Student designs were cognizant of potential emergencies including viruses and the Cascadia earthquake.

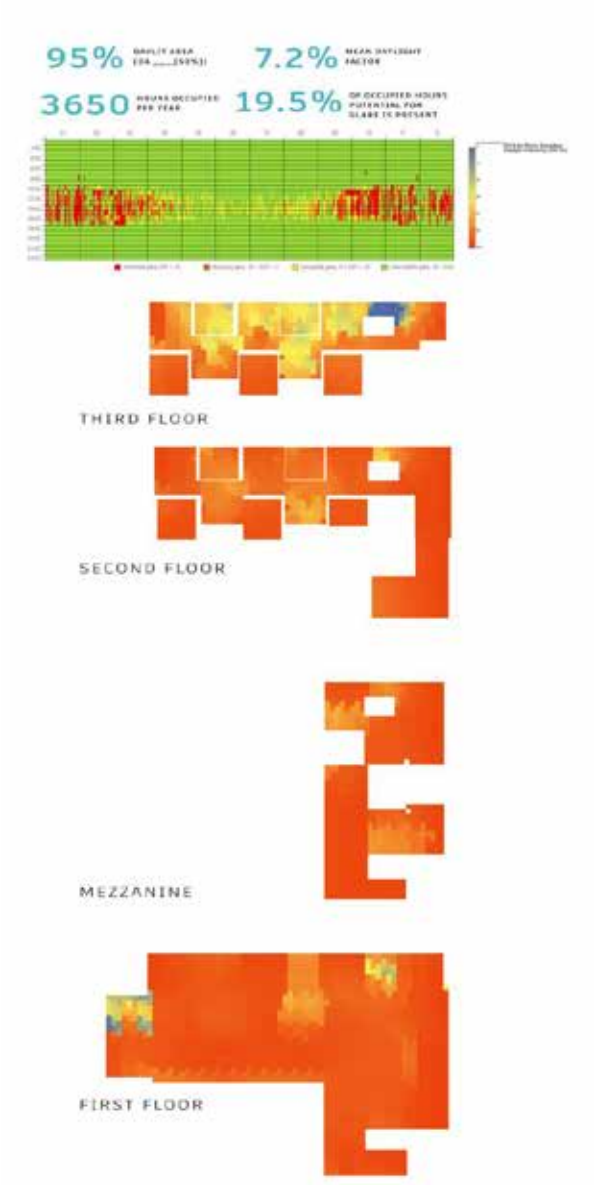




MEASURE 10

DESIGN FOR DISCOVERY

Designing for discovery involves surveying and studying building occupants after the building has been completed and occupied. This allows building occupants to express their opinions about the space and gives designers the chance to learn from their work.



_ DISCOVERY

To ensure the building performs as intend several occupant studies will be conducted to ensure the building's system are performing as expect. Additionally, these studies will allow the building's occupants the opportunity to express their opinions about the space and what things can be changed to address their needs. In addition, the advance buildings monitoring system will have displays in each room that will indicate when it is best to open/close windows to improve the building's energy consumption. This system in return will educate the occupants so they are aware of the consequences of their actions, so they can potentially change their personal habits and consume less energy.

Kyle Tasik Image and Words

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CONCLUSION

Student design projects demonstrate potential solutions to designing sustainable buildings within the city core of Eugene by following guidelines established by AIA COTE. Additionally, designs demonstrate what an 'enoteca' for southern Willamette Valley wineries could look like. Students conducted site and climate analyses as well as historical contextualization to better understand underlying conditions and determine what the designs should entail.

The students added other program components to the enoteca program including affordable housing, bicycle repair, office spaces, and a market hall. These program components could enrich the downtown core and reinforce the transportation hub that Lane Transit District has established across Willamette Street.

The principles of AIA COTE informed student designs. Students designs also explored ways to make use of abundant rainwater. Designs reinforced LTD's emphasis on reducing private automobile use through design elements that enhance local pedestrian activity and bicycle use as well as public transportation. In addition to energy solutions, students explored reinforcing local agriculture by featuring market halls, demonstration gardens, and cafes. They tested the use of manufactured wood, including CLT, as the construction systems.

Lastly, the students reinforced the character of existing downtown buildings while demonstrating how increased density might affect the area. The character of the buildings that students proposed reflects their observations of Eugene as both a physical place and as a cultural heart in the Willamette Valley.

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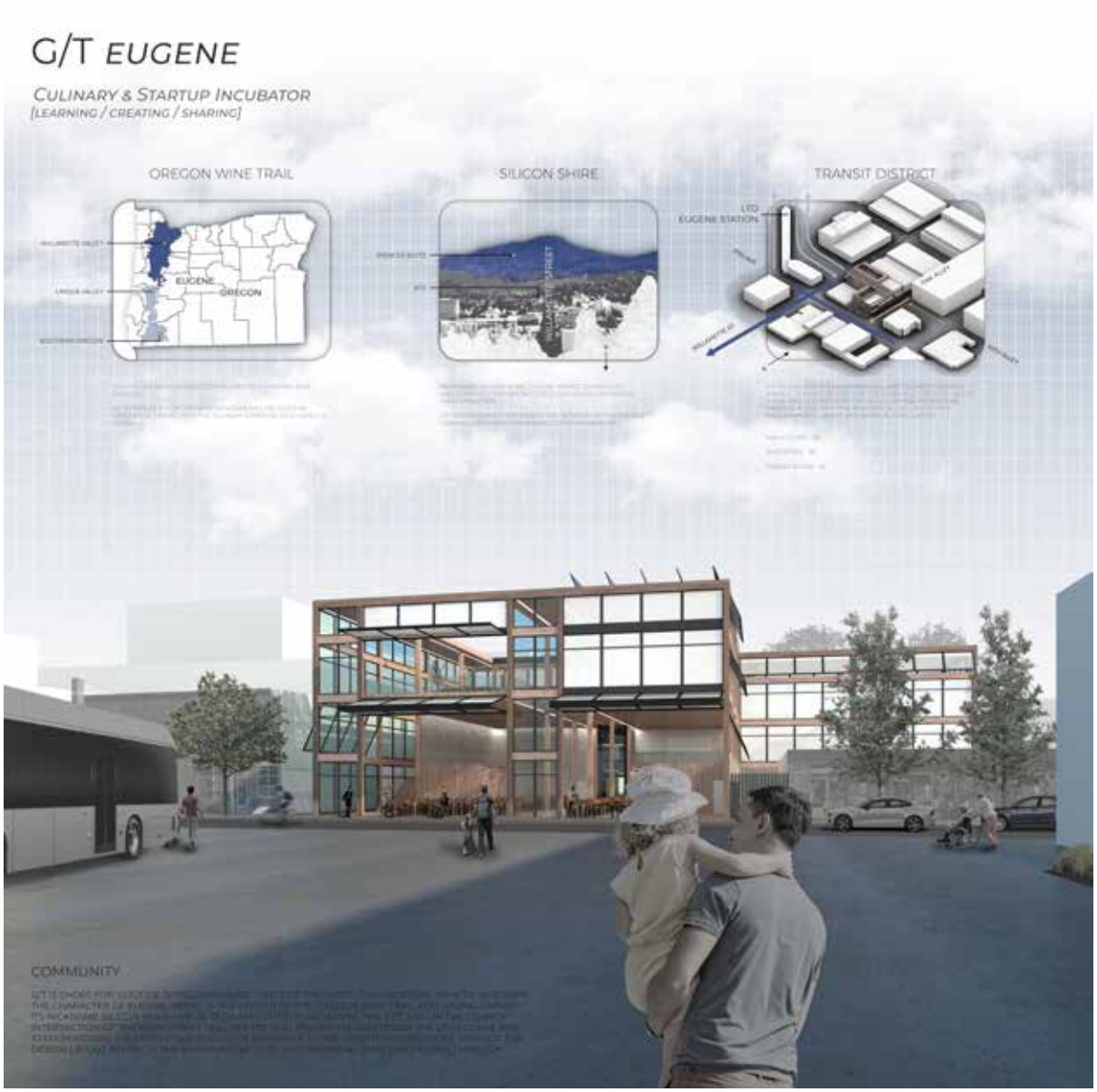

Alex Tapia

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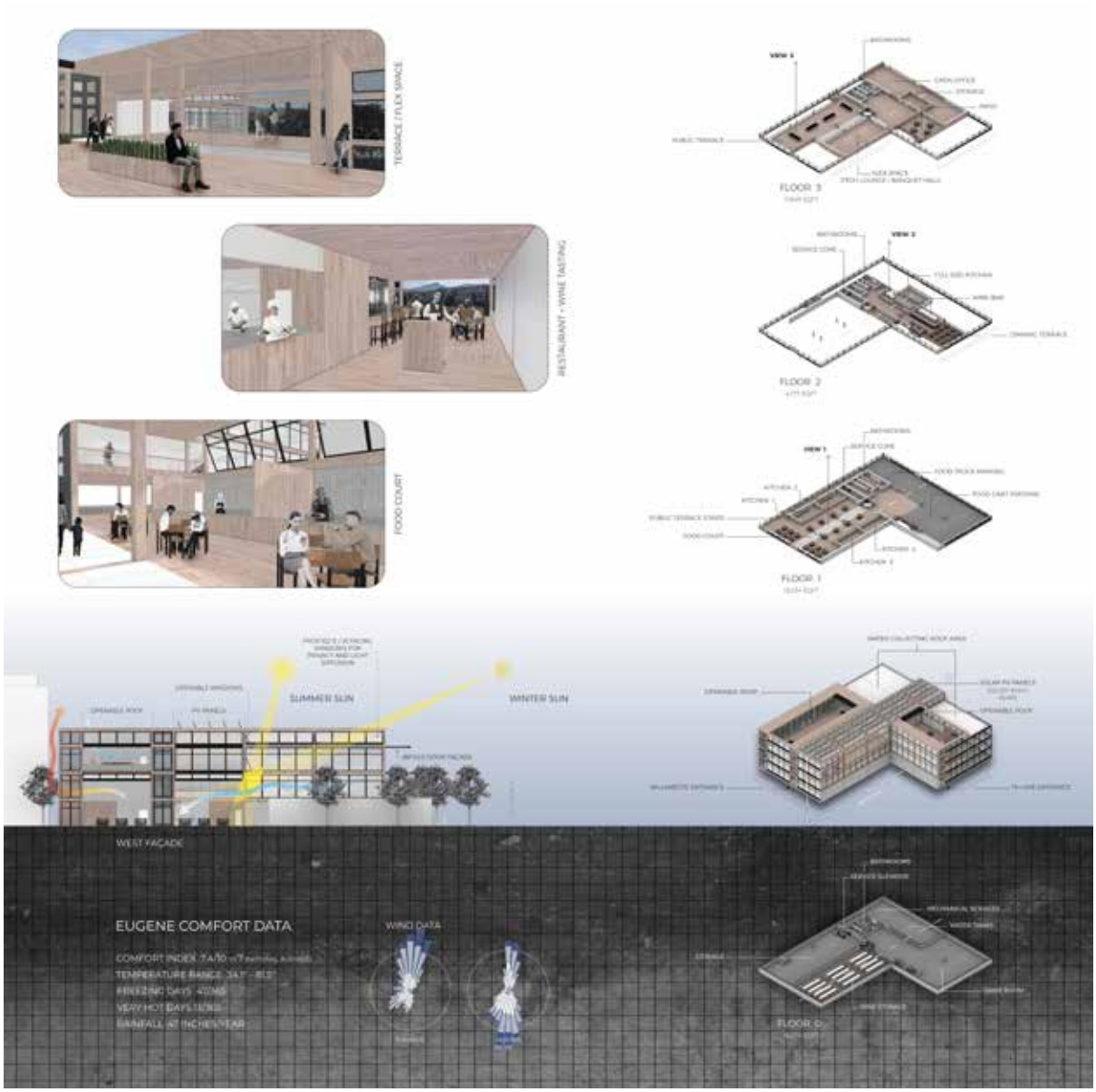

Alex Tapia

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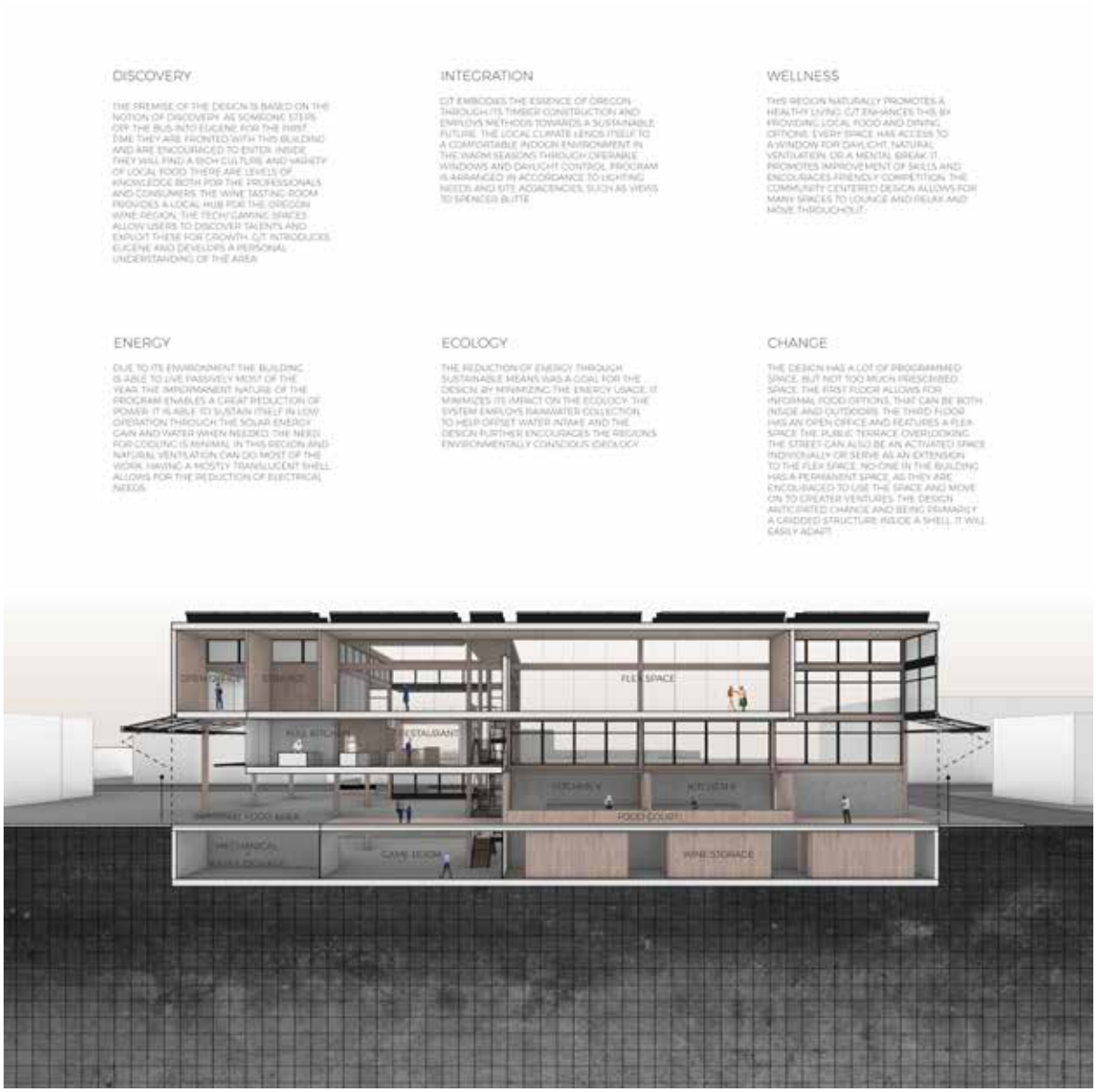

Alex Tapia

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Amy Arroyo

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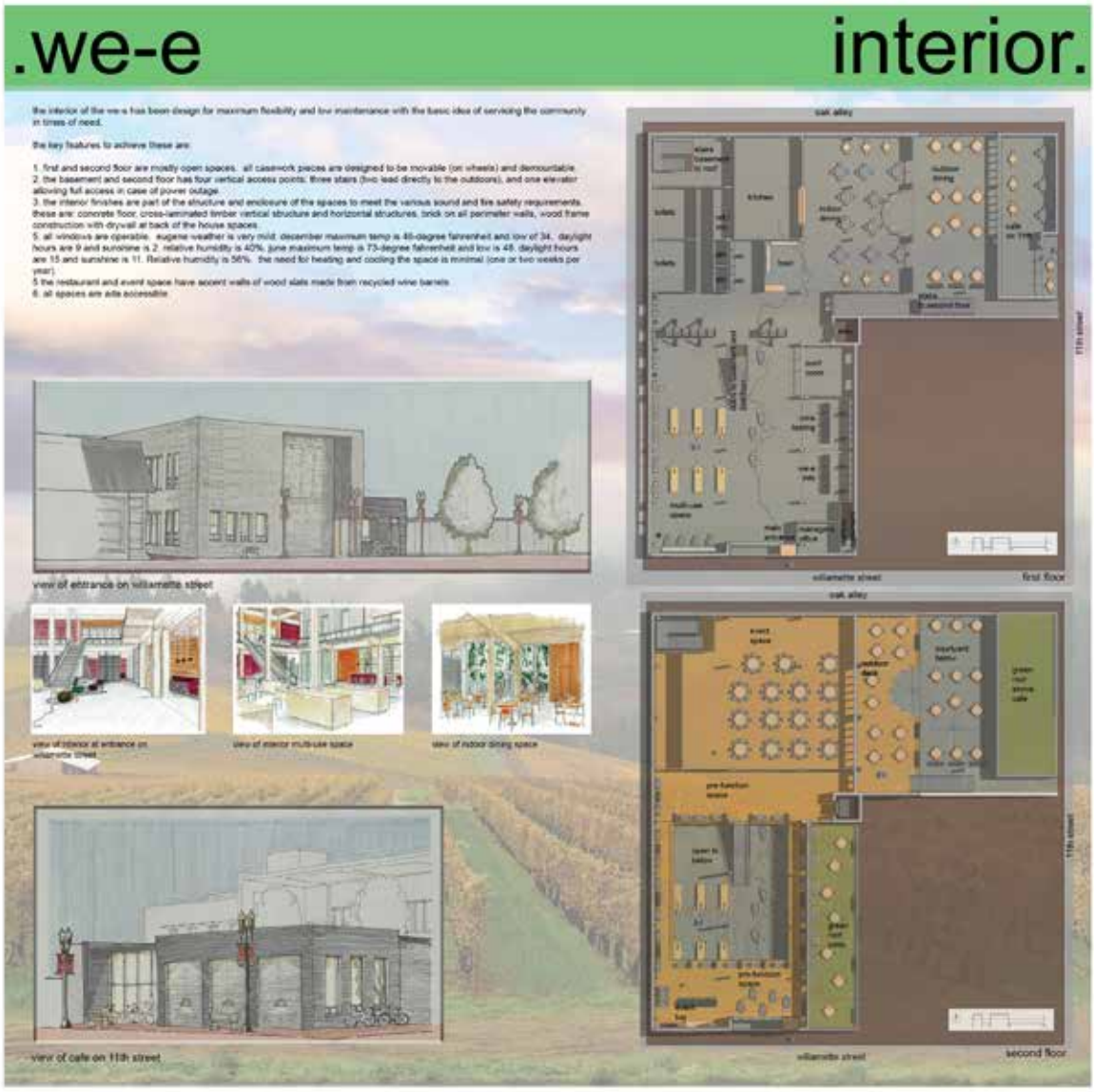

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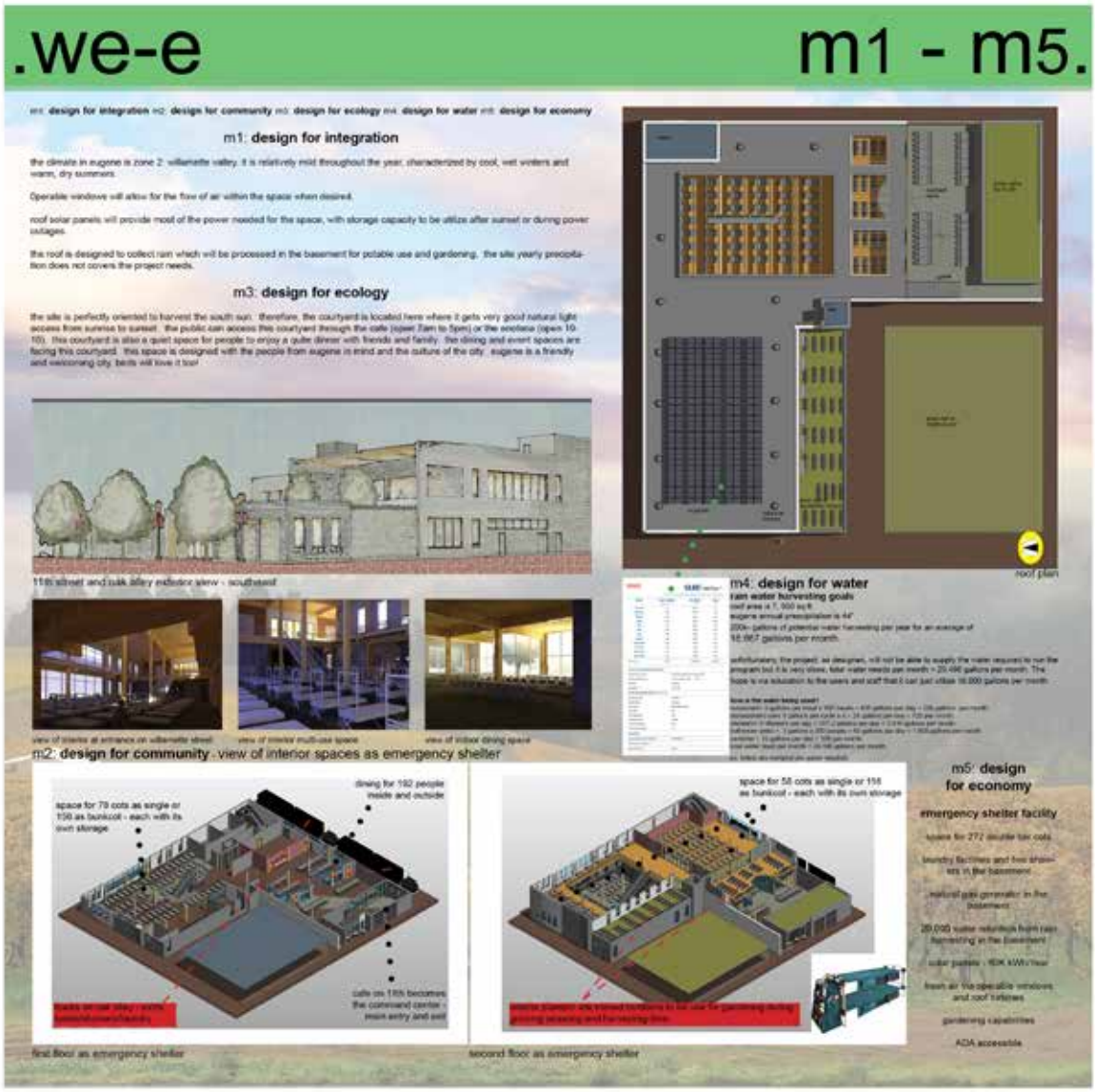

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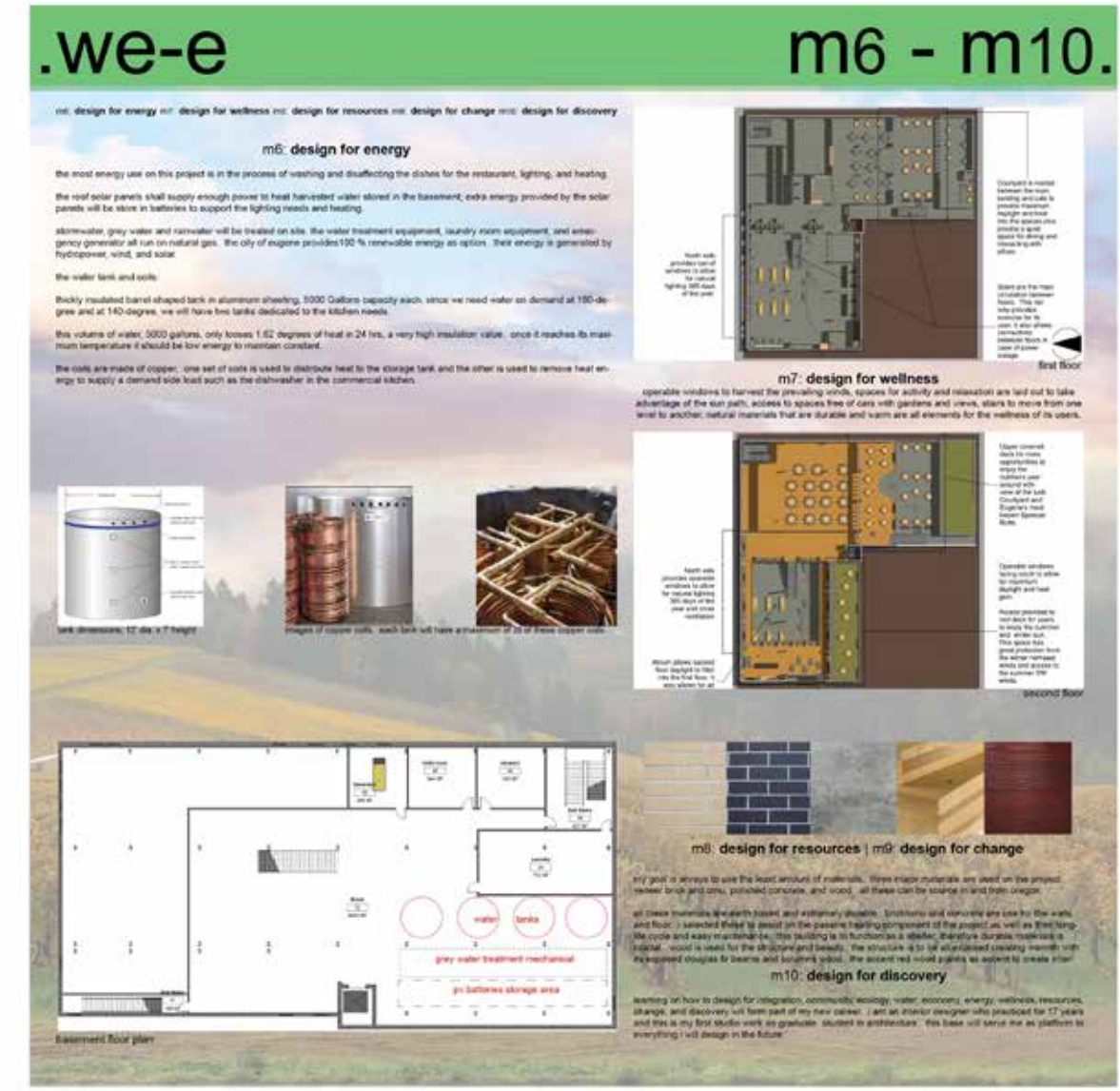

Amy Arroyo

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Anisha Govindankutty

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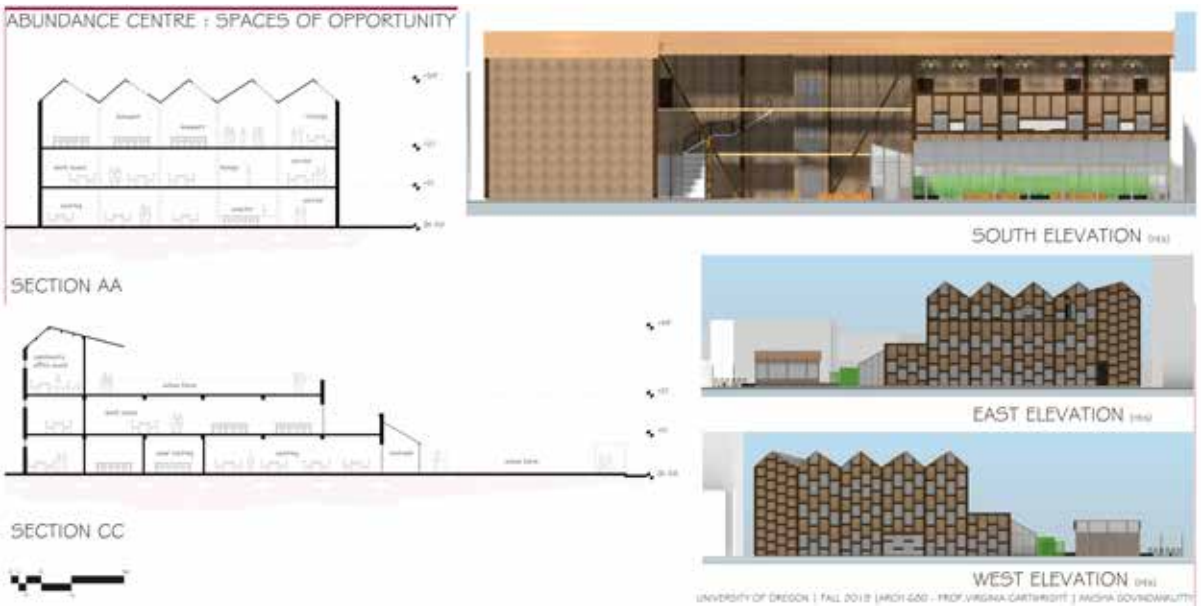

Anisha Govindankutty

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Courtney Sigloh

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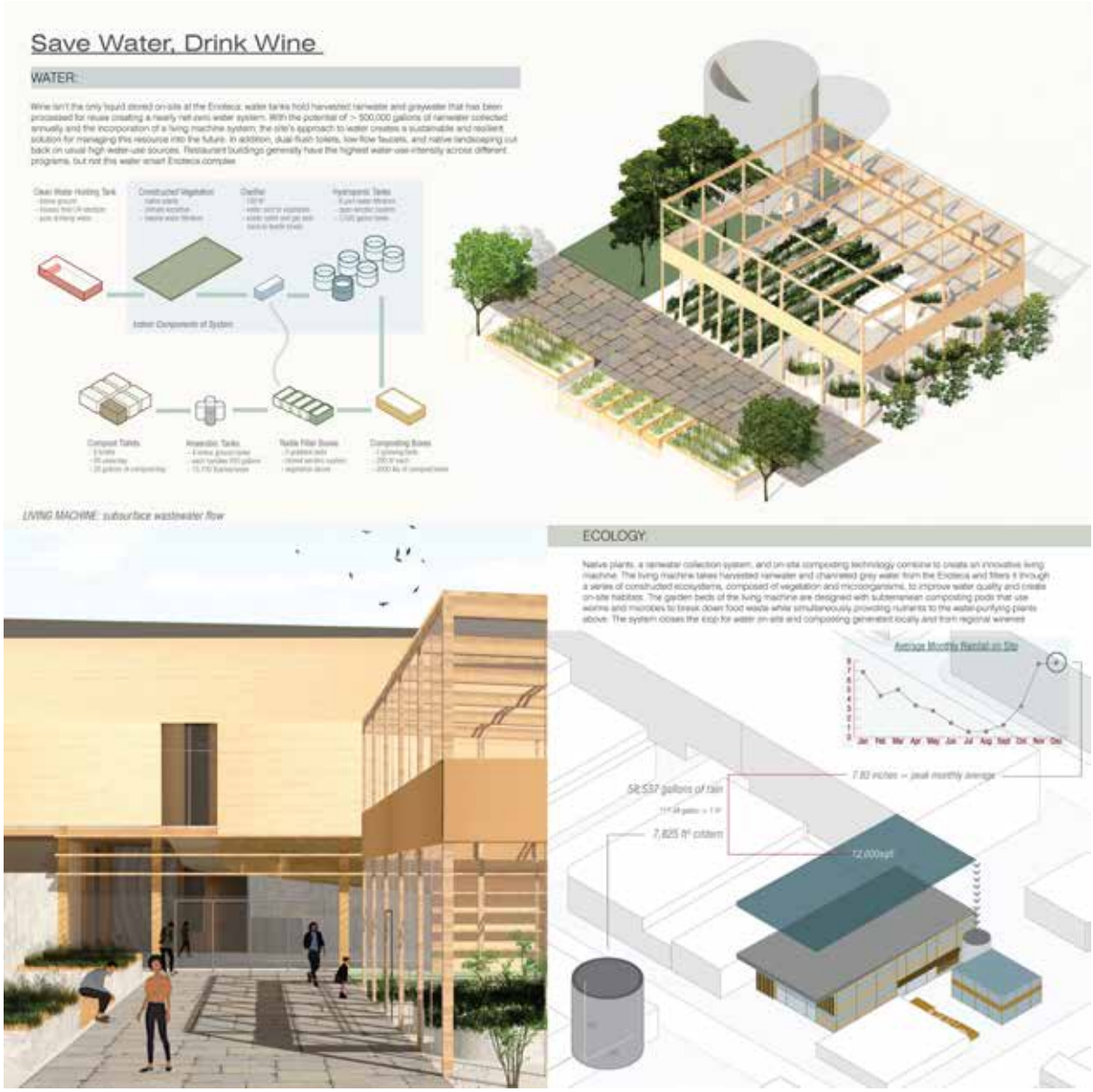

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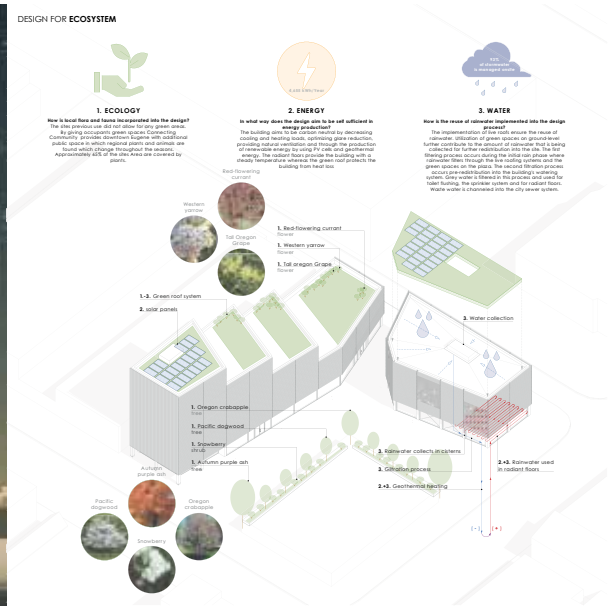

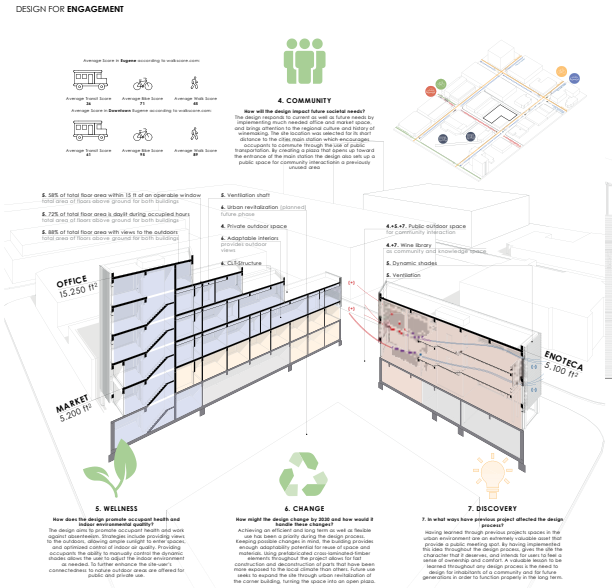

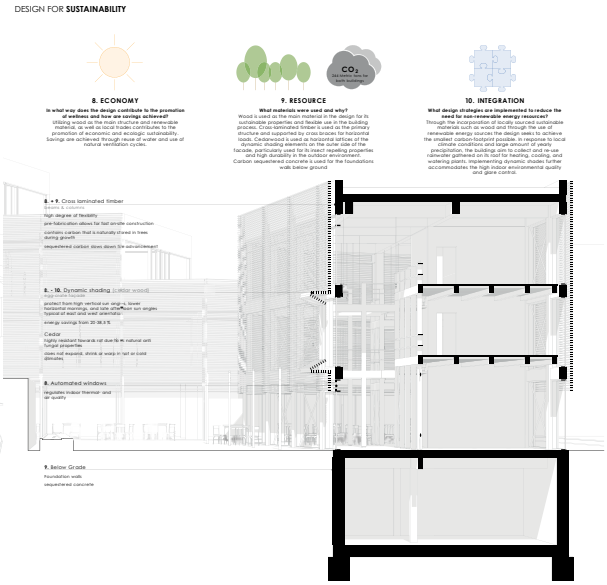

David Deussen

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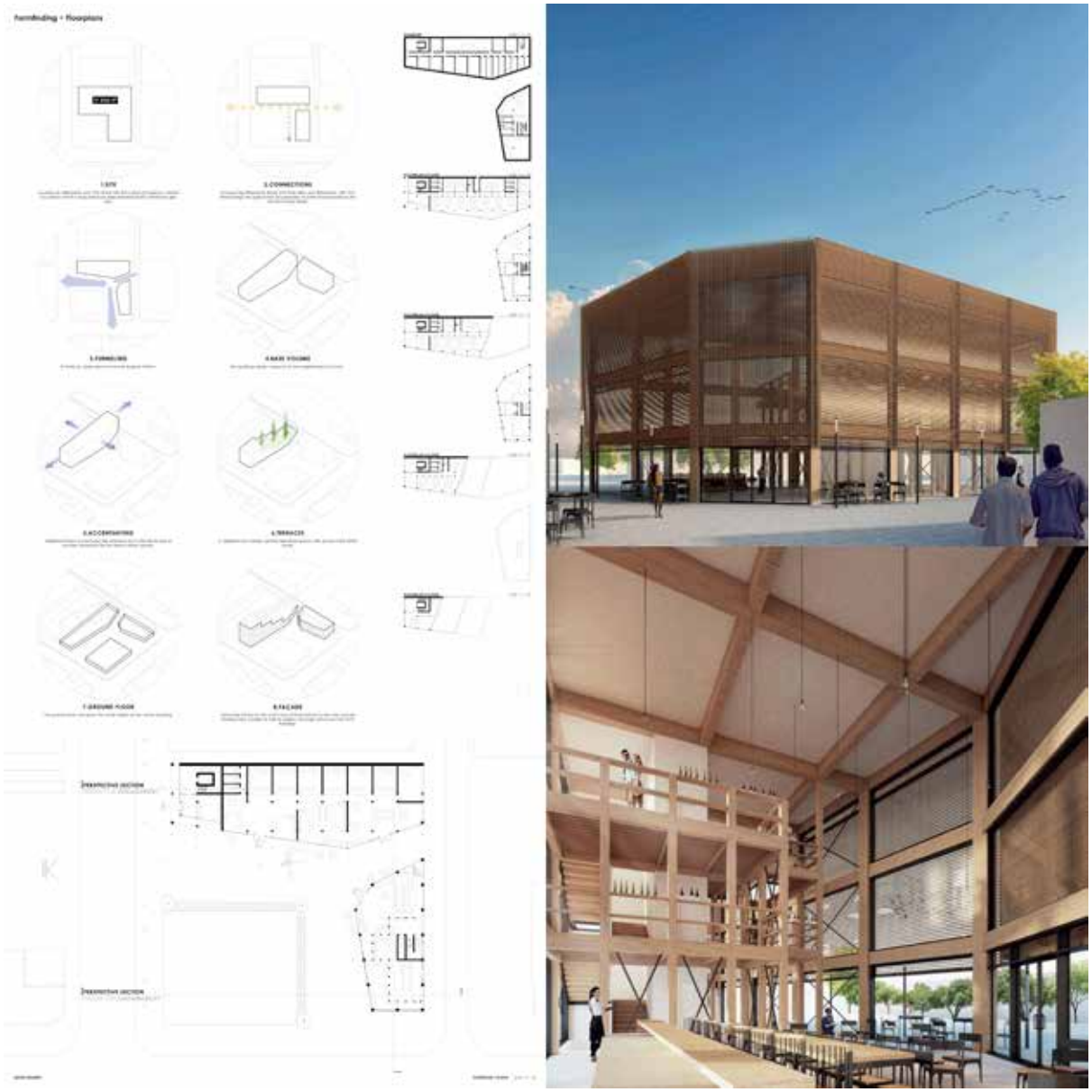

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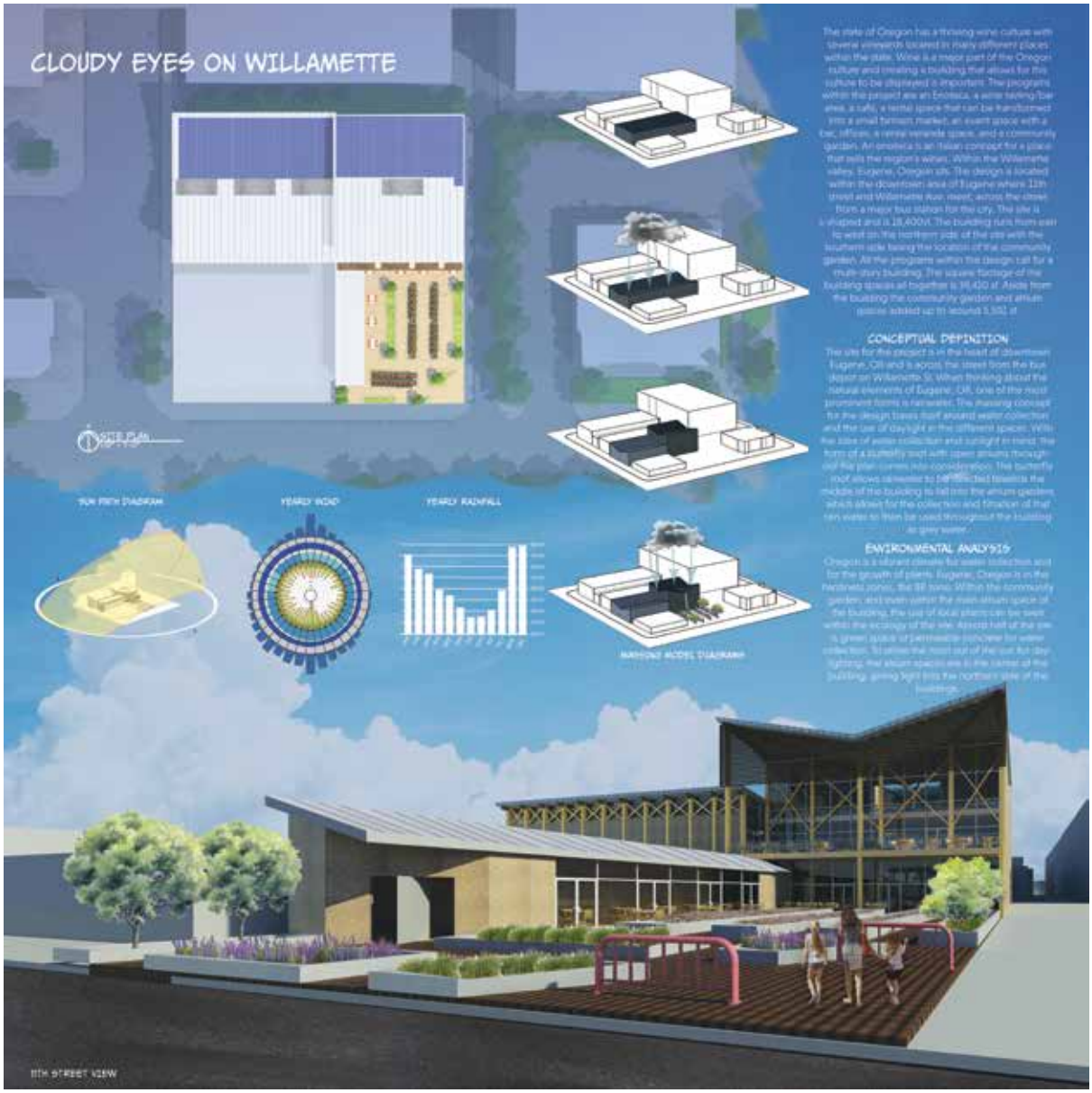

Emma Davis

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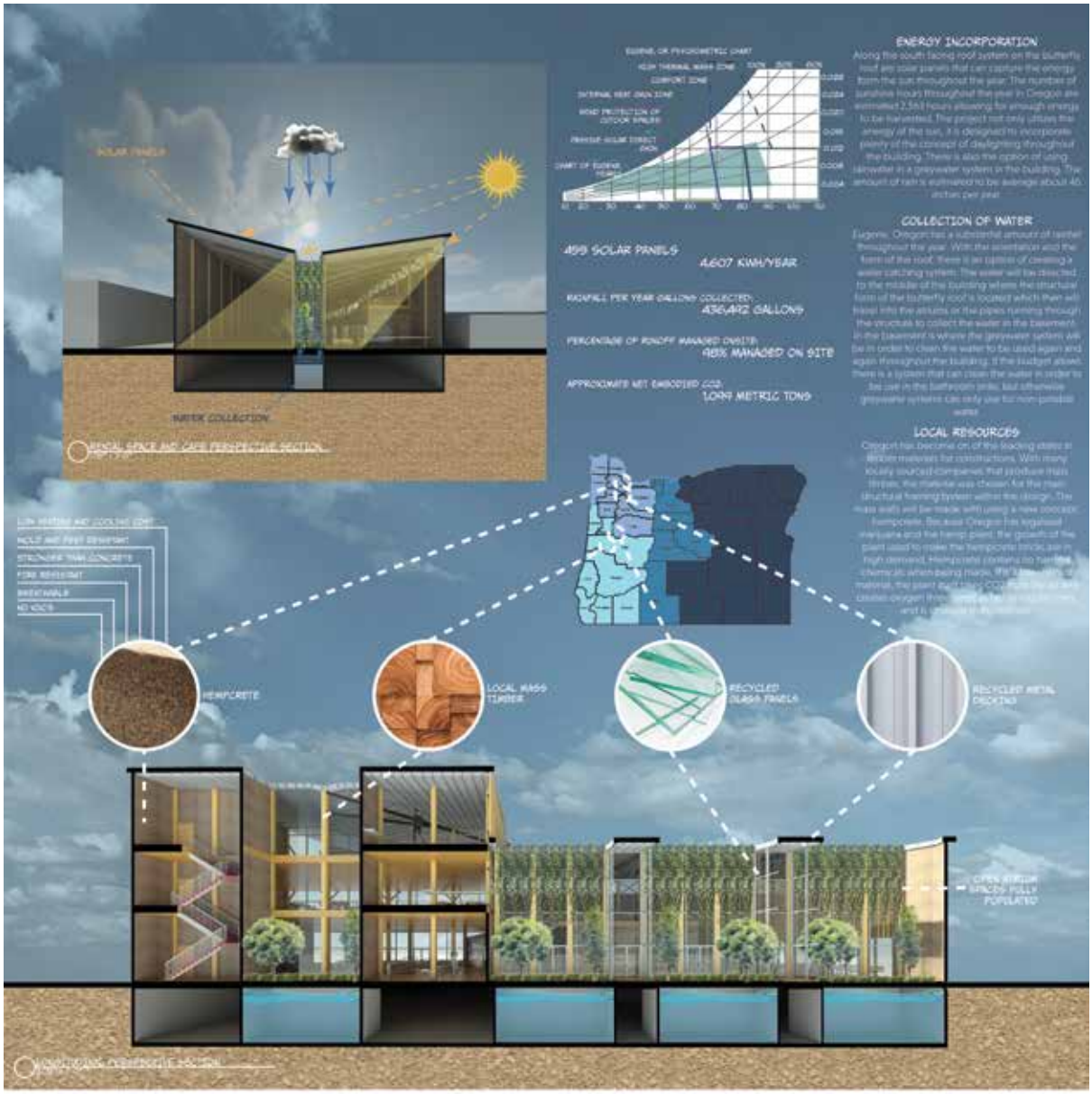

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Jocelyn Reynolds

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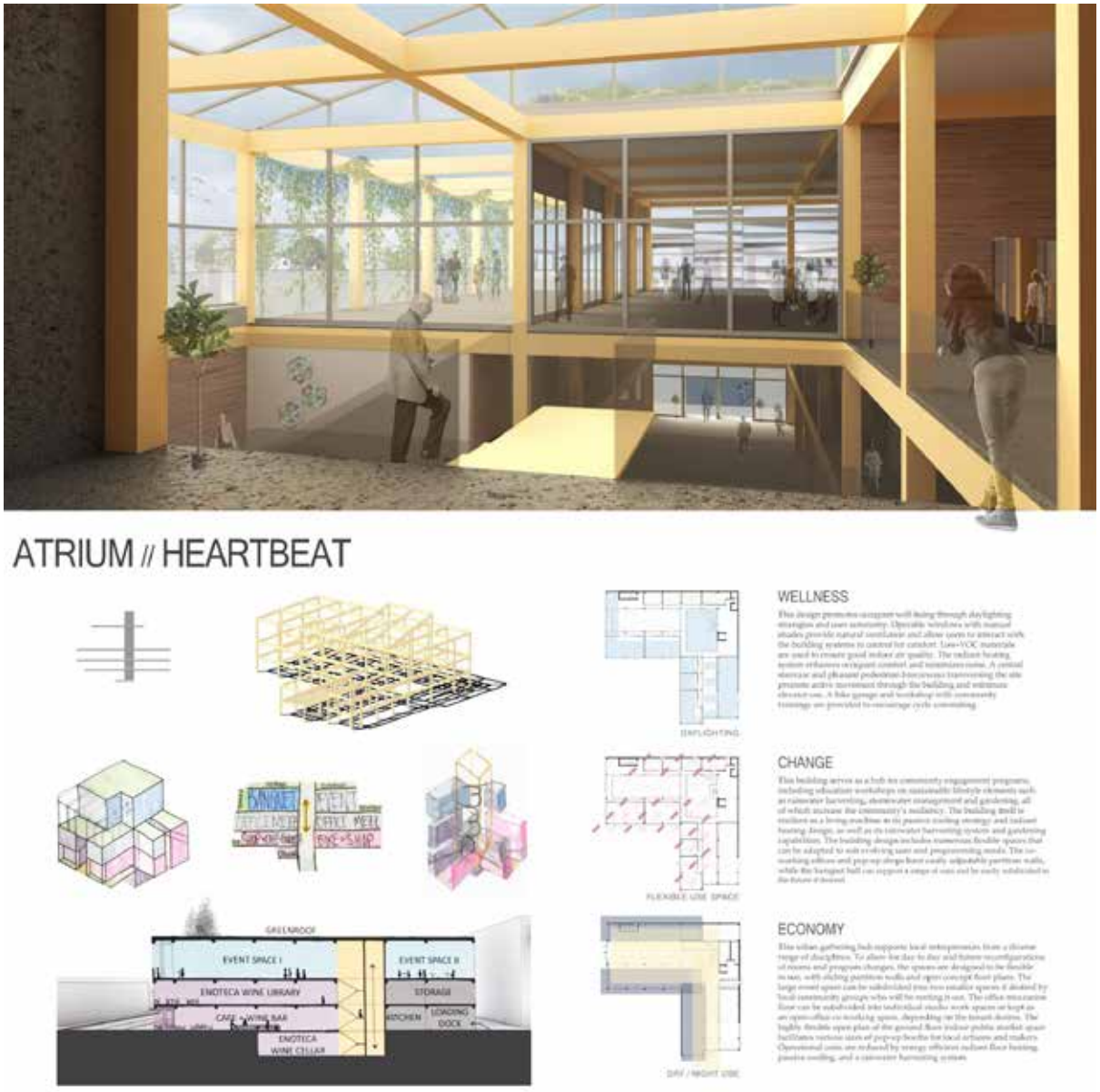

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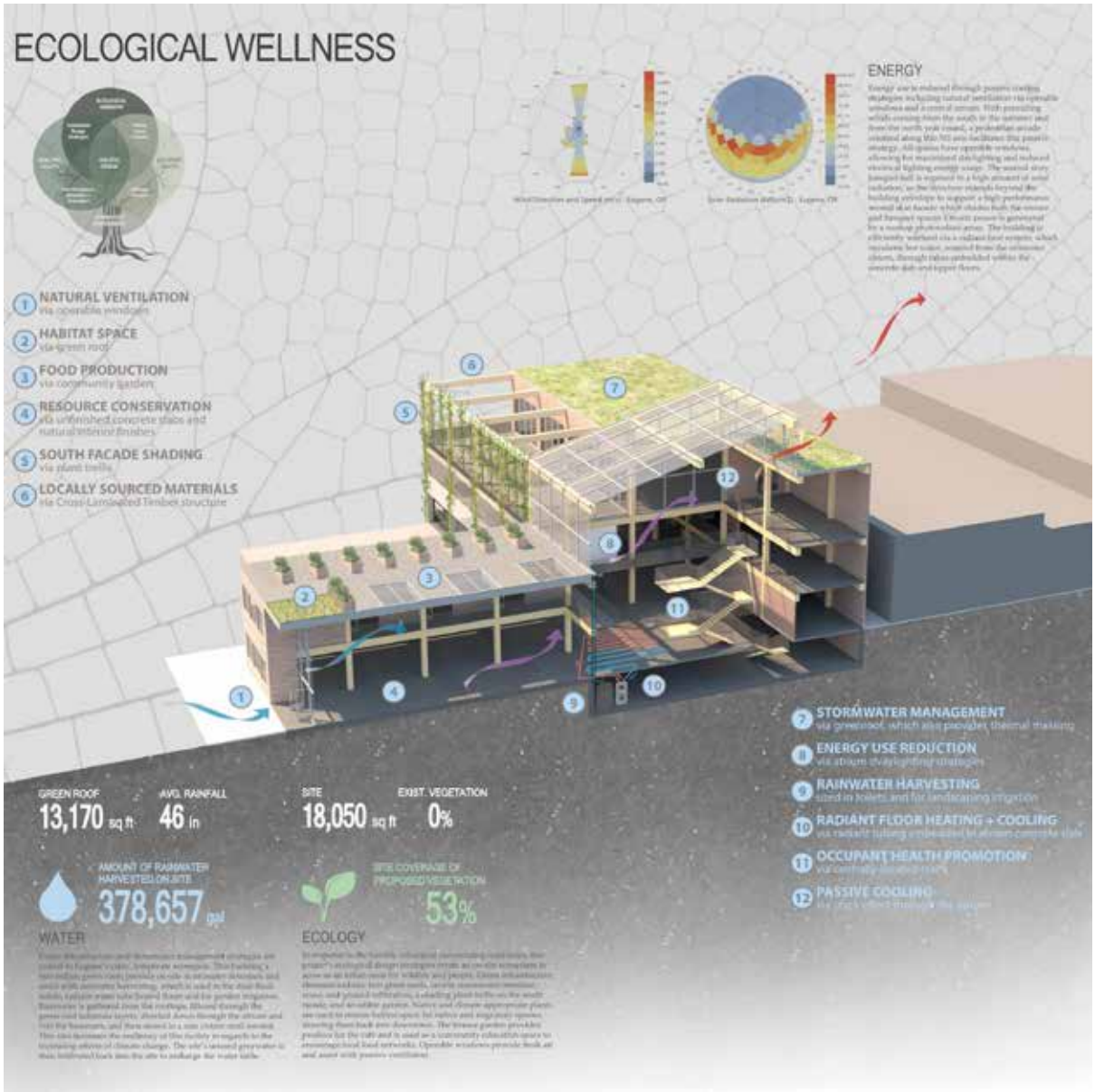

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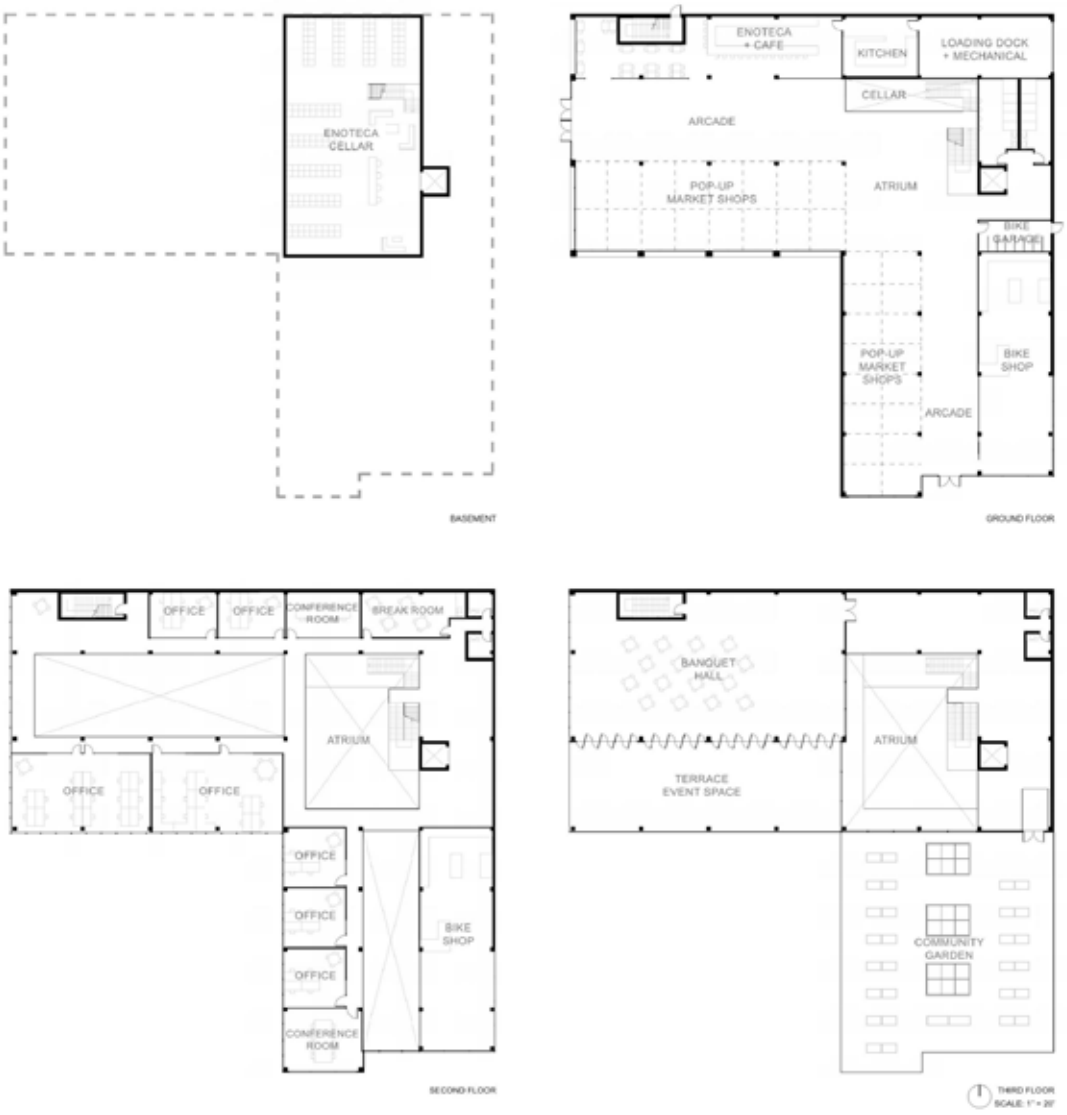

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Katherine Marple

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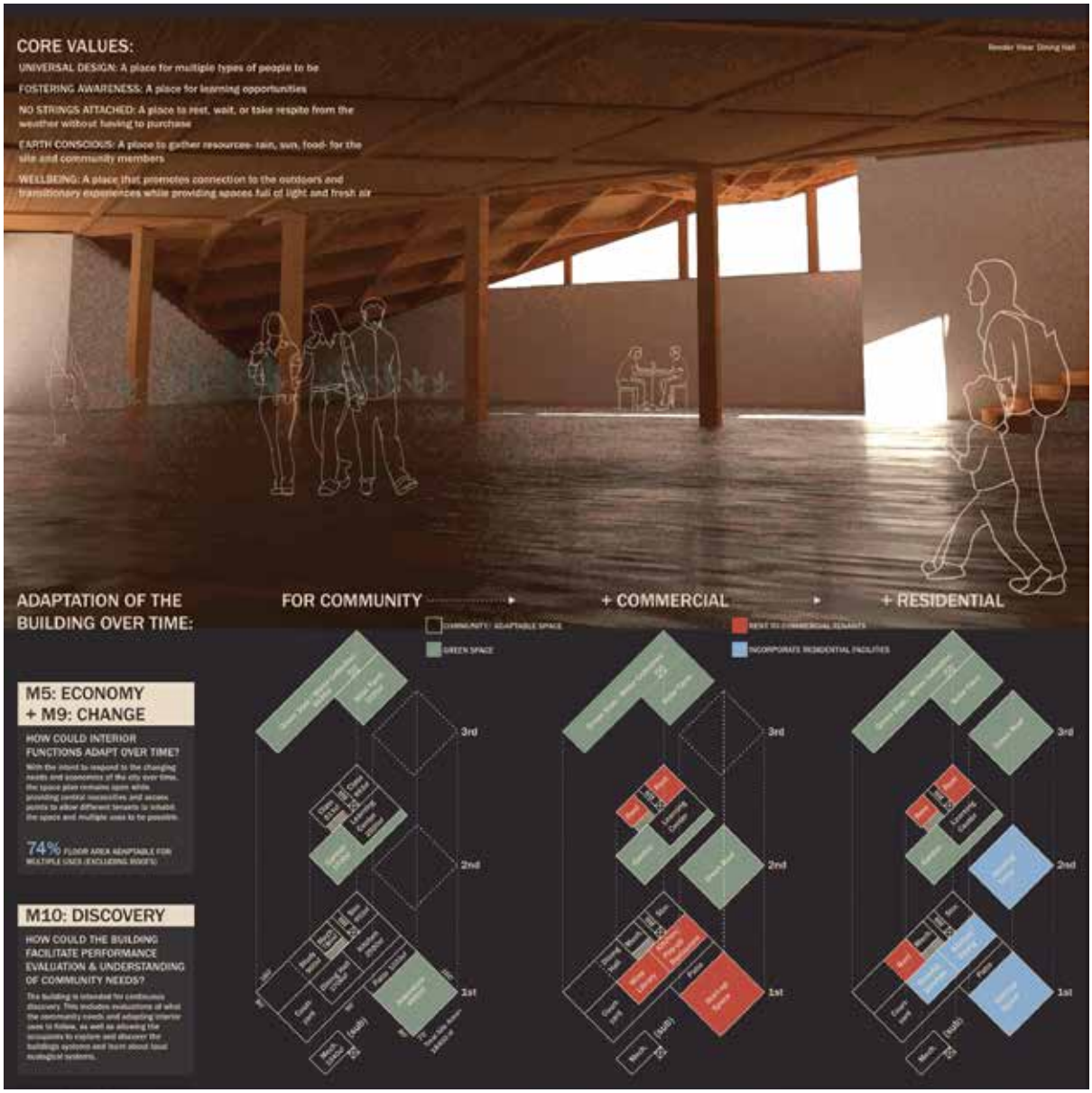

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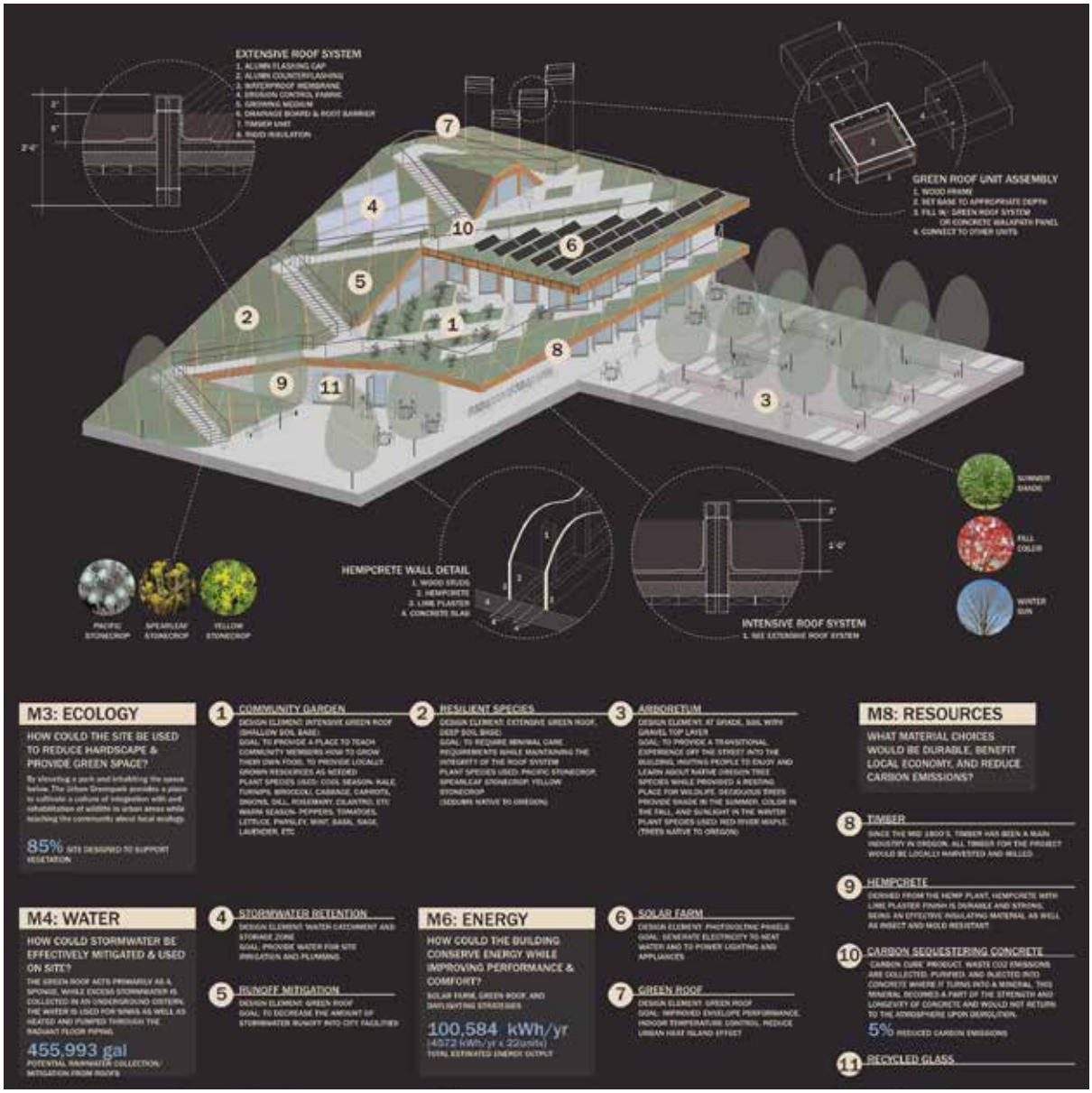

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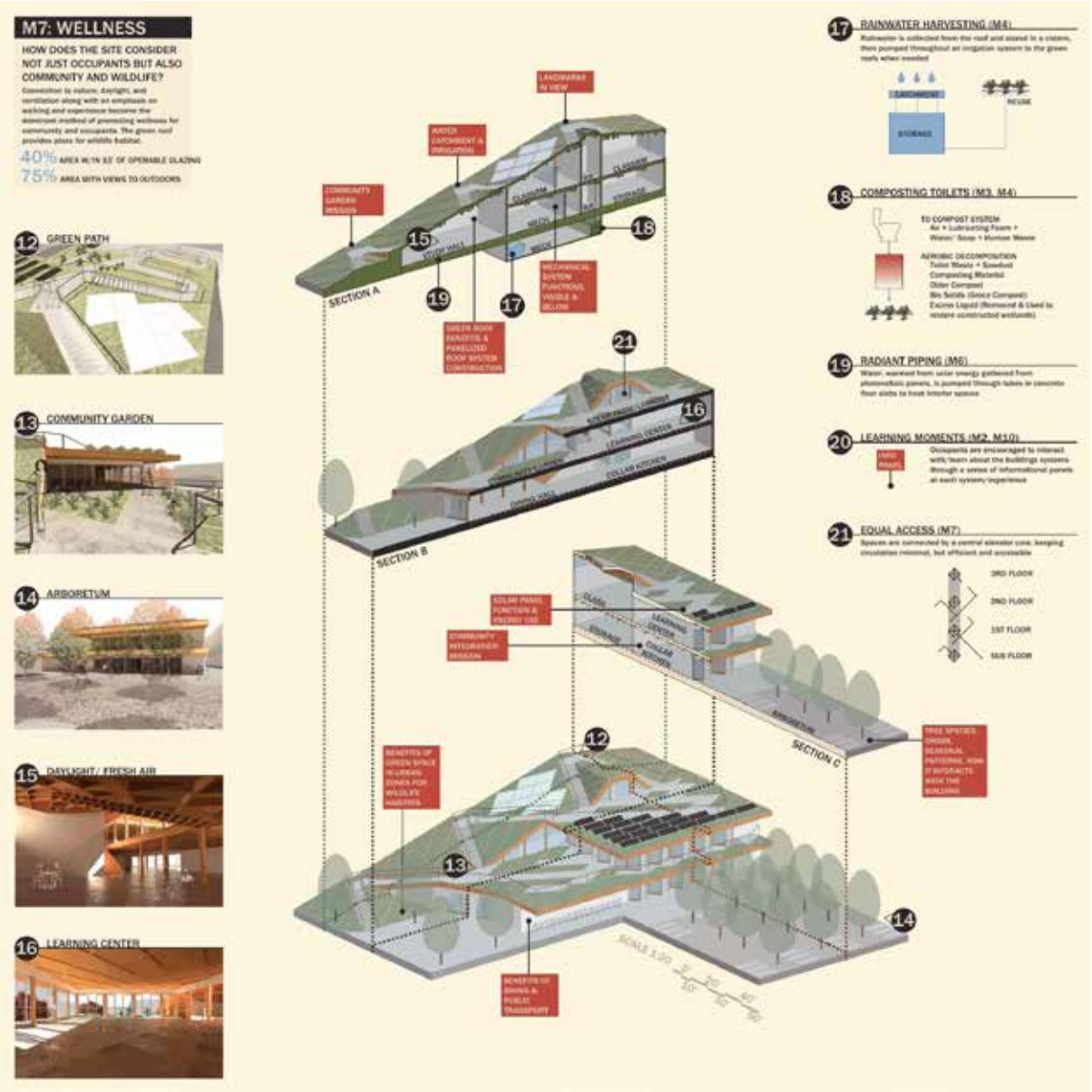

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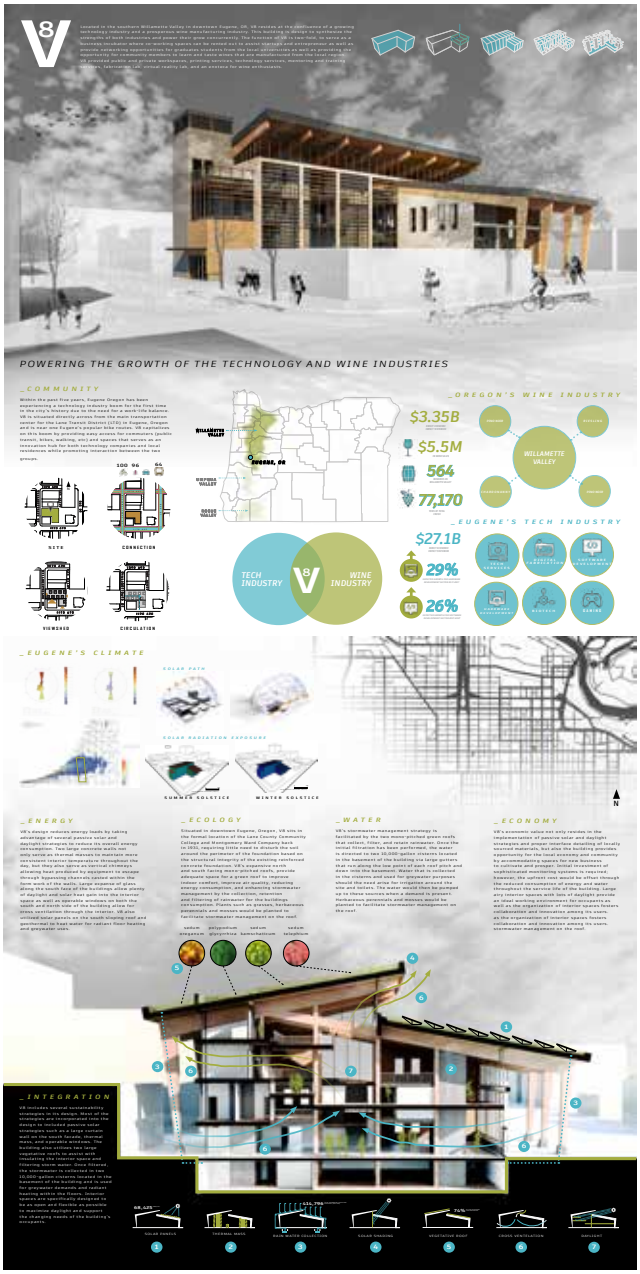

Kyle Tasik

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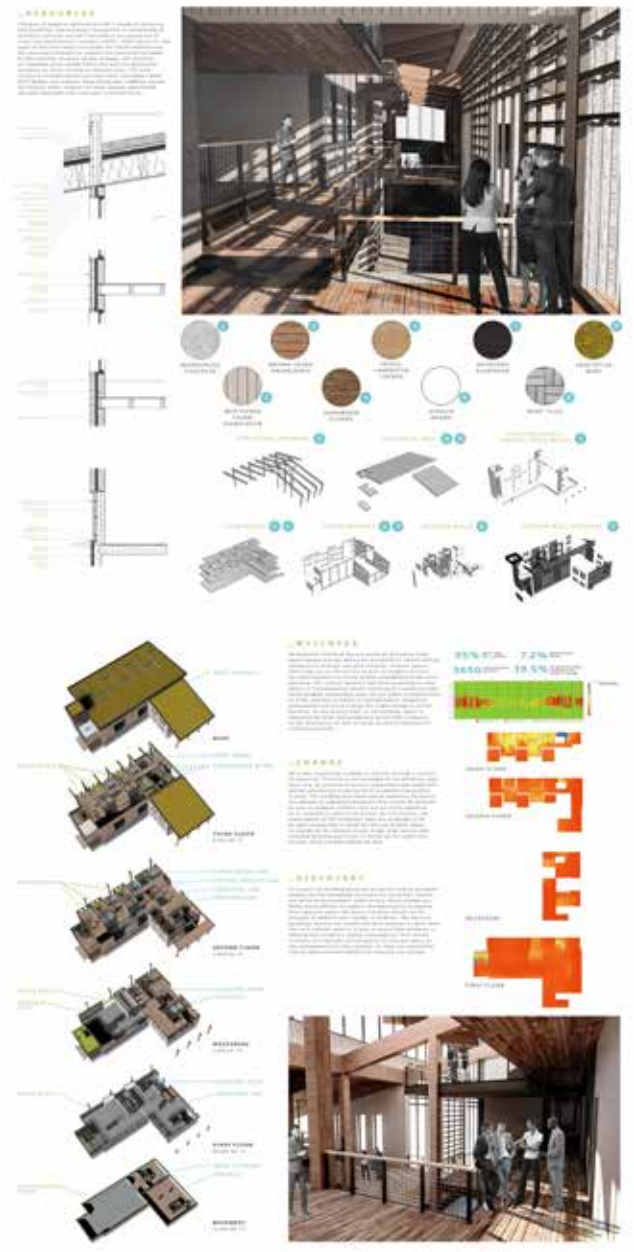

Kyle Tasik

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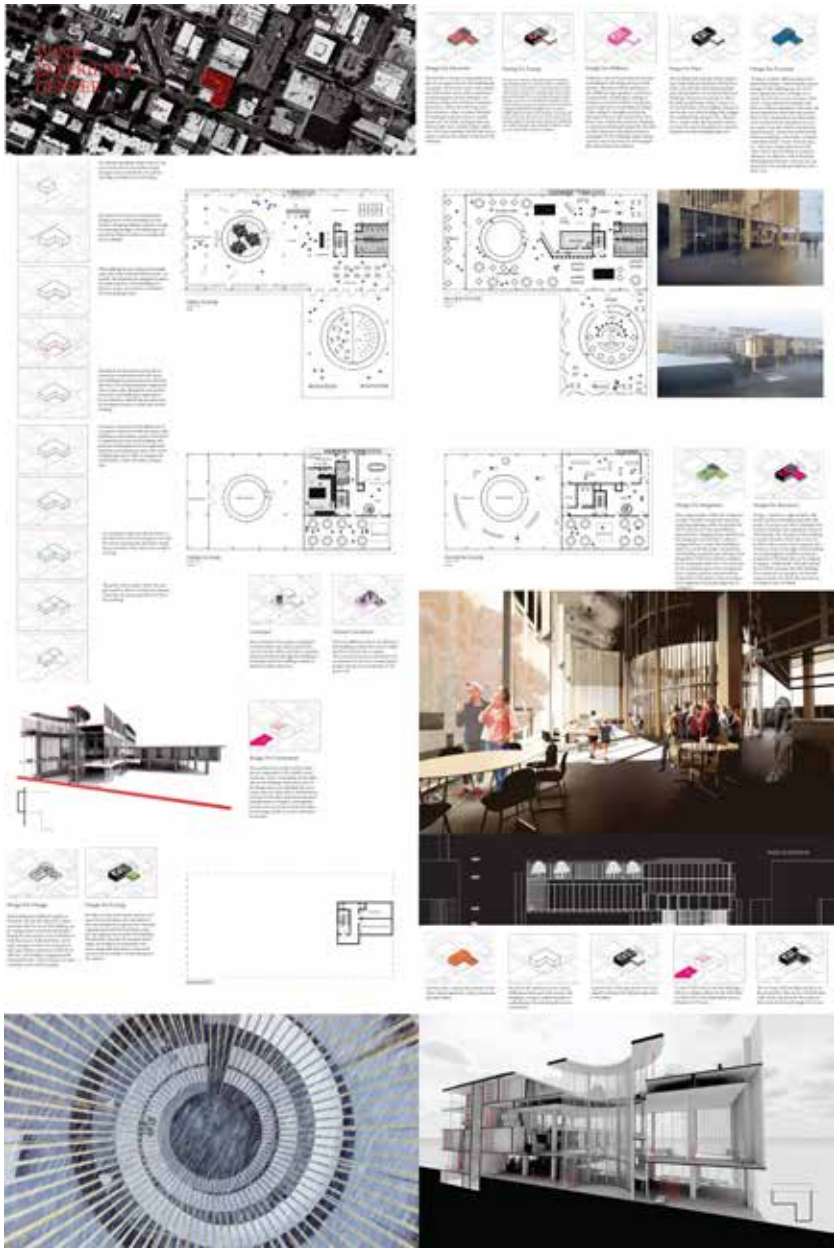

Pooria Golestanirad

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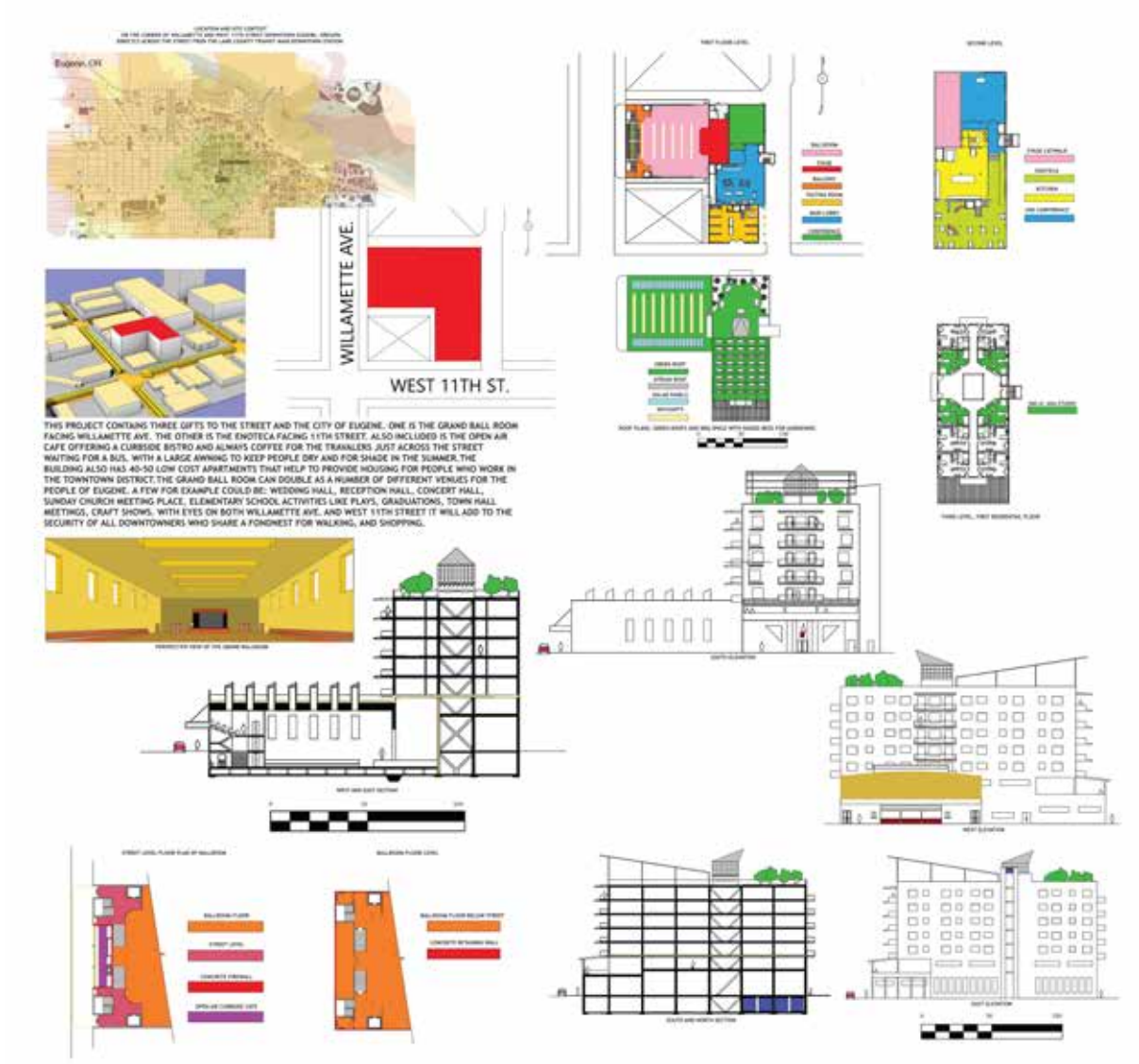

Sean Thurston

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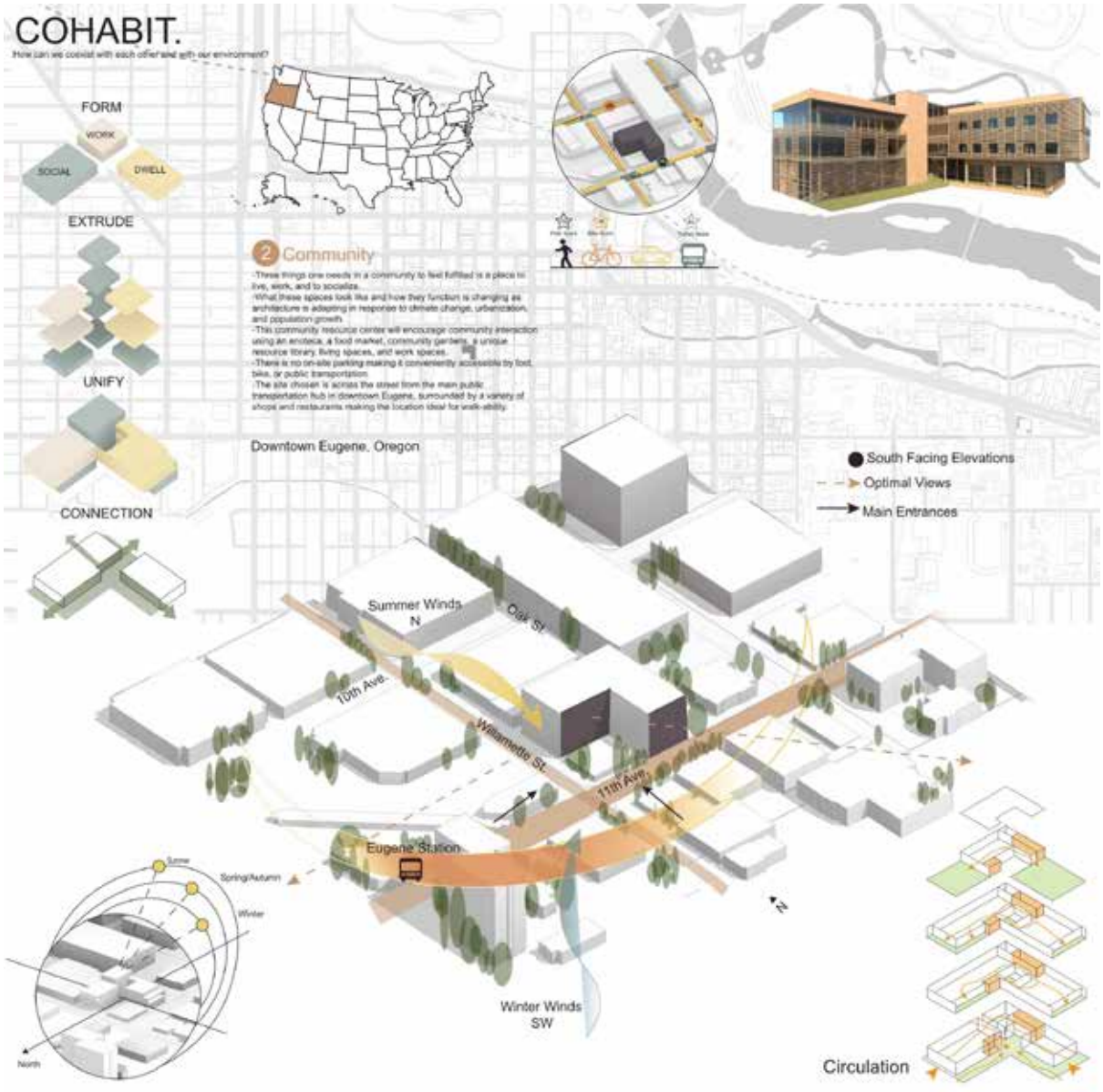

Vayle Khalaf

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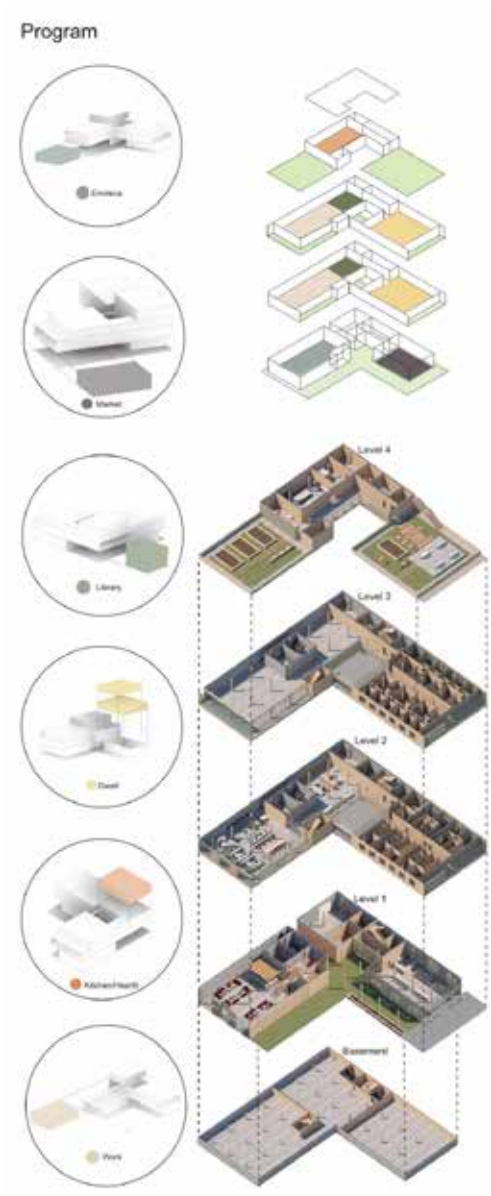

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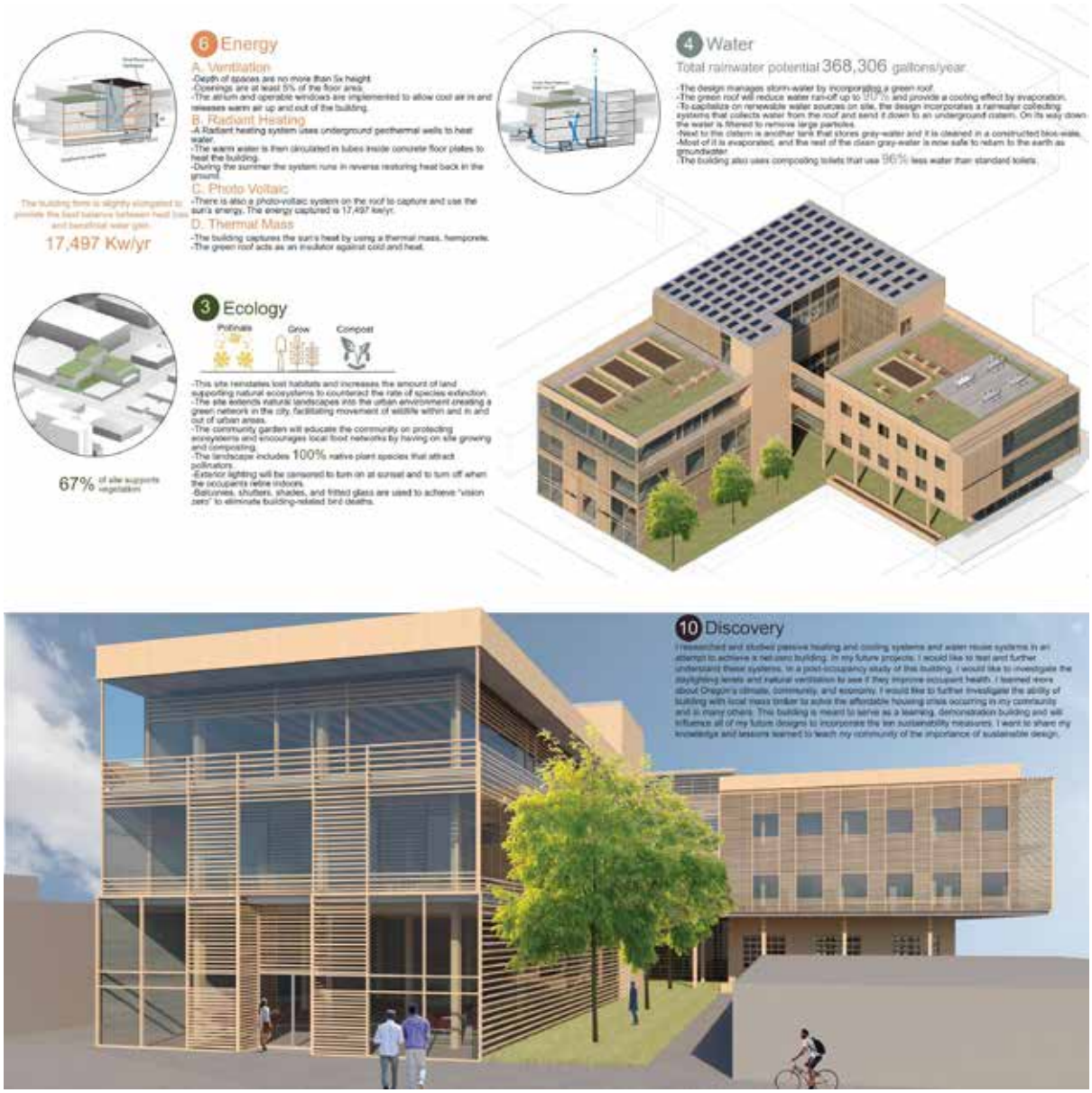

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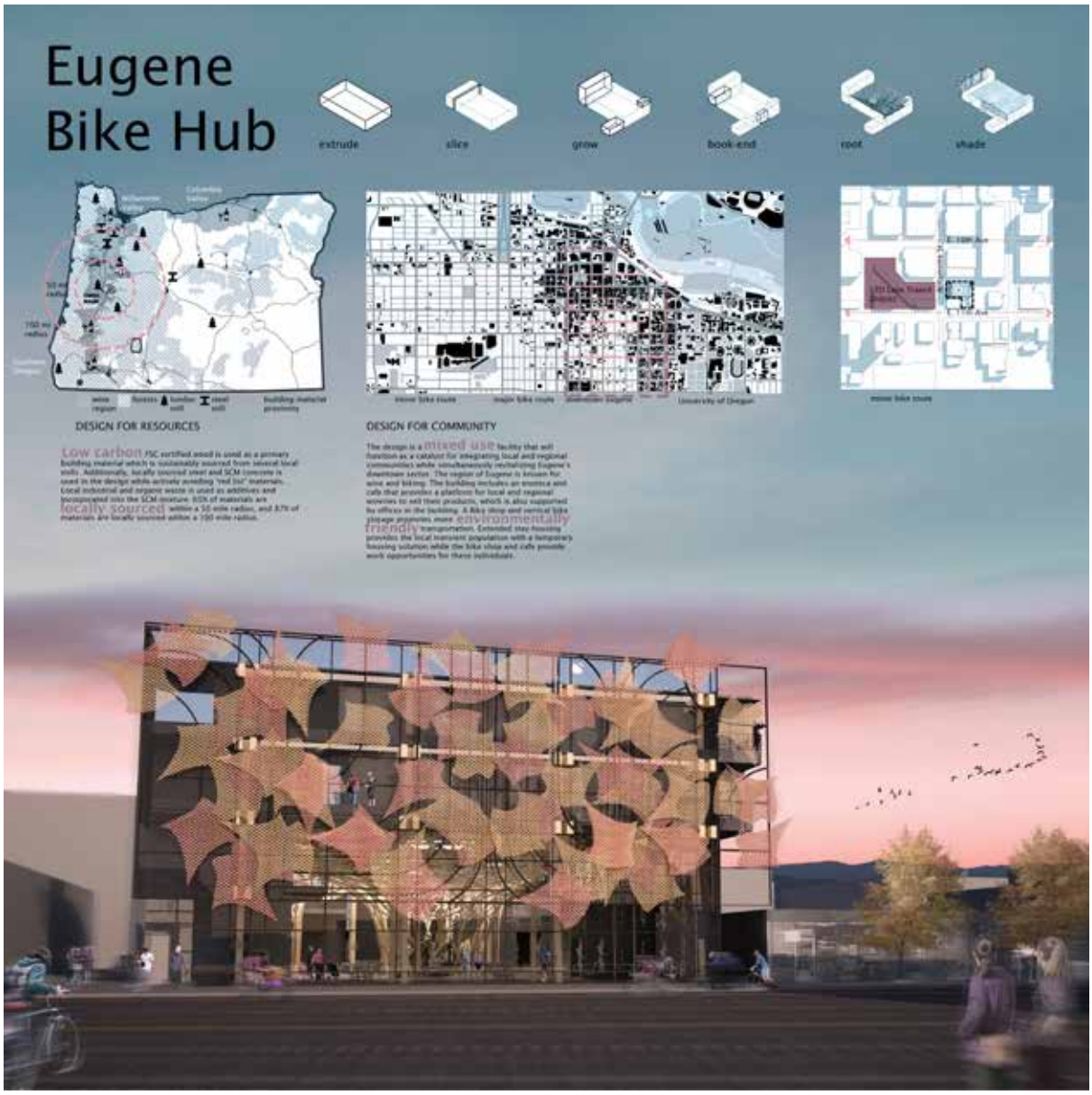

Will Ogburn

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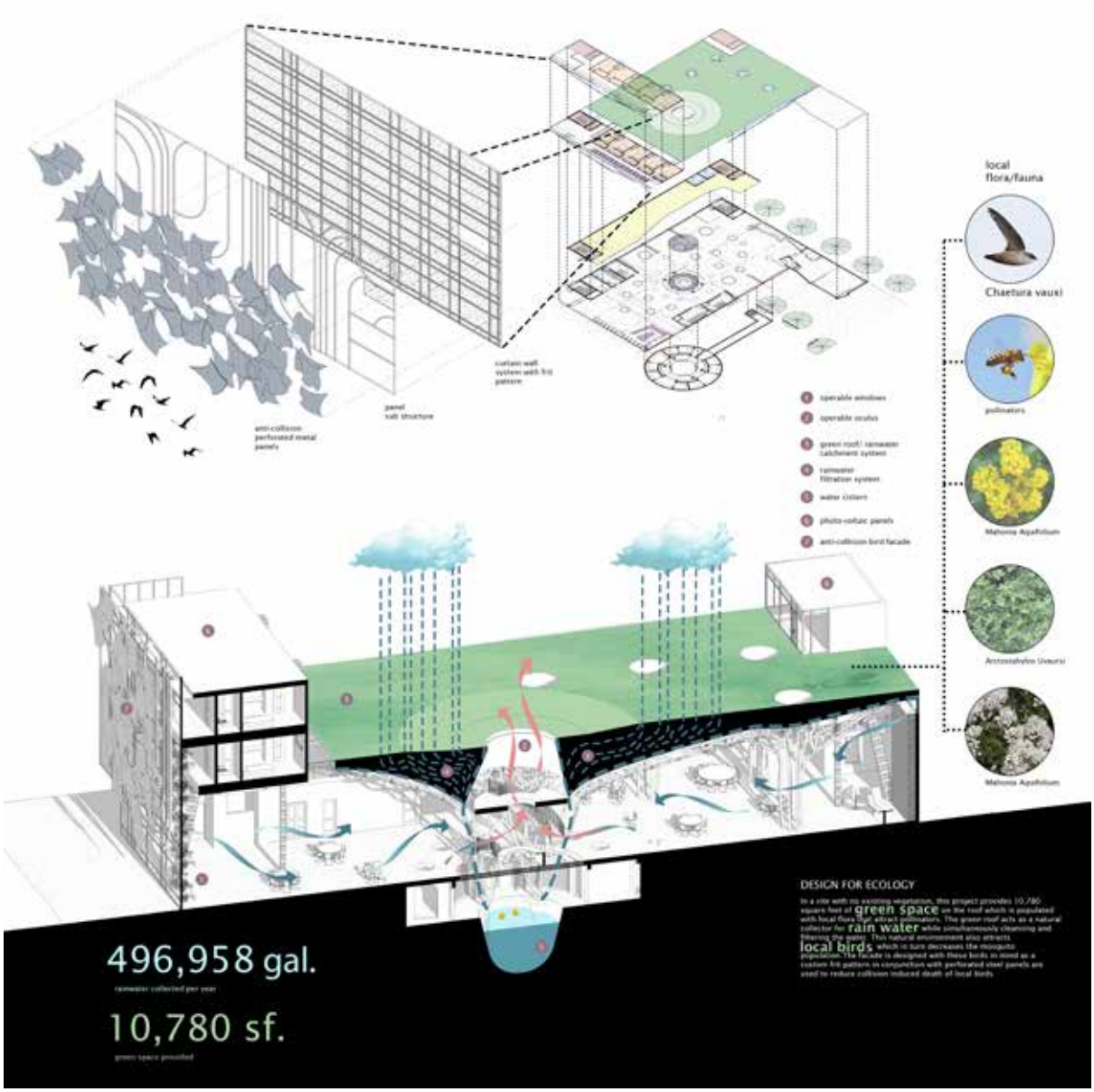

Will Ogburn

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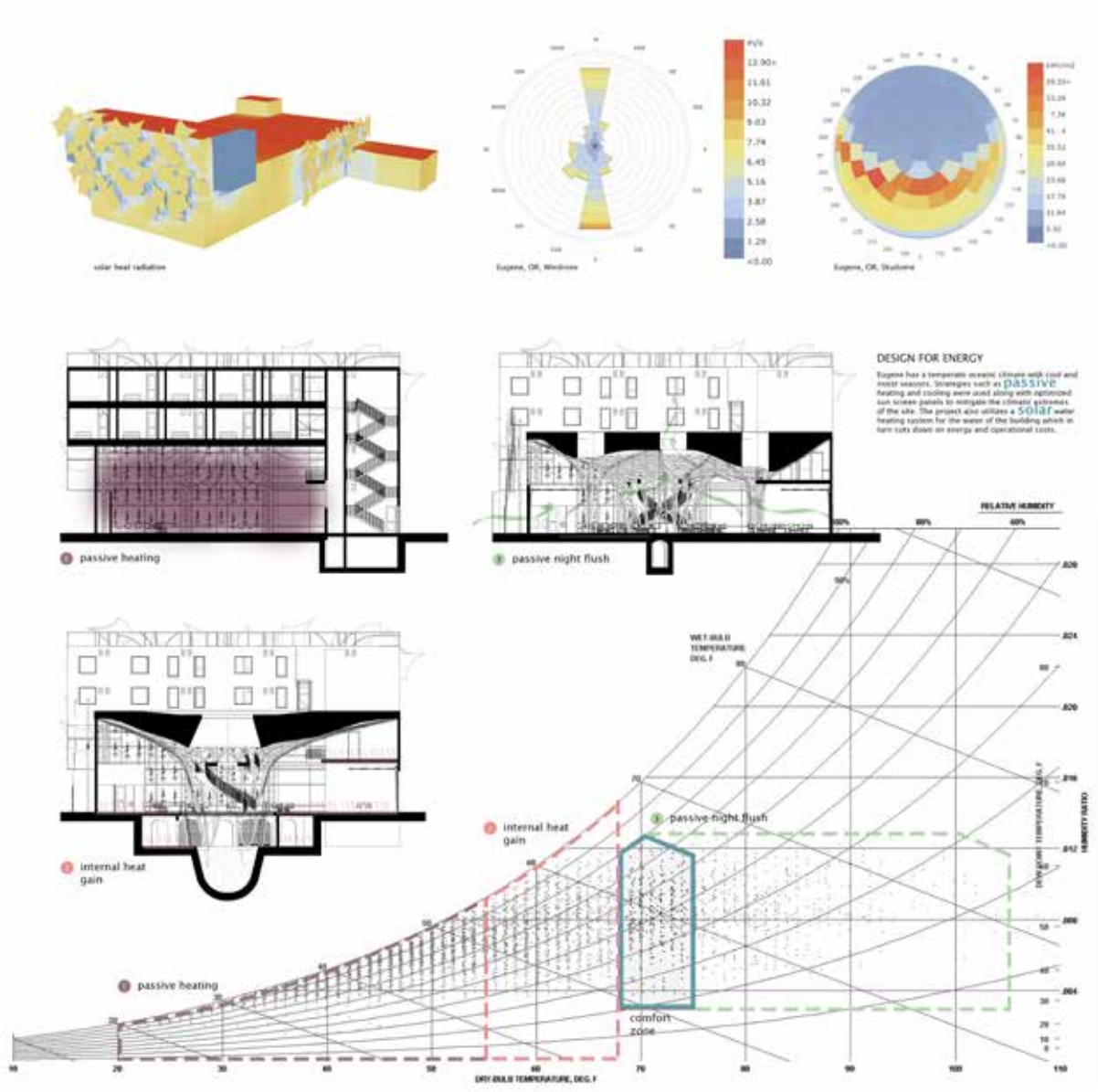

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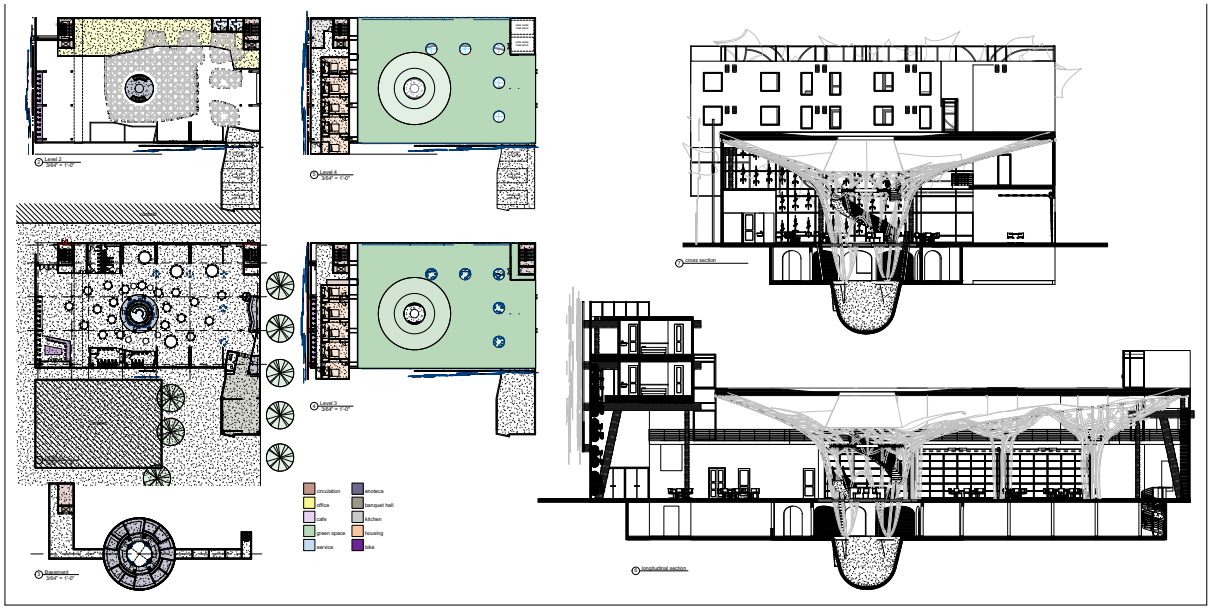

Will Ogburn

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