

Higher Education – Young Professionals Hootenanny

October 28, 2022 1:30 - 3:30P Track 2
PHIUSCon 2022: Emission Down Power Up!
Chicago





Lynn Belhumeur, CPHC



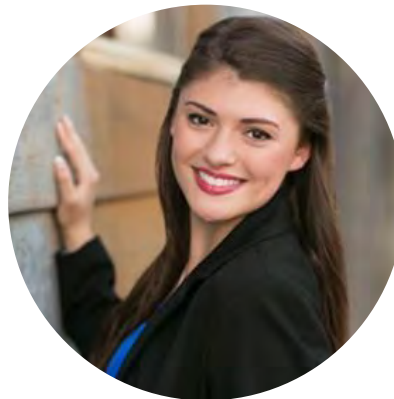
James Mustillo, CPHC



Shannon O'Donnell, CPHC



Jordan Frazin, CPHC



Sammy Brusky , CPHC



Caleb Bean , CPHC

BELIEVE IT'S POSSIBLE

Lynn Belhumeur, CPHC





ROOTS

Born & Raised in Mauritius
Moved to the US to Study Architecture

EDUCATION

Miami University '17 (Oxford, OH)
Northeastern fall semester only (Boston, MA)
Georgia Tech '19 (Atlanta, GA)

PURSUIITS

Practicing Architecture in Downtown Cincinnati



MIAMI UNIVERSITY

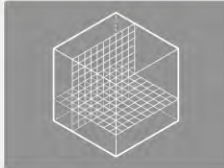
Sustainability Courses
Solar Decathlon Competition
Certified Passive House Consultant

Research Groups



Aerial Diagnostics

Focusing on the use of Unmanned Aerial Vehicles for analytical applications in the built environment.



Building Science

Concentrating on the interdisciplinary research of physical phenomena in the built environment.



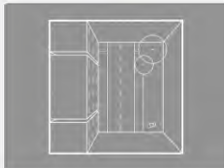
Living Systems

Investigating various active architectural systems that can be integrated on or within the building envelope.



Natural Lighting

Investigating the art & science of adding daylighting techniques to enhance indoor built environment experiences.



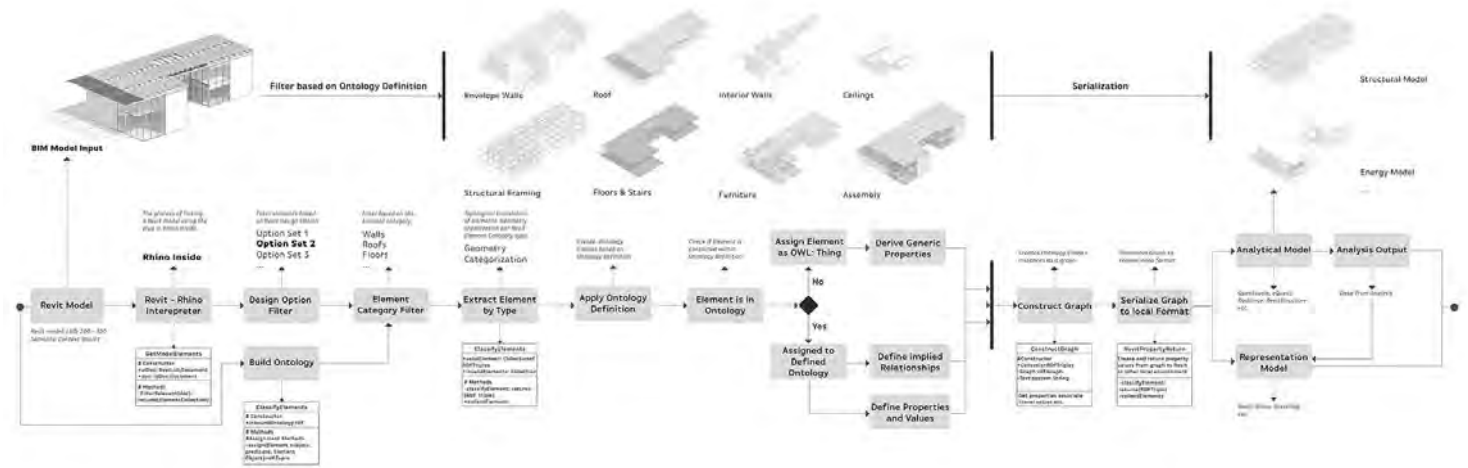
Neighborhood Analytics

Exploring how we discuss & understand the performance of urban territories, their structures, and inhabitants.



Performance Informatics

Investigating representations of built environment interrelated and nested data.



GEORGIA TECH

High Performance Building Courses
 Research & Computation Based Projects
 PHIUS Southeast Rep

PHIUS

Experience what you have learned



Study

- Soak up the knowledge like a sponge.
- This is the time to do it!
- Memorizing is good, but understanding is better.



Exam

- Get certified! Especially in school, it'll cost less, and you are already in the right mindset.
- It is OK to fail. Retake it!!



Work

- Hard to introduce this new concept to firms, but not impossible!
- Research where you would like to work.



Network

- Show up to events, listen, shake hands, contribute where you can.
- Use your contacts.



Projects

- Most do not practice with PHIUS principles.
- Sustainability projects depends on regional legislations.



Practice

- Practice by talking about Passive House to others.
- Practice by doing - building details - SPEC

GBBN

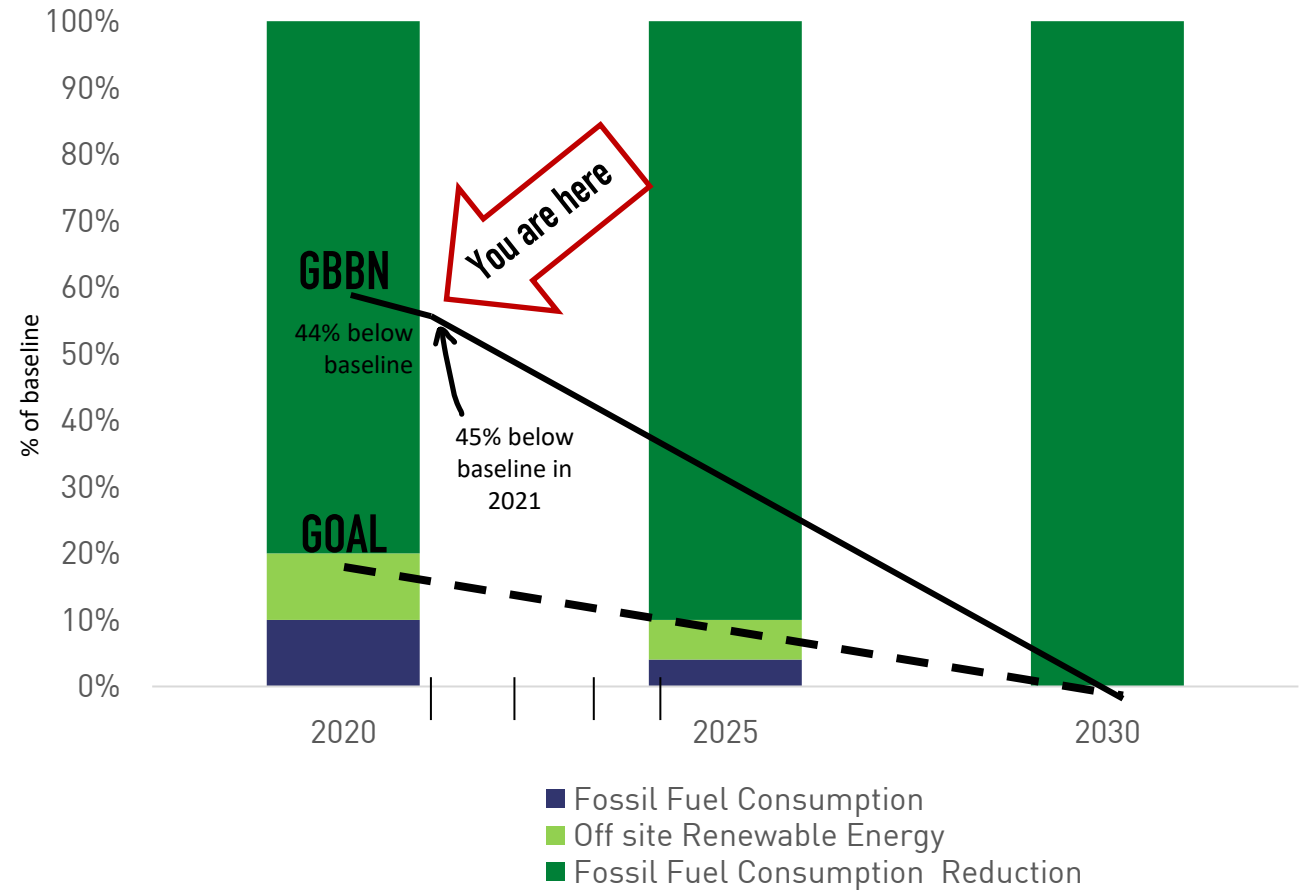
Firmwide Commitment



AIA 2030 COMMITMENT



NET ZERO ENERGY BUILDINGS



GBBN

SAN Sustainability Action Network

DESIGN EXCELLENCE

Tiffany Broyles Yost
Adam Fosnaugh
Claire Shafer
Christopher Yost

PASSIVE HOUSE INITIATIVE

Lynn Belhumeur
Tiffany Broyles Yost
Greg Coni
Blaise Durio
Chris Guignon
Amanda Markovic
Marc Janty
Mary Jo Minerich
Stephen Mrdjenovich
Susannah Odlaug
Doug Richards
Liz Schmidt
Christopher Yost

PROJECT MANAGER TOOLKIT

Beth Latto
Tiffany Broyles Yost
Scott Kyle

CARBON EMISSIONS FOOTPRINT

Alyssa Brandt
Tiffany Broyles Yost
Lynne Cope
Debbie Maier
Drew Grandjean

HEALTH CARE APPROACH

Aaron Anderson
Tiffany Broyles Yost
Jason Groneck*
Mickey LeRoy*
Michael Lied*
Angela Mazzi
Michael Grage*
Kristin Greeley
Joe Krummel
Greg Coni
Ben Earls*
Susannah Odlaug
Sayali Wazalwar
Lynne Cope
Shawn Feigh*
Chandler Philpott
Anne Schwab
Erin Schmidt*

BUILDING PERFORMANCE ANALYSIS & VISUALIZATION

Eric Blyth
Tiffany Broyles Yost
Vera Jing
Melanie Ngami
Chandler Philpot
Jack Randall
Michael Rensing
Xinrui Zhou

INTERIOR DESIGN FOR CLIMATE CHANGE

Phil Babinec
Hannah Berish
Tiffany Broyles Yost
Grace Fening
Kat Hoff
Megan Mershman

DISCUSSION FORUMS

Chris Bartell
Tiffany Broyles Yost
Scott Kyle
Doug Richards
Chas Wiederhold

EMBODIED CARBON PLAN

Andrew Campbell
Tiffany Broyles Yost
Matt Plecity

GBBN BUILDING WELL-BEING

Hannah Berish
Tiffany Broyles Yost
Kat Hoff
Ted Madden

GREEN FOR GREEN

Stefan Cornelius
Chris Bartell
Tiffany Broyles Yost

SAN STRATEGIC LEADERSHIP

Tiffany Broyles Yost
Steve Kenat
Marcie Kenny
Mark Lee
Amanda Markovic
Matthew Schottelkotte*

*Members outside of SAN
Initiative Leaders underlined

GBBN

Passive House Initiative



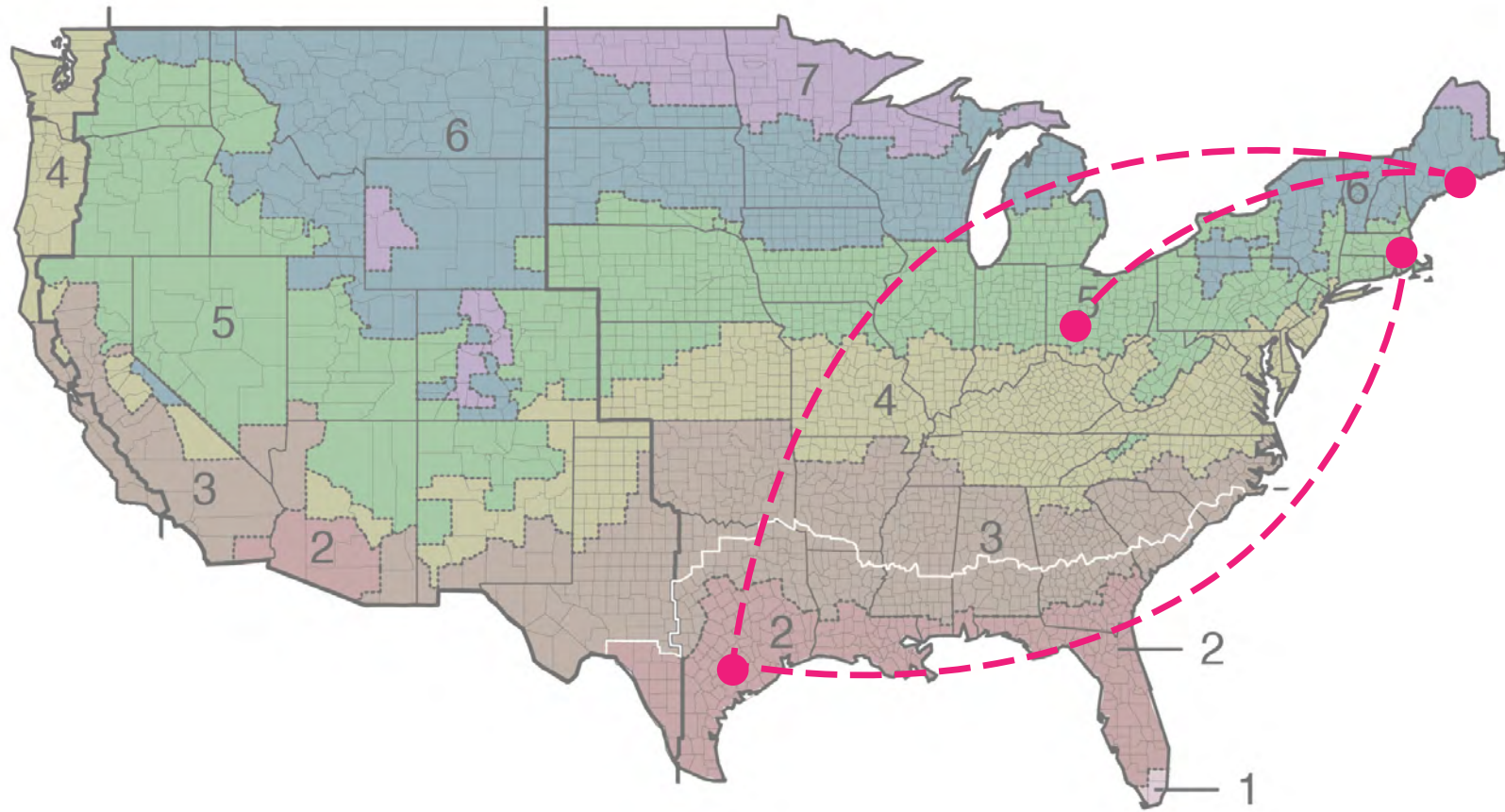
GBBN

Passive House Certified Projects

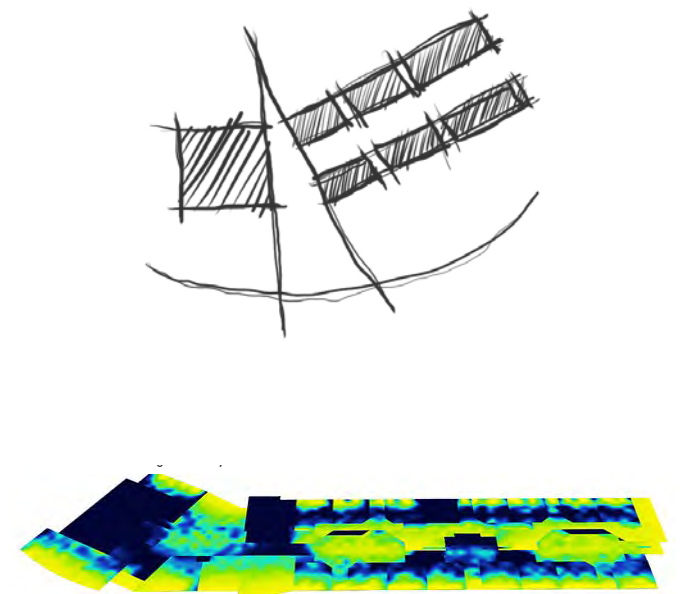




**We are committed to designing sustainable
and resilient buildings where all people thrive.**



James Mustillo
UT Austin School of Architecture

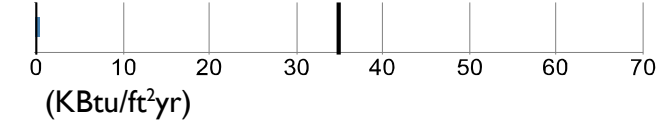
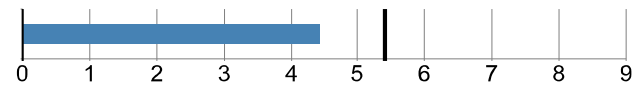


HEATING

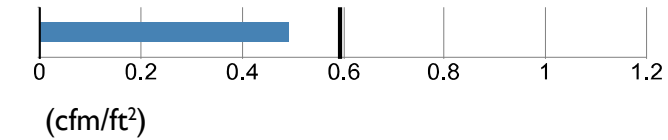
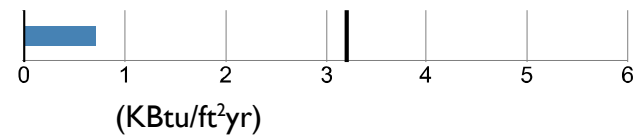
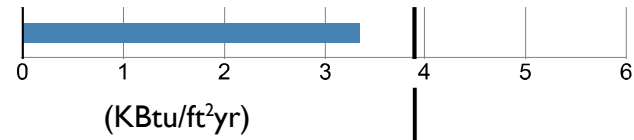
COOLING

SOURCE ENERGY

Demand



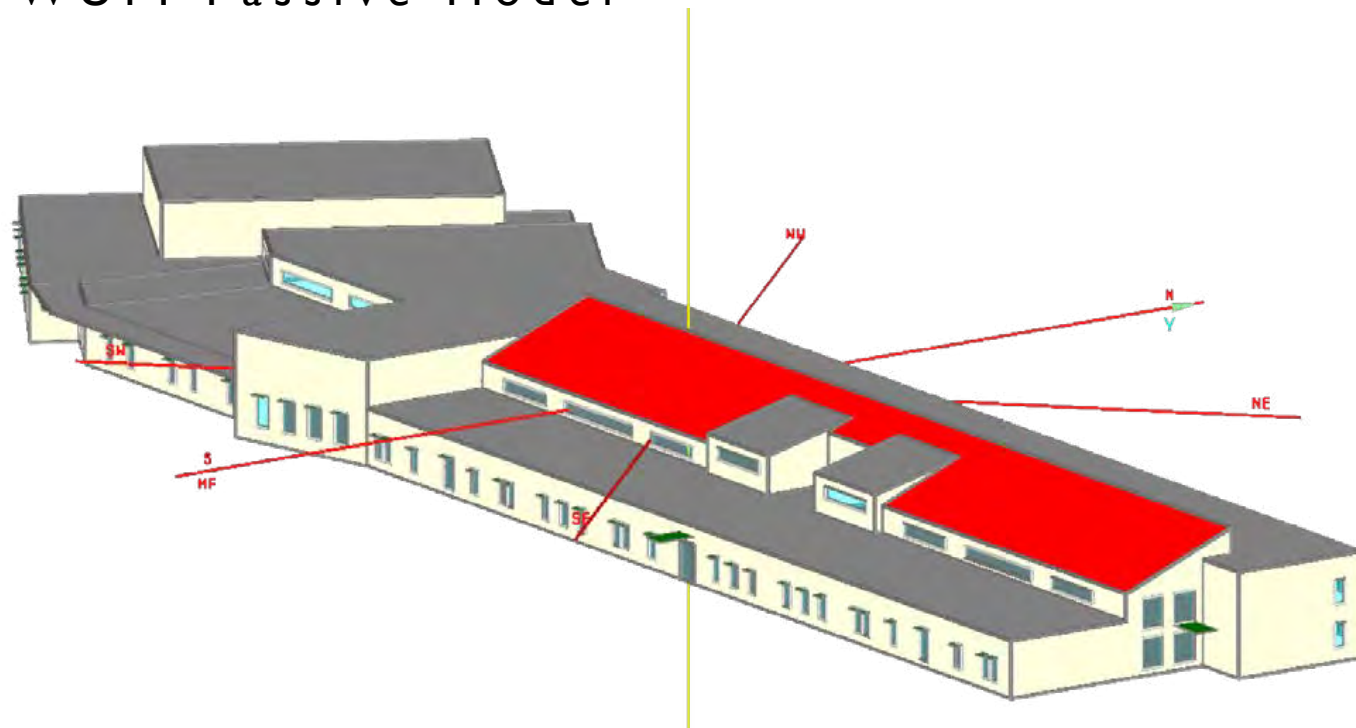
Load



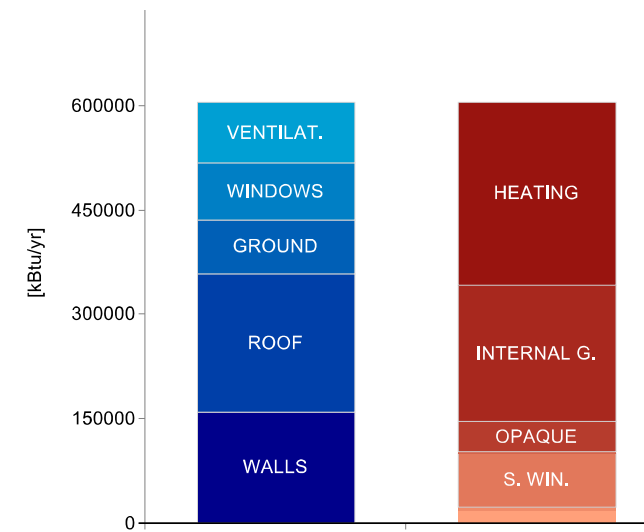
PHIUS+ 2018 Standards

AIR TIGHTNESS

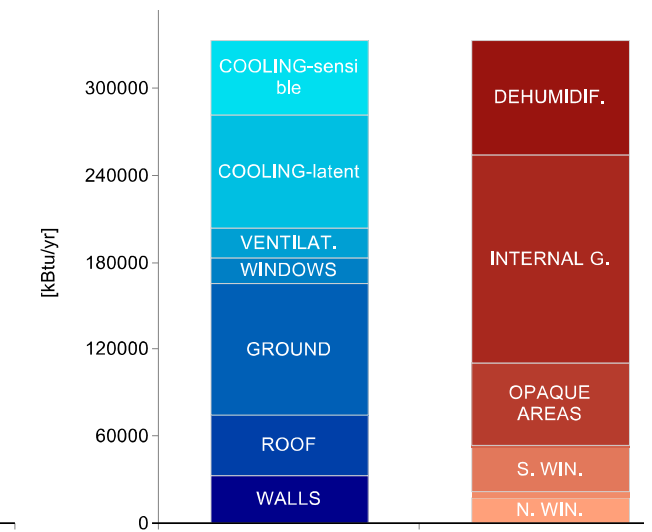
WUFI Passive Model

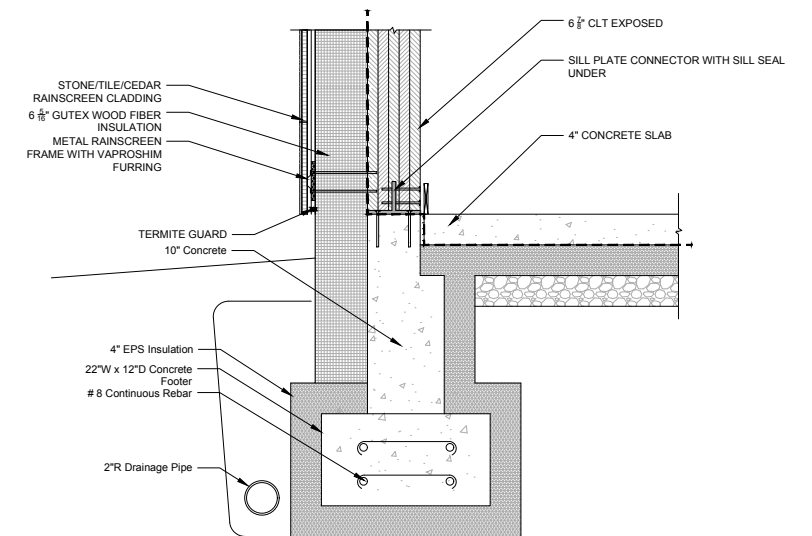
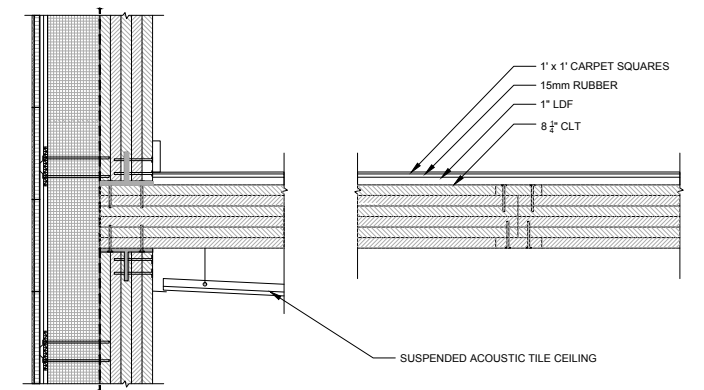
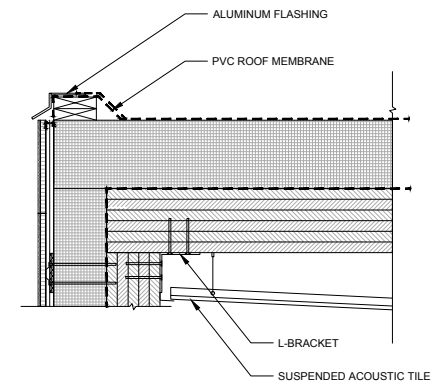


Winter Energy Balance



Summer Energy Balance

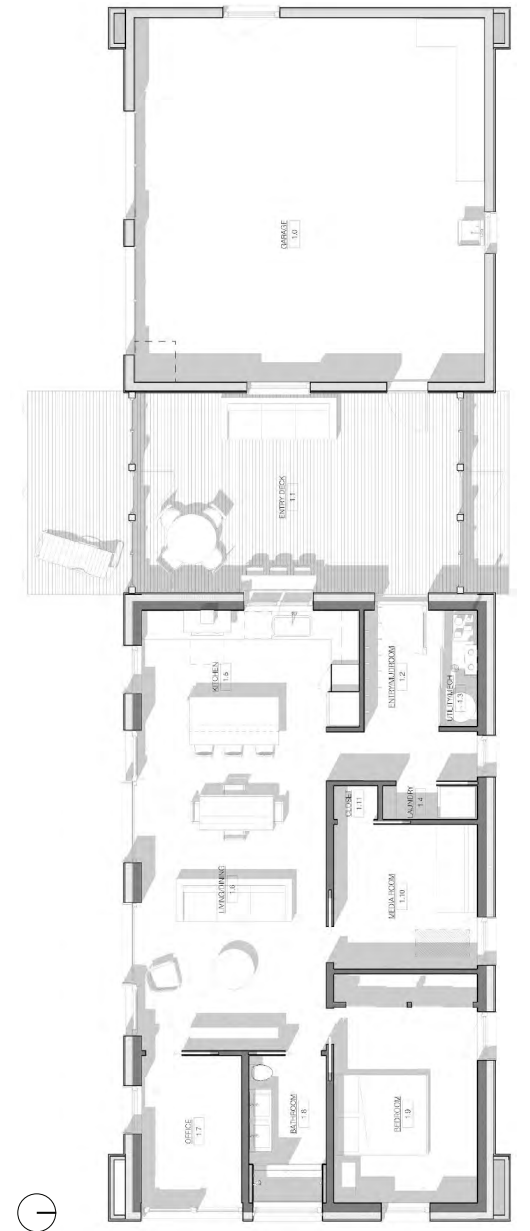


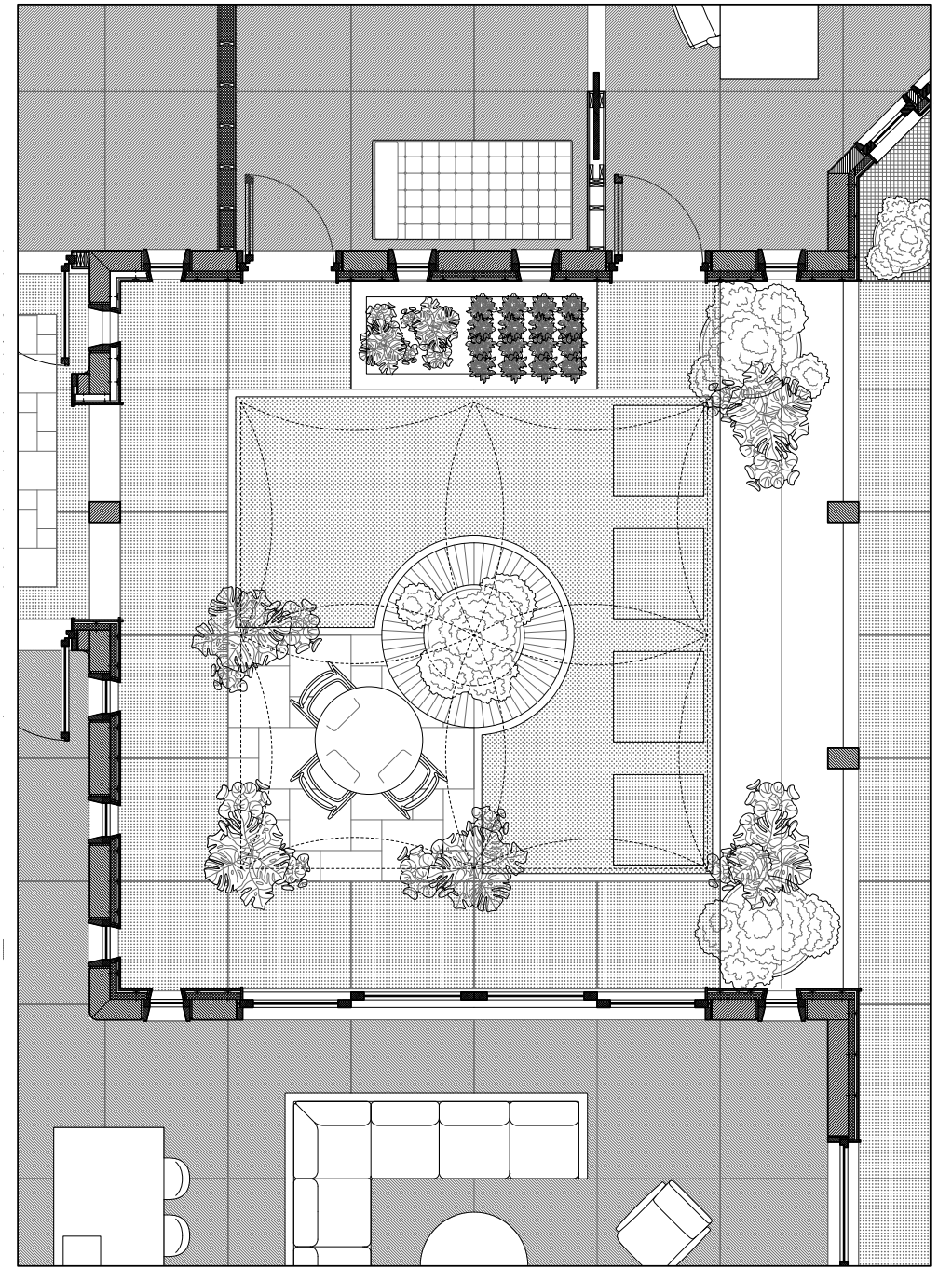
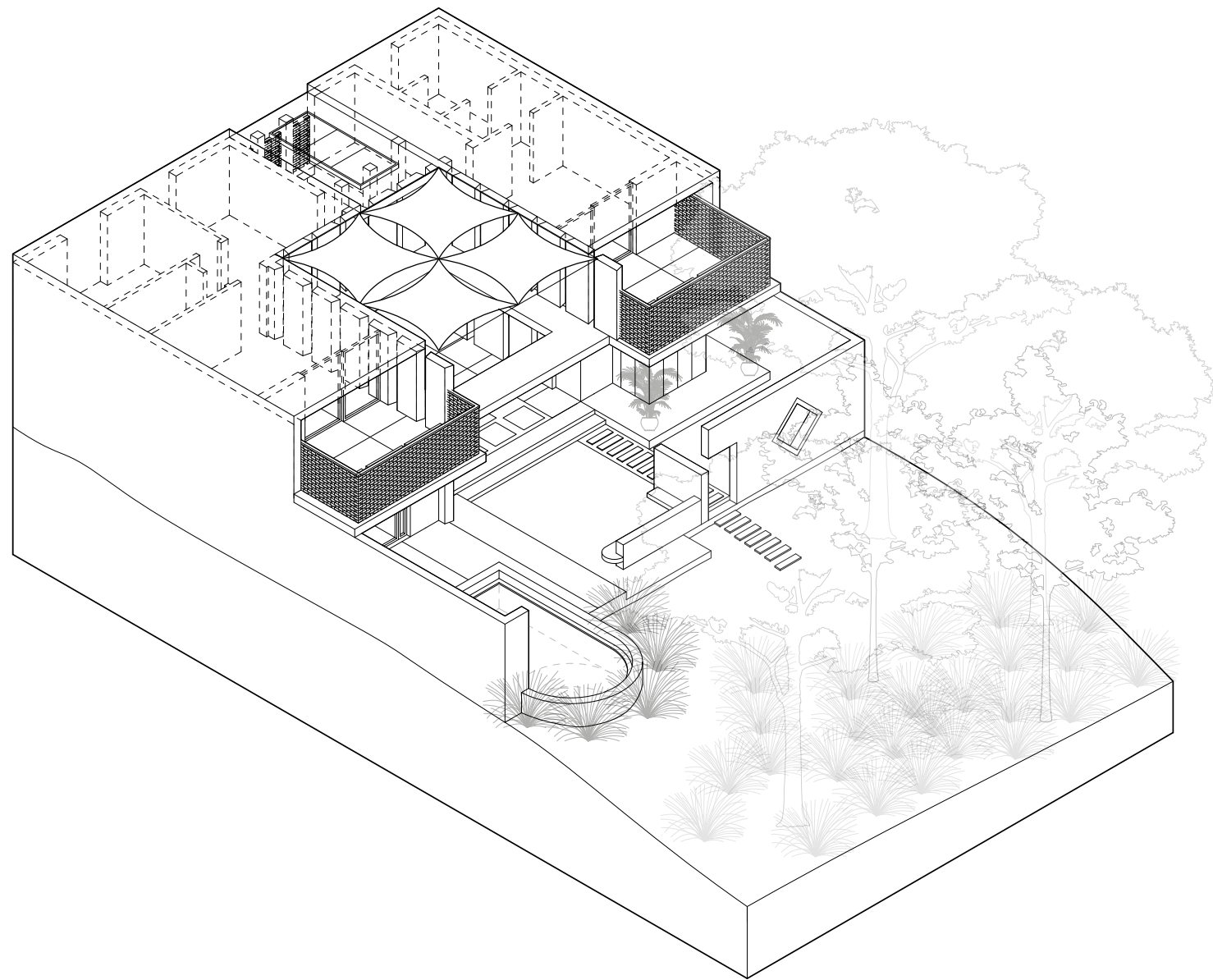






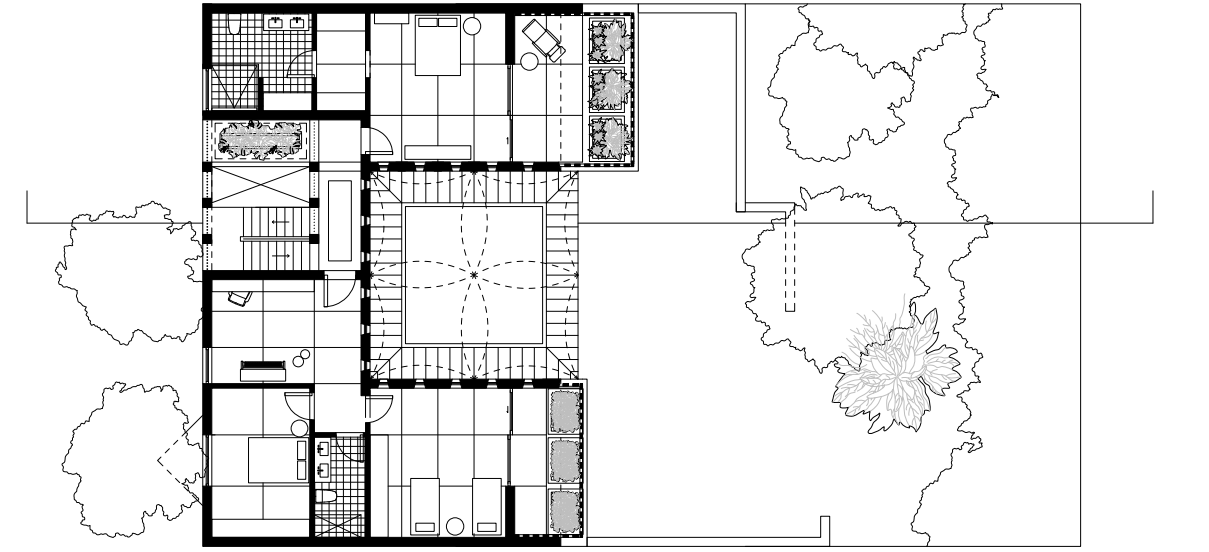
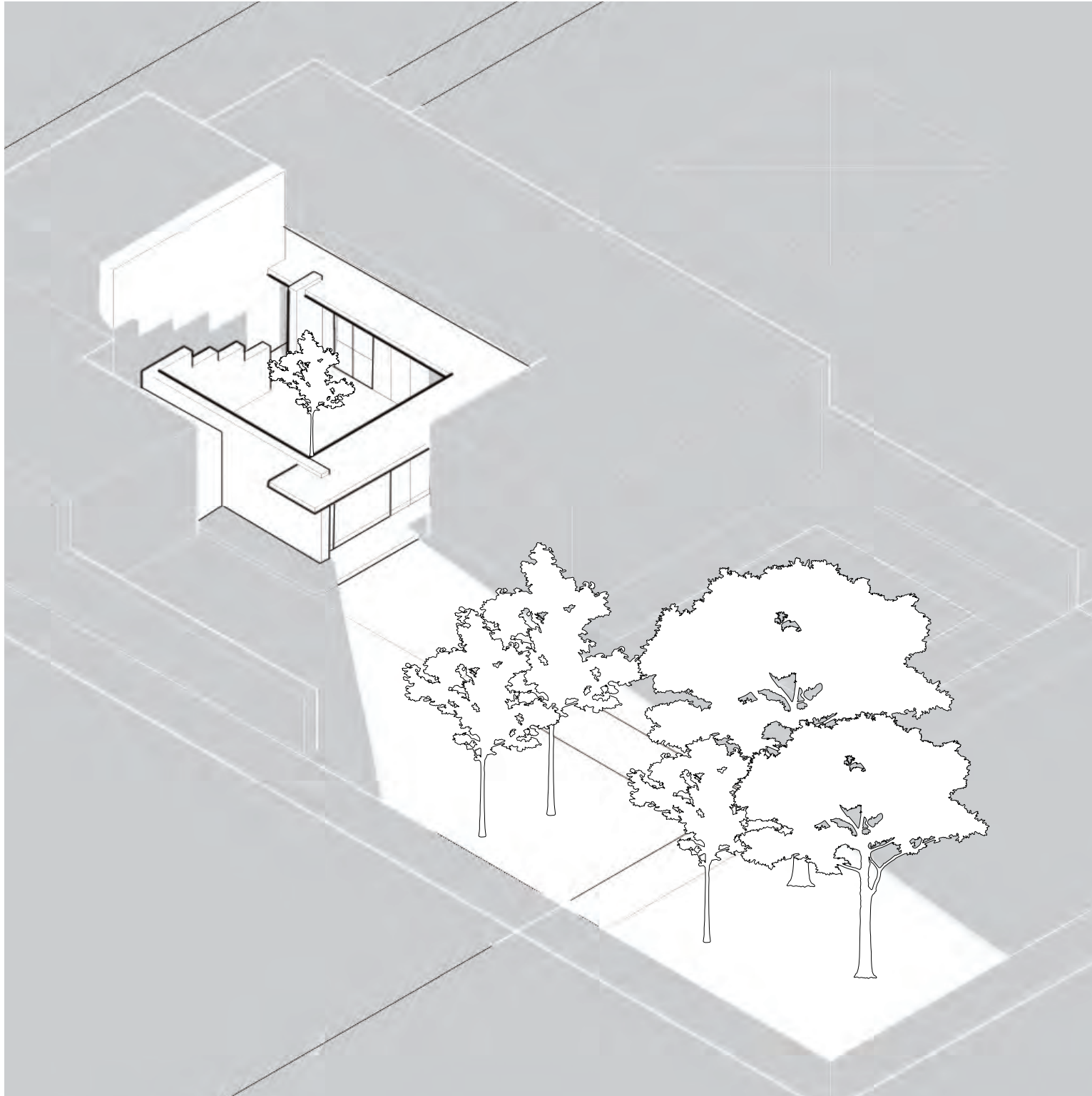
Source: Trent Bell



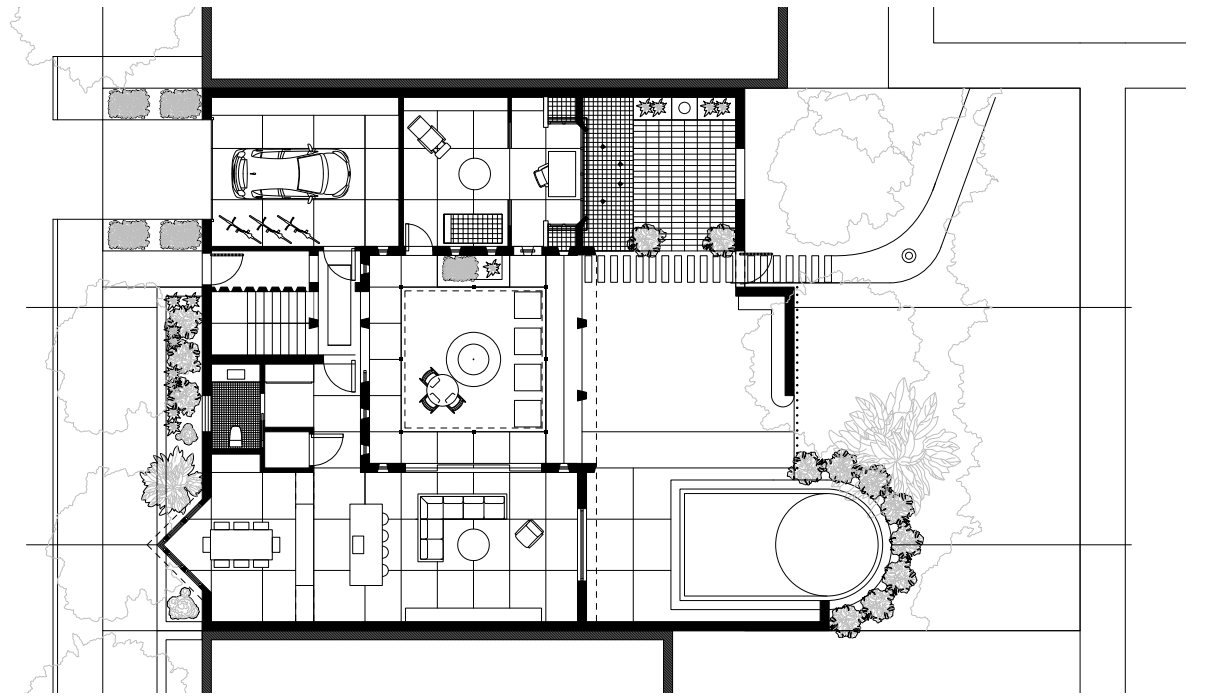


ENLARGED COURTYARD PLAN
1/2" = 1'





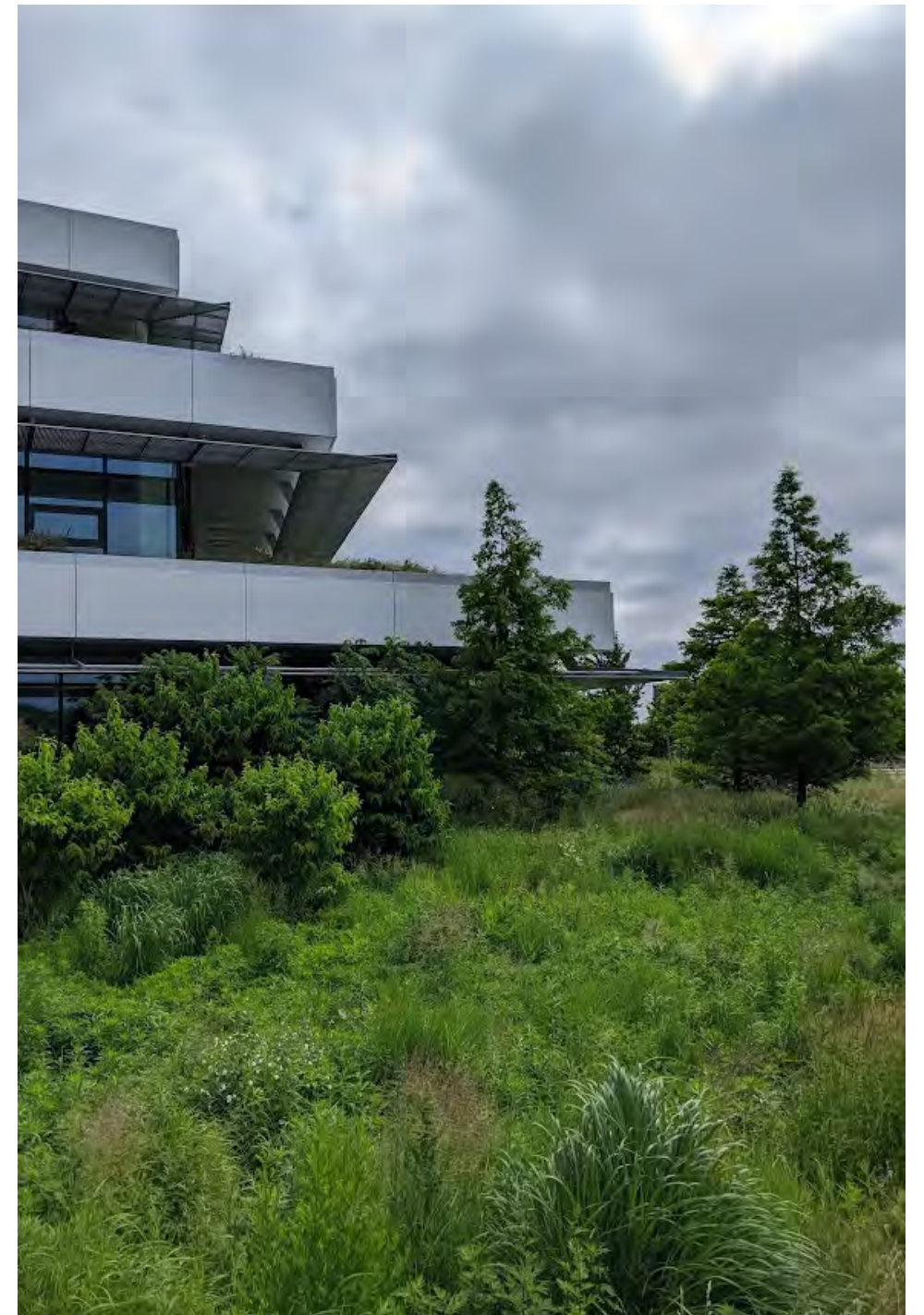
SECOND FLOOR PLAN
1/4" = 1'



FIRST FLOOR PLAN
1/4" = 1'



Source: Behnisch Architekten



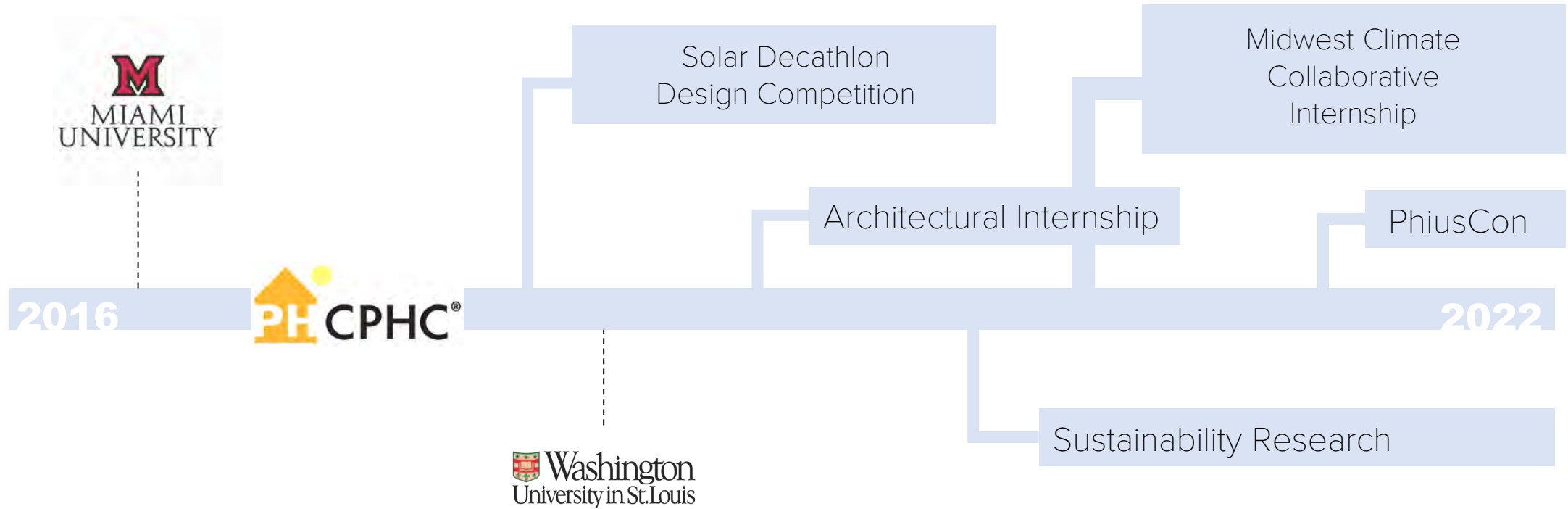
SHANNON O'DONNELL

Phius Professional & Educational Journey

PhiusCon 2022



INTRODUCTION



TAKING THE PASSIVE HOUSE COURSE

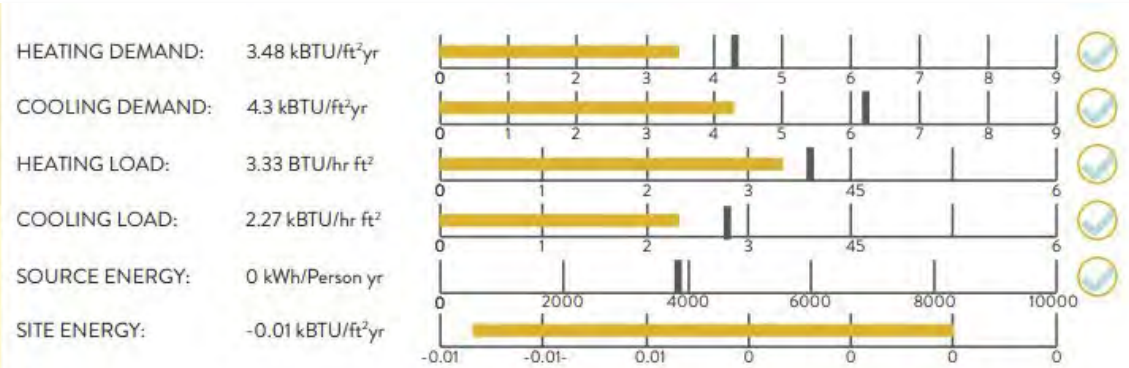


Chart 5. WUFI Analysis

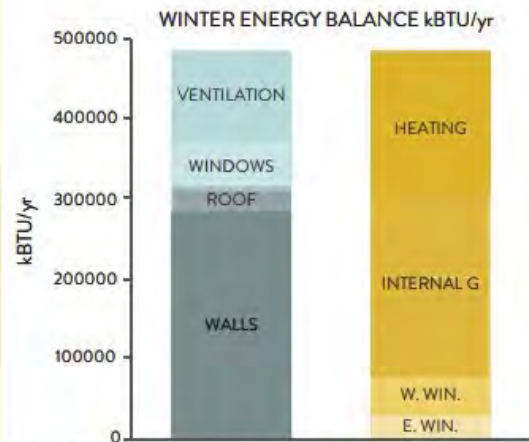


Chart 6. Winter Energy Balance

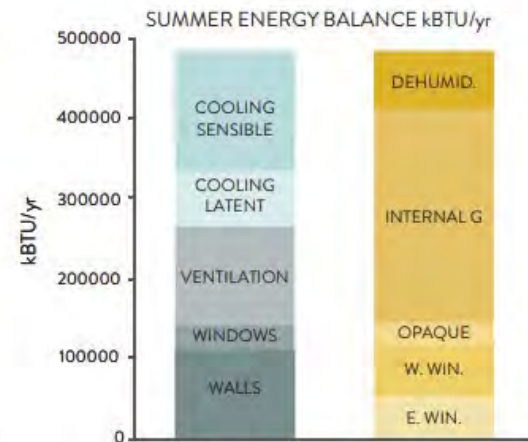
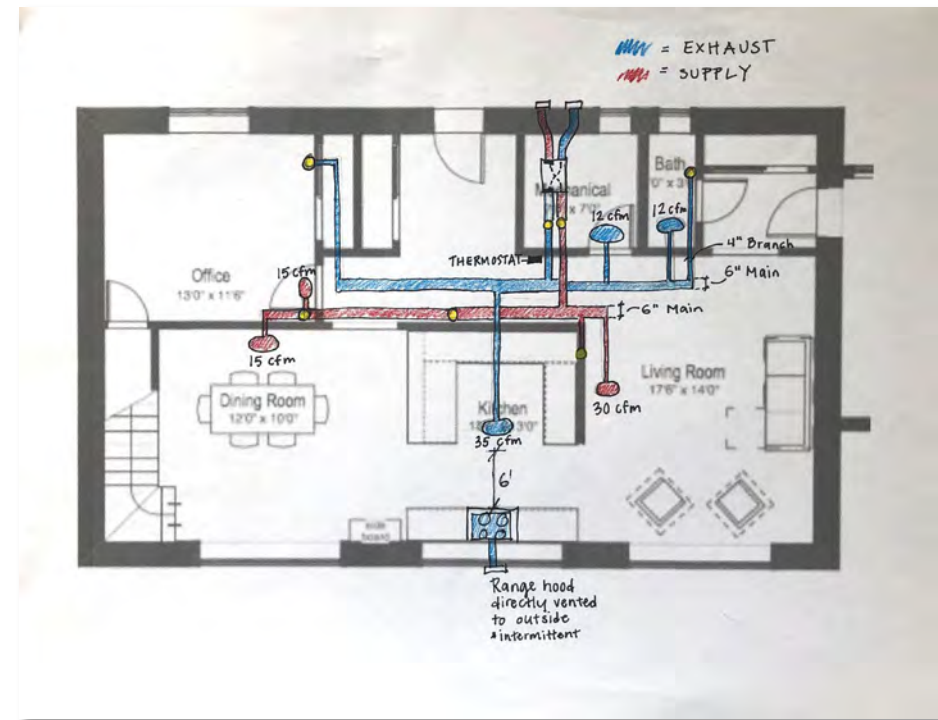
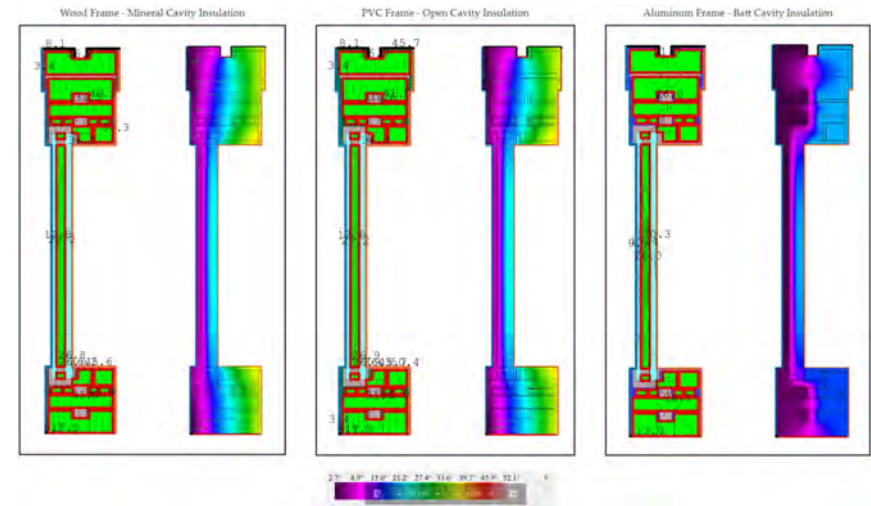
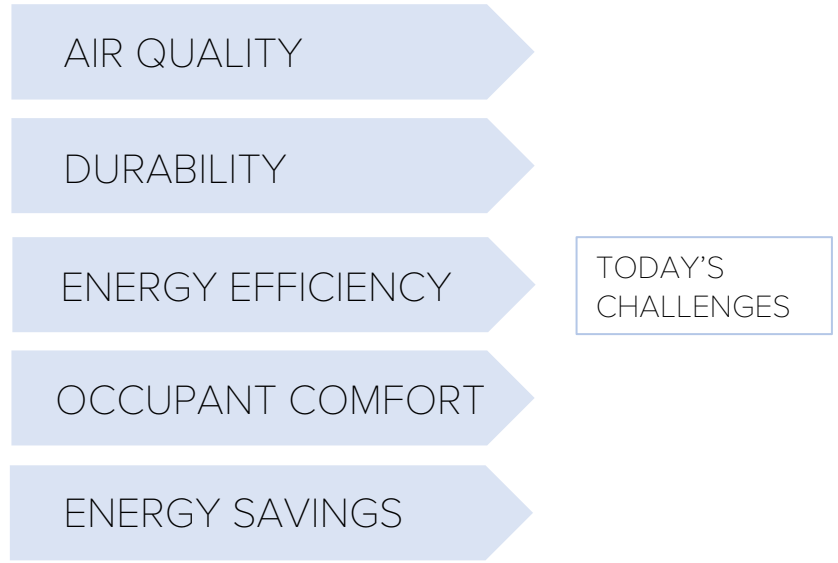
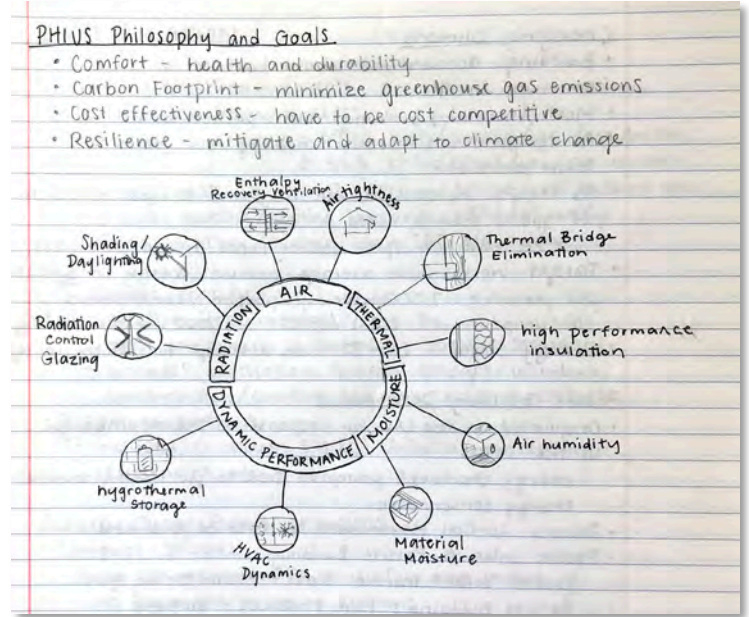
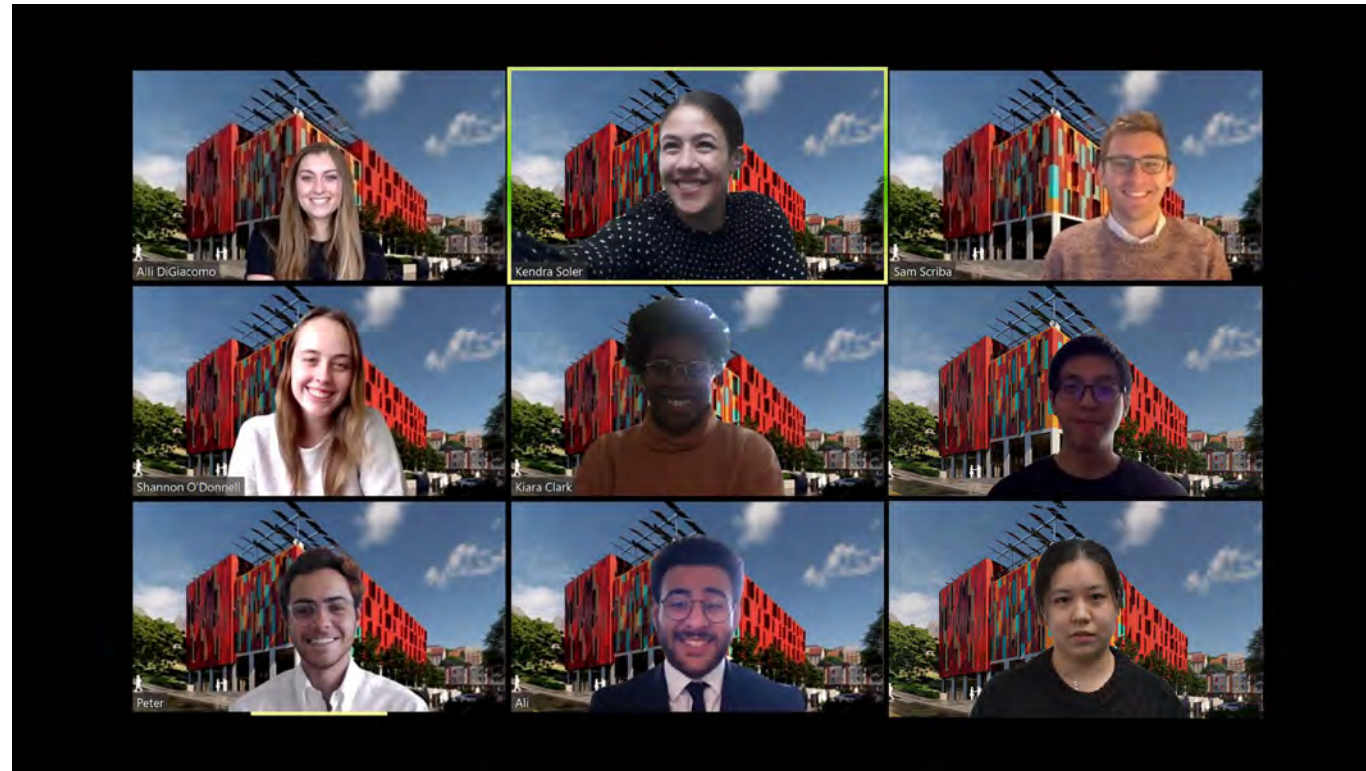


Chart 7. Summer Energy Balance



SHAPING MY OUTLOOK ON THE PROFESSION

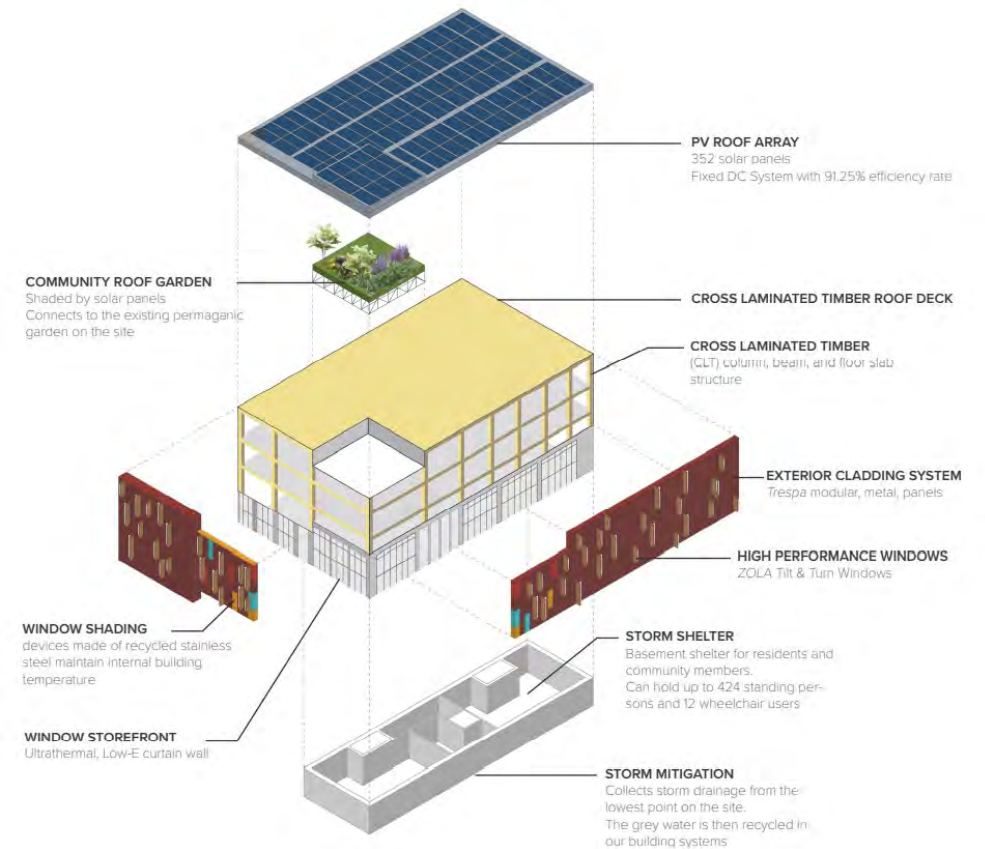


UNDERGRADUATE STUDIO PROJECT

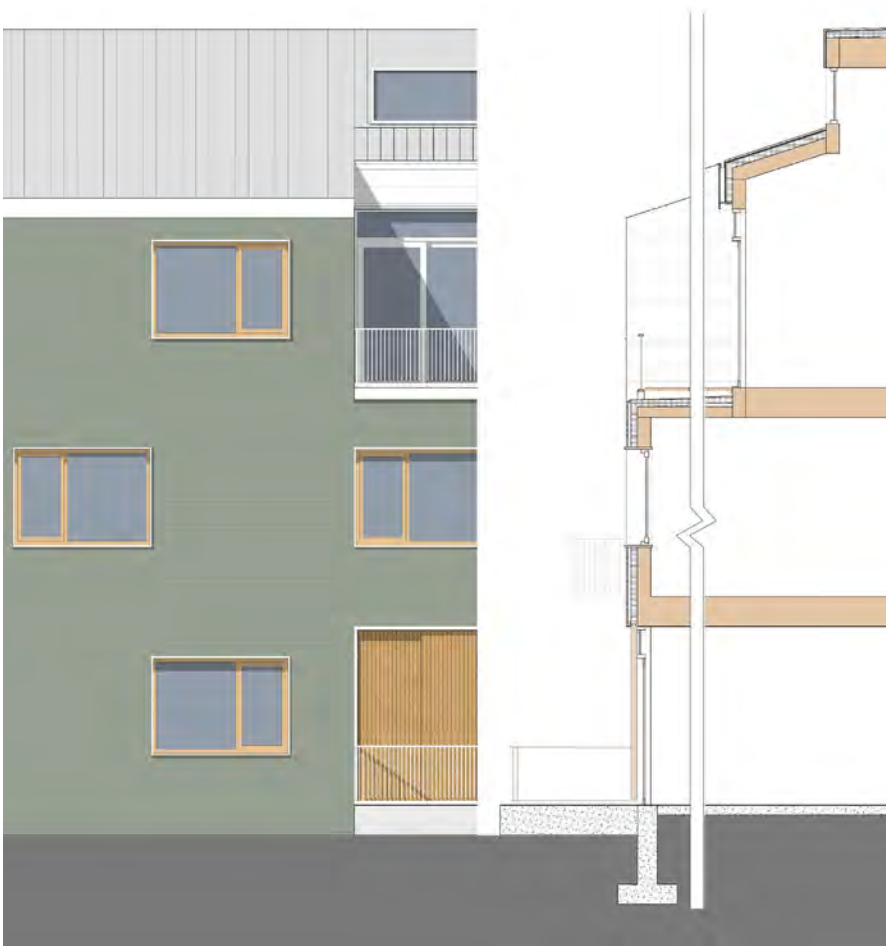
Solar Decathlon Competition – US DOE - *Spring 2020*



In collaboration with other Miami University architecture students



Incorporating into GRADUATE STUDIES



International Housing Studio – Washington University | Fall 2021



International Housing Studio – Washington University | Fall 2021

PROFESSIONAL JOURNEY & JOB OPPORTUNITIES

HPZS | Chicago, IL | Summer Internship 2022
Yannell Conservation Habitat



Architecture Summer Internship | Chicago, IL | HPZS – Summer 2022

PROFESSIONAL OPPORTUNITIES



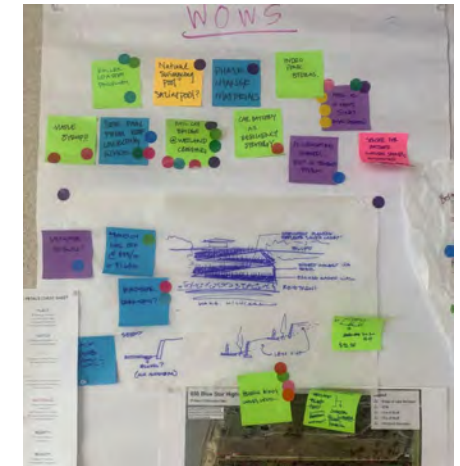
Integrated Design Workshop HPZS – June 2022



Illinois Green Alliance Boat Cruise – Chicago – July 2022



Integrated Design Workshop HPZS – June 2022



UNDERSTANDING THE BIGGER PICTURE



SHANNON O'DONNELL, CPHC

THANK YOU

Acknowledgements:

Mary Rogero, Professor – Miami University

2020 Solar Decathlon Team – Miami University

HPZS | Chicago, IL

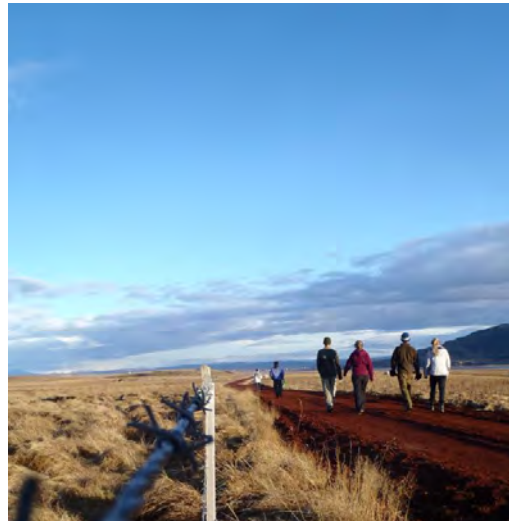
Washington University | St. Louis, MO

PASSIVE HOUSE and PERMANENCE

JORDAN FRAZIN

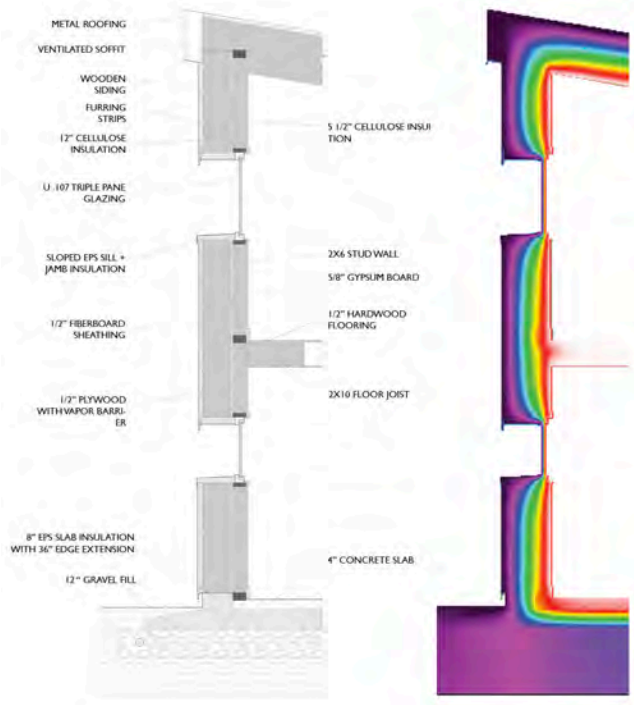


MIAMI UNIVERSITY



MALTA +
ICELAND

MIAMI UNIVERSITY CAPSTONE PROJECT



UNIVERSITY OF OREGON GRAD. SCHOOL + CPHC



PHIUS!

CERTIFICATION TEAM + DESIGN EXAMS

174	1148	6th Street House		Certified	Mar. 2, 2013	John Semmelhack		Latitude 38 -
176	1149	Malcolm Rosenberg Hillel Ce		Certified	Mar. 26, 2013	Adam Cohen		
177	1150	Brookfield Homes Passive H		Certified	Mar. 26, 2013			Brookfield Hc
179	1151	Whitchurch Passive Cottage		Certified	Apr. 1, 2013	Indigo Ruth-Davis		Montpelier Cr
180	1153	Summit Haus		Pre-certified	Apr. 11, 2013	Chris Price		Park City Des
181	1154	The Desert Passive House		Certified	Apr. 12, 2013	Bill Henry		
183	1155	Valley Waste Management O	x	Certified	Apr. 17, 2013	Natalie Leonard		Roscoe Cons
185	1156	Karpiak Mulhall Passive Hou	x	Certified	Apr. 19, 2013	Richard Pedranti		Ciervo and S
187	1157	Hill Residence Passive Hous		Certified	Apr. 19, 2013	Katy Hollbacher		Carmel Build
189	1160	17 Carol Street	x	Certified	Apr. 22, 2013	Michael Trolle		Michael Trolle
191	1161	Island Passive House		Certified	Apr. 23, 2013	Tessa Smith		The Artisans
192	1162	Wesley Chapel		Certified	Apr. 23, 2013	David Cation		Cation Const
193	1170	685 Florida St Condos		Pre-certified	Apr. 29, 2013	Graham Irwin		Developer: K
197	1172	Sunshine Health Facilities Re		Certified	Apr. 30, 2013	Sam Rodell		Jon Hawley, T
198	1173	Rickey Residence		Certified	Apr. 30, 2013	Gavin Tenold		Pura Vida Ho
199	1174	Stellar Passive House Apartm		Certified	May 3, 2013	Win Swafford	Jan Fillinger	Meili Constru
201	1175	Bradburn Passive House		Certified	May 9, 2013	Kathy Aulwes		Daniel McNai
202	1176	Bergman Residence		Pre-certified	May 13, 2013	Anthony Musso		PRHG Gener
203	1177	Specht Residence		Certified	May 28, 2013	Adam Cohen		Structures De
204	1178	Carmouche Residence		Pre-certified	Jun. 19, 2013	Adam Cohen		Structures De
205	1183	Hazelwood Neighborhood Ce		Pre-certified	Aug. 15, 2013	Janelle Kemerer		Nelcon, Inc.
209	1185	Habitat for Humanity SSBC -		Certified	Aug. 28, 2013	Eduardo Devicente		Habitat for H

[bundle] DESIGN STUDIO

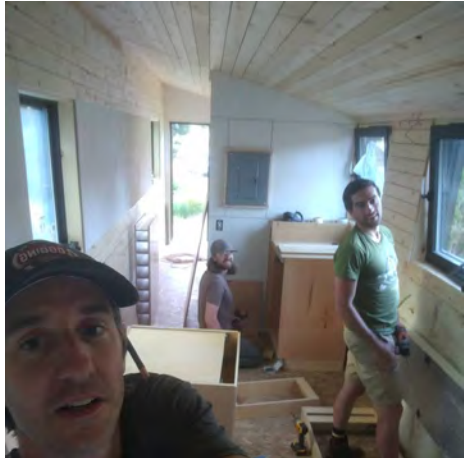
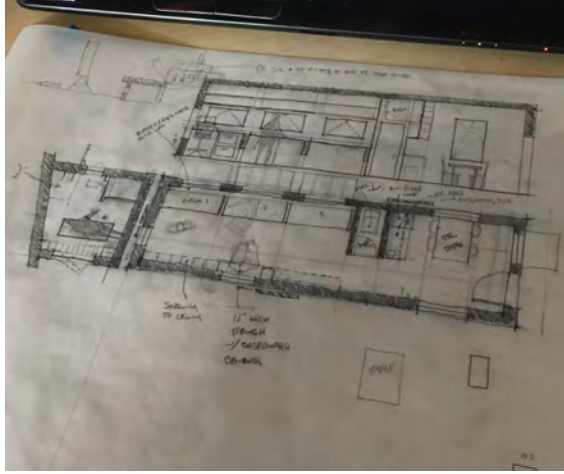


TWIN PEAKS
PASSIVE
HOUSE

[bundle] DESIGN STUDIO BAYSIDE + FELICITY



[bundle] DESIGN STUDIO MOBILE TINY OFFICE



WHOLE SYSTEMS DESIGN COLLECTIVE



THANK YOU



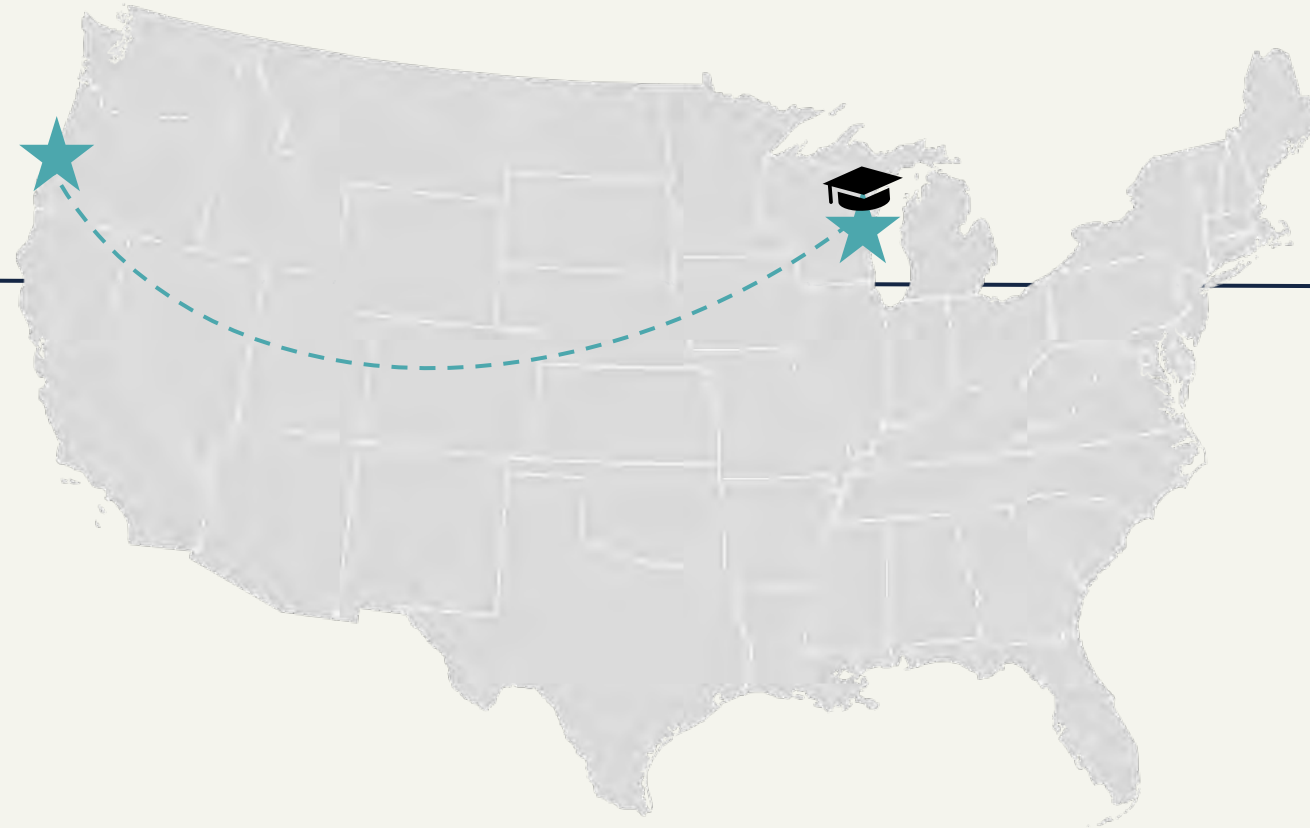


PHIUS Through My Eyes

Sammy Brusky



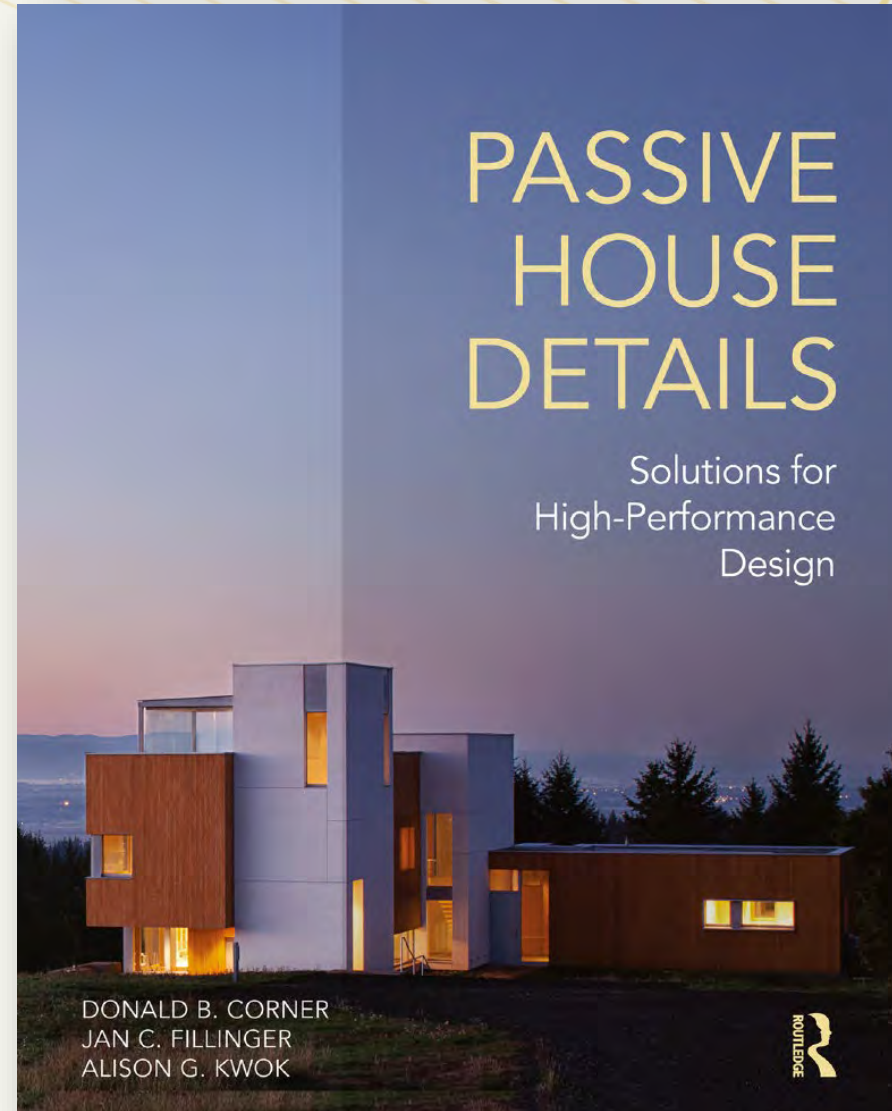
Masters of Architecture
Specialty in Technology & Sustainability



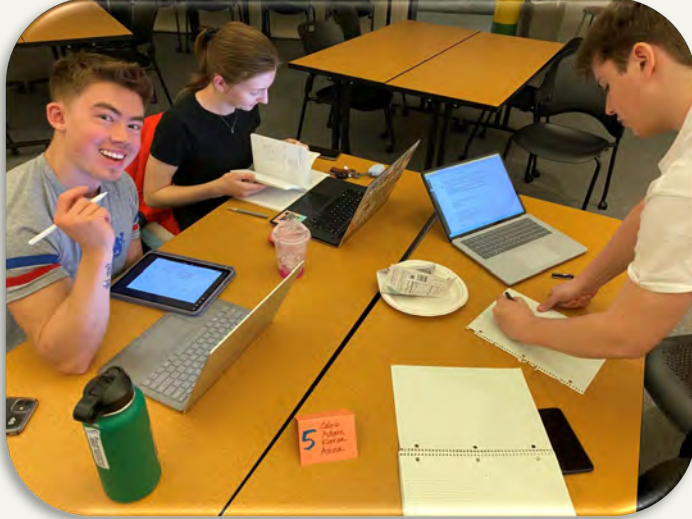
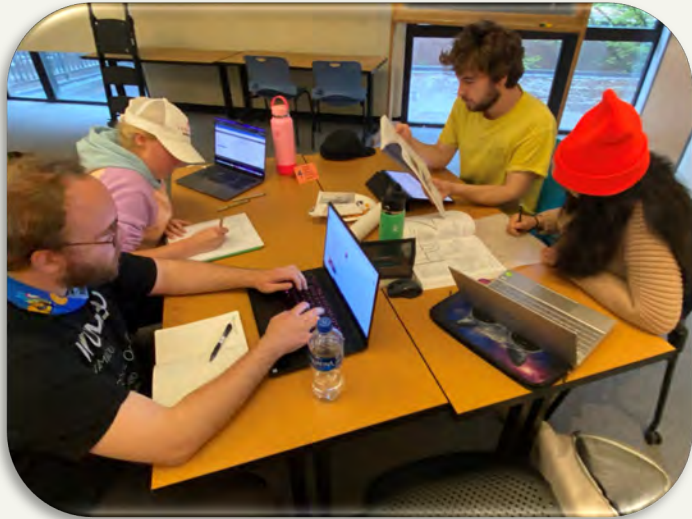
Bachelors of Science in Architectural Studies
Honors College Degree
Summa cum laude



How I Got Involved



What Training Looked Like



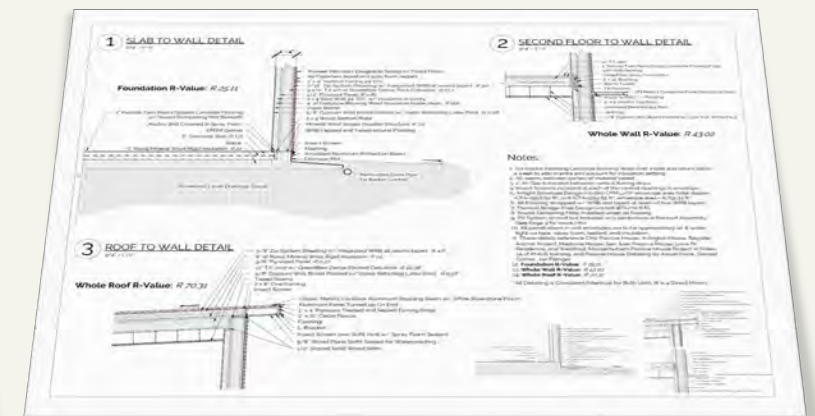
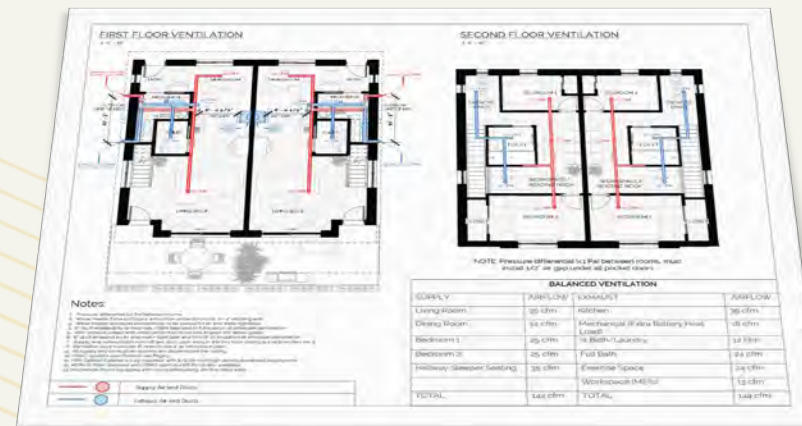
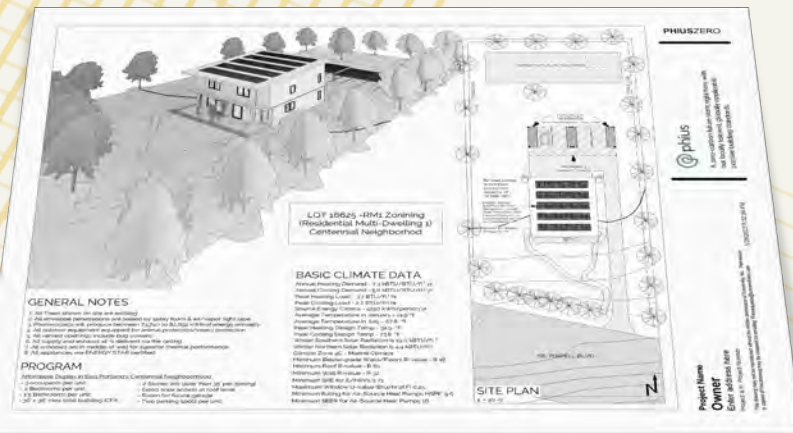
Photos Courtesy of Alison Kwok

Educational Takeaways

The PHIUS training acknowledges that this emerging “eco-aesthetic” age of architecture should be directly informed by developments in sustainable building technologies (Guy, Farmer).

Guy, Simon and Farmer, Graham, Journal of Architectural Education (1984-), Feb., 2001, Vol. 54, No. 3 (Feb., 2001), pp. 140-148

The classroom environment is a special and unique environment that offers a built-in support system and enforces dedicated time for daily study.

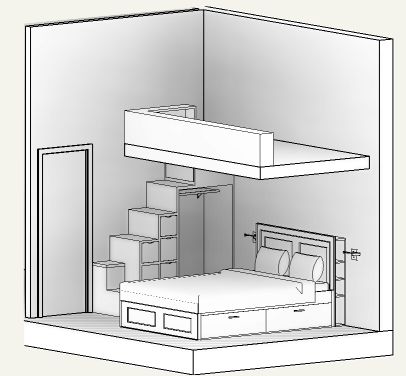
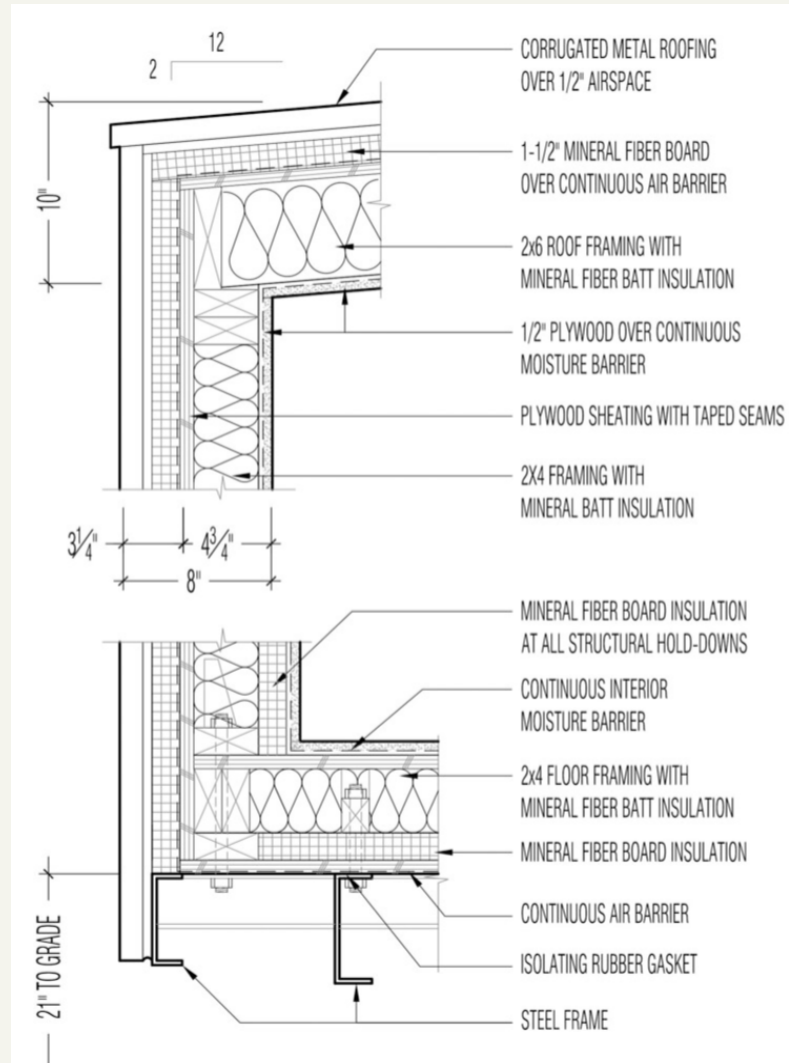


Lessons for Life

The more I learn, the less I know; especially when it comes to this topic. It's important to recognize that this is a dynamic field of study.



My Tiny House



Left Photo: Courtesy of Living Big in a Tiny House, found on <https://oddtymall.com/diy-off-grid-solar-powered-tiny-home>

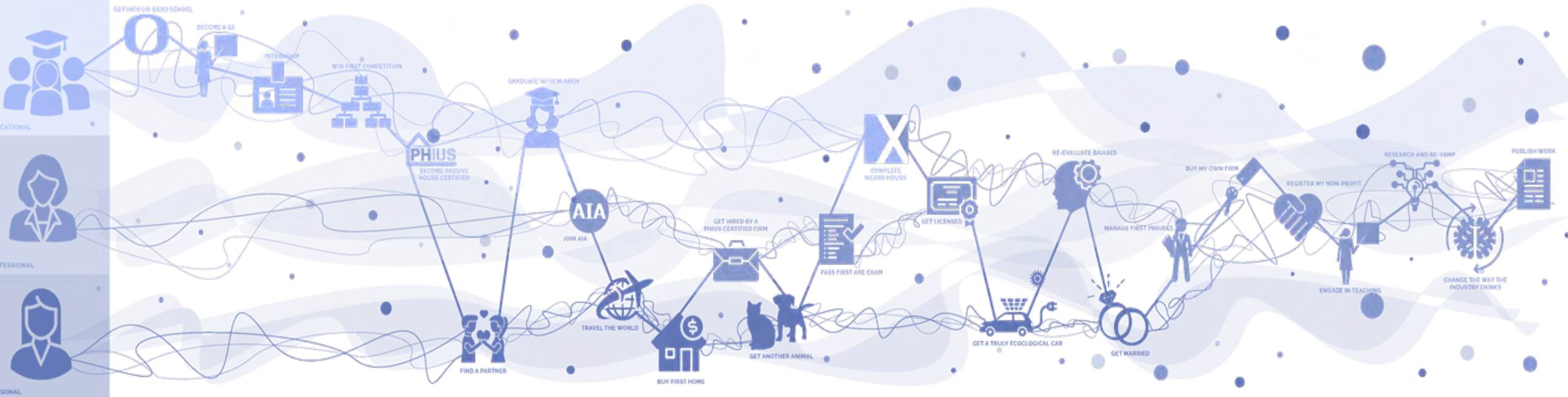
Middle Photo: Courtesy of Brian Rubin, RA, CPHD, found on <https://www.flickr.com/photos/55393876@N07/36117518963>

Right Photos: Courtesy of Alternative House, found on <https://www.treehugger.com/plant-filled-tiny-house-by-mini-mansion-tiny-homes-5184306>

Opportunities Opening Up



What's Next?



Thank You!

Jennie Eber, Josh Ruedin, PHIUS Staff: *the course and conference*

Alison Kwok, UO, Mary Rogero, Miam University: *this panel*

Fellow Panelists: *learning together & teaching each other*

Passive House Training in Architecture School

Caleb Bean CPHC, LEED AP,
ASHRAE

University of Oregon
BArch '24

CPHC Training – Key Themes

- Opportunities for creativity
 - Materials + assemblies
 - Construction methods
 - Importance of site response
 - Glazing constraints, thick walls, simple building geometry



CPHC Design Exam – Duplex in Portland, OR

CPHC Training – Further Studies

The value and opportunity in retrofitting existing buildings. It is often cheaper, quicker, and lower embodied carbon compared to building new construction.



Retrofitted Commercial Building in Seattle, WA

Studio Project

Implemented passive house design principles into a design studio term project.



Eugene, OR
Climate Zone 4C

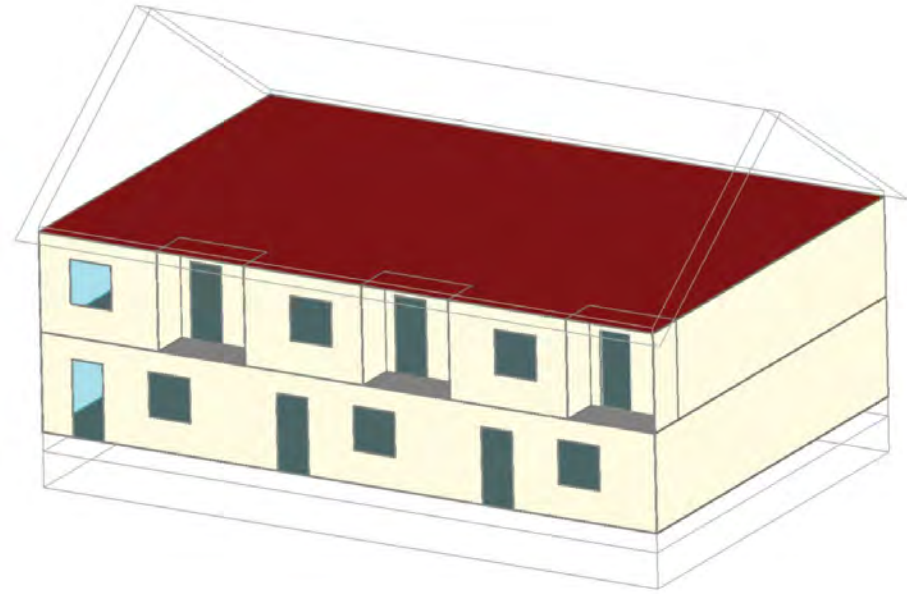
Studio Project

The project combines operable exterior shades, a low WWR, and compact form to reduce the energy load. Sheltered outdoor space was designed to add more usable square footage without raising the iCFA.

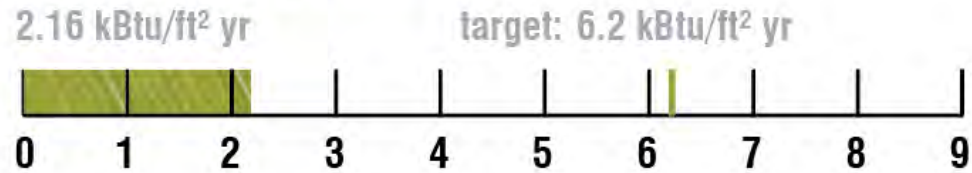


Studio Project

WUFI Passive Model
PHIUS 2021 Performance Criteria



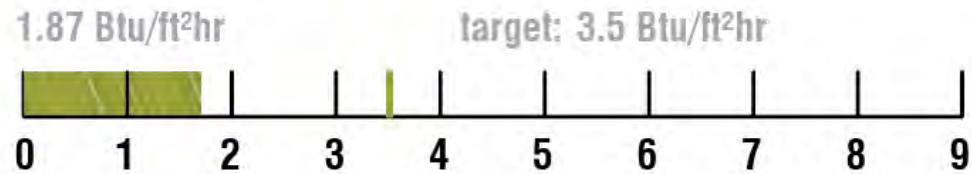
Annual Heating Demand



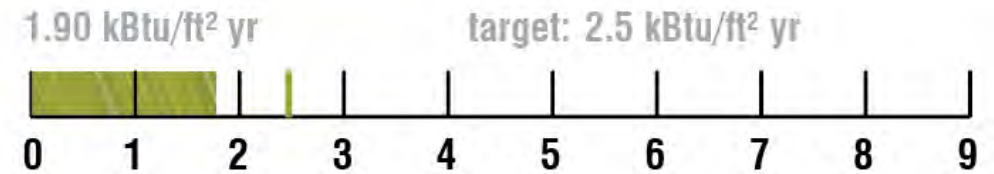
Annual Cooling Demand



Peak Heating Demand



Peak Cooling Load



Career Opportunities from CPHC Certification



RDH Building Science Internship



Twin Lakes Passive House Complex – Marysville, WA

Air-Tightness Testing in Eugene, OR

Offering free blower door testing for new construction and existing buildings to familiarize local contractors, architects, and homeowners with blower door testing and raise awareness about the importance of airtightness.



Thank you!

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