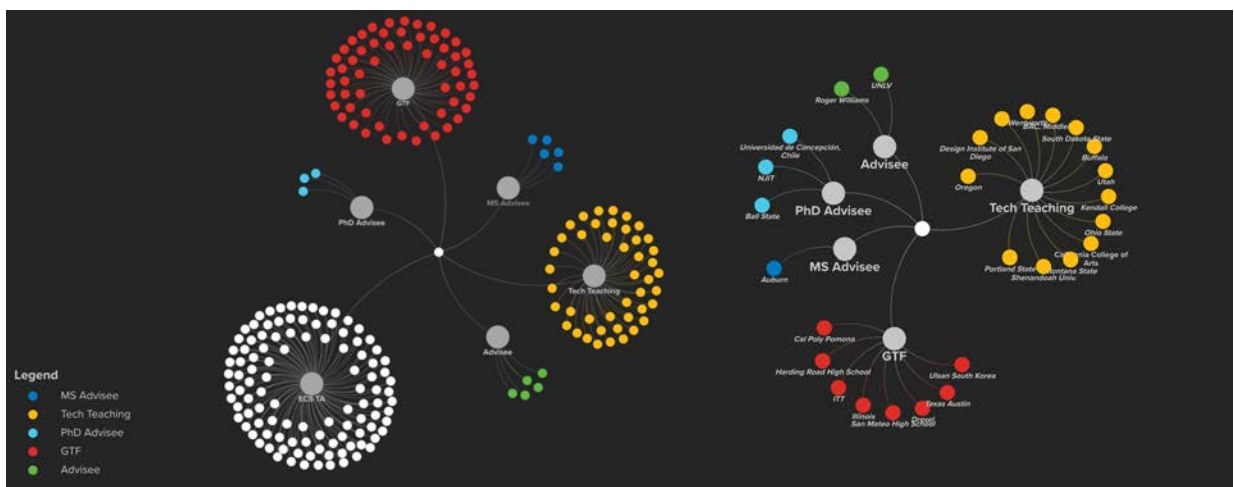


## Alison G. Kwok



Constellations of transformation: advising, mentoring, training G/UG TAs, directing the Technical Teaching Certificate program.

### Transform education: resources

On the premise that better integration of architectural issues yields better buildings, a closer union between the fields of architecture and engineering is needed. Creating easy-to-use resources on design integration, sustainability, and resilience helps bridge the gap between architecture, engineering, and construction. Notable co-authored books are used in the profession and academia.

### Transform education: design process

Stories from actual buildings tell us about the design process. Examining the design process behind innovative, sustainable projects through practitioner and design team interviews, we have provided dozens of articles, papers, and case study books about how actual buildings perform.

### Transform education: training

Understanding design intent and actual outcome about the physical performance of buildings through direct experience form the basis for multiple types of training events for students, faculty, and practitioners. Events take participants through notable buildings, to conduct post-occupancy surveys, use state-of-the-art equipment, develop implementation exercises, and case study process to embed at their home institutions or in practice.

## TRANSFORM by Resource

# Mechanical and Electrical Equipment for Buildings (MEEB)

Grondzik, Walter and Kwok, Alison. *Mechanical and Electrical Equipment for Buildings*, 13<sup>th</sup> ed., 1895 pp. Hoboken, NJ: Wiley. 2019 (12<sup>th</sup> edition, 2015, 11<sup>th</sup> edition, 2010; 10<sup>th</sup> edition, 2005)

### Co-Authorship

For more than 80 years, this textbook has been the industry standard teaching and practice reference for building environmental control systems. At its birth, this book was 429 pages long. Now, in the 13<sup>th</sup> edition, the book is more than 1800 pages, an increase of 400%. Many new topics have been added over the years, and a few have disappeared; computer simulations are now routinely used in system design; new standards, codes, and guidelines offer challenges to designers; equipment and distribution systems have undergone major changes; mechanical cooling has become commonplace; fuel choices have shifted. In recent editions, the book has increasingly added discussions of “why” to its historic focus upon “how-to.” Together with Professor and architectural engineer, Walter Grondzik, we have re-shaped the textbook to flow with the design process.



“MEEB Like This”

[www.youtube.com/watch?v=mpzmB37G\\_6A](https://www.youtube.com/watch?v=mpzmB37G_6A)

Mike Ober, UO MArch

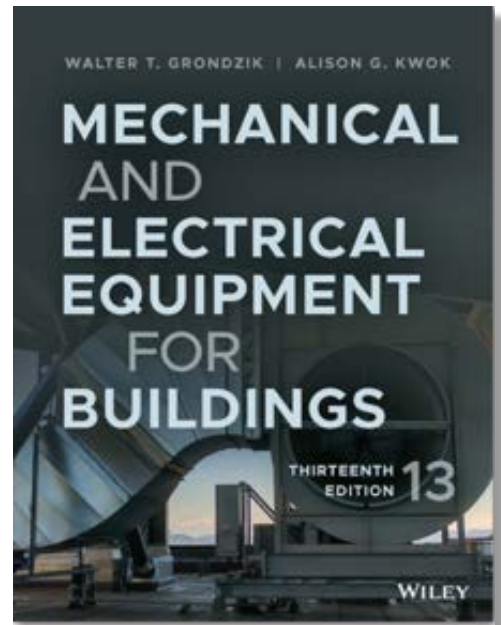


Fig. 1.25 Early design sketch from a team meeting. ZGF ARCHITECTS



# Green Studio Handbook: Environmental Strategies for Schematic Design

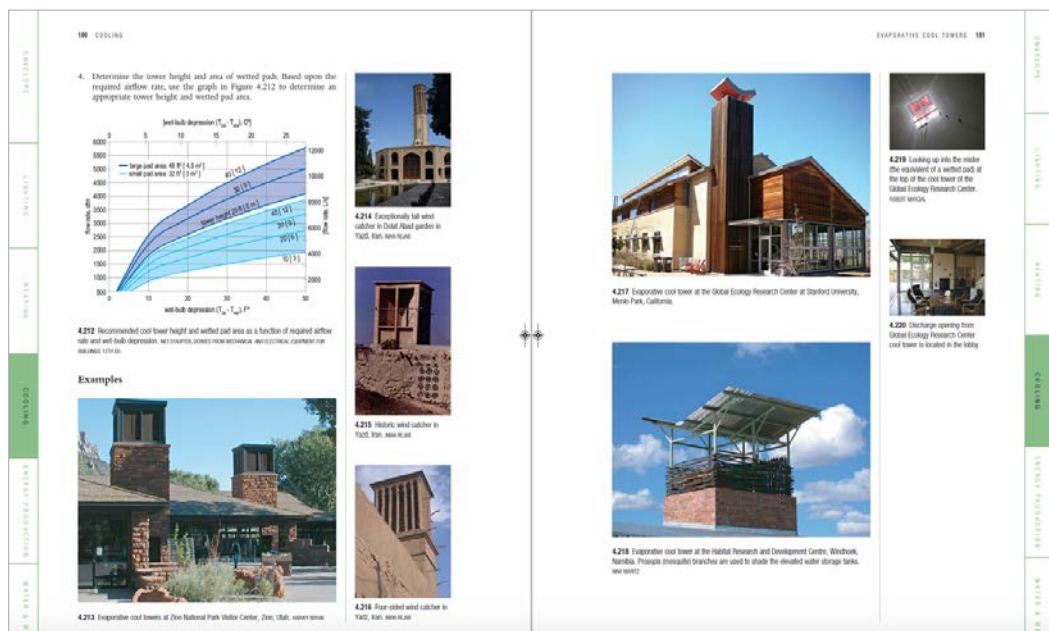
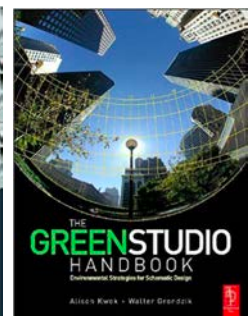
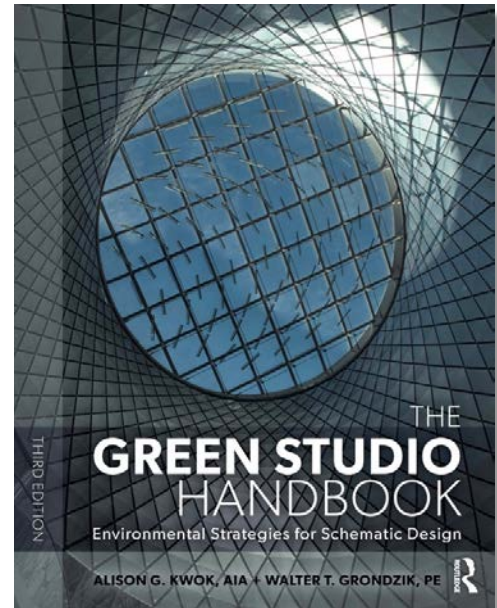
Kwok, Alison and Grondzik, Walter. *The Green Studio Handbook: Environmental Strategies for Schematic Design*, 3rd ed., 425 pp., New York: Routledge Taylor & Francis. 2018 ( 2<sup>nd</sup> edition 2011; 1<sup>st</sup> edition 2007 with Architectural Press.)

## Co-Authorship

*The Green Studio Handbook* is an essential resource for design studios and professional practice. We designed this book as a user-friendly tool presenting practical guidelines for the application of green strategies during the schematic design of buildings. Students and professionals can quickly get up to speed on system viability and sizing. Each of 43 environmental strategies includes a brief description of principles and concepts, step-by-step guidance for integrating the strategy during the early stages of design, annotated tables and charts to assist with preliminary sizing, key issues to consider when implementing the strategy, and pointers to further resources. Ten in-depth case studies illustrate diverse and successful green buildings integrated design projects and how the whole process comes together. The book has been translated into Chinese (simplified and traditional), Portuguese, and Spanish

## Awards

2007 Royal Institute of British Architects (RIBA) International Book Awards, selected by jury for the Architectural Long List.



(p.180–181) from **Evaporative Cool Tower** strategy. Each strategy is approximately 6 pages providing: introduction, key architectural issues, implementation considerations, a step-by-step design procedure, visual examples, and list of resources.

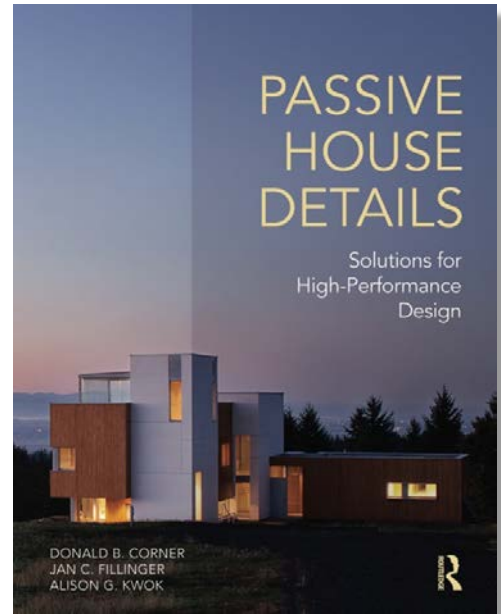


## Passive House Details: Solutions to High-Performance Design

Corner, Donald. Fillinger, Jan, and Kwok, Alison. *Passive House Details: Solutions for High Performance Design*, 330 pp. New York: Routledge. 2017

### Co-Authorship

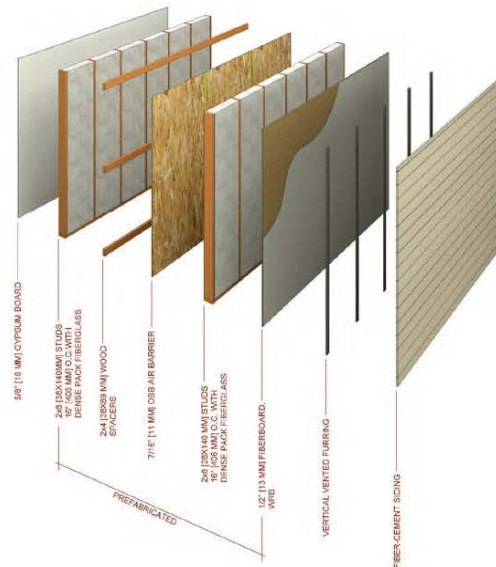
*Passive House Details* introduces the concepts, principles, and design processes of building ultralow-energy buildings. The objective of this book is to provide design goals, research, analysis, systems, details, and inspiring images of some of the most energy-efficient, carbon-neutral, healthy, and satisfying buildings currently built in the region. Other topics included: heat transfer, moisture management, performance targets, and climatic zones. Illustrated with more than 375 color images, the book is a visual catalog of construction details, materials, and systems drawn from projects contributed from forty firms. Fourteen in-depth case studies demonstrate the most energy-efficient systems for foundations, walls, floors, roofs, windows, doors, and more. The authors worked with 40+ firms across the country, redrawing details for graphic consistency and verifying accuracy (and memory in many cases).



8.11.5 Placing the panelized double stud walls. ARTISANS GROUP



8.11.6 Open stud cavity inside the air barrier sheathing. ARTISANS GROUP



8.11.7 Panelized double stud walls with air barrier sheathing that subdivides the cavity.

## TRANSFORM by Resource

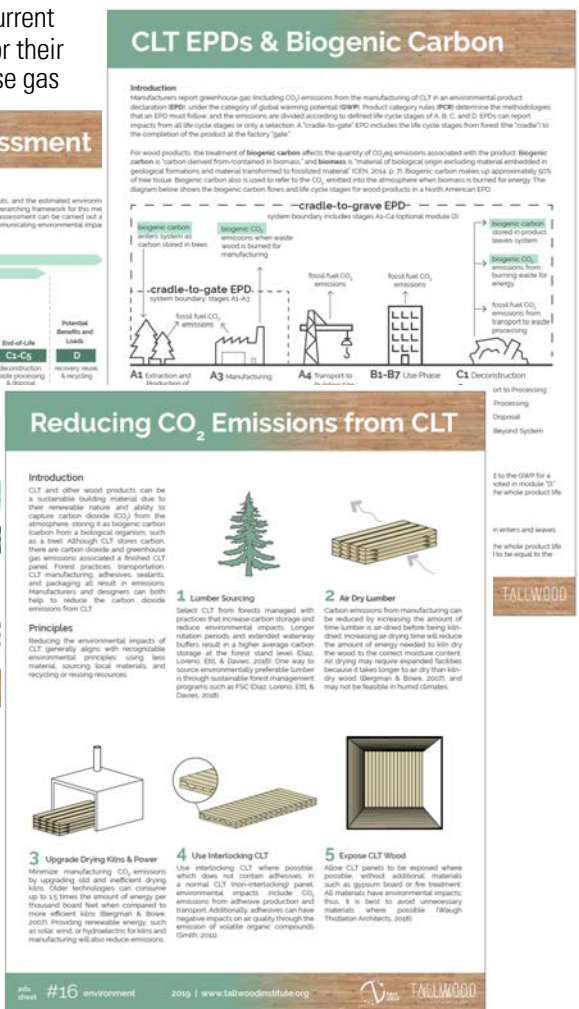
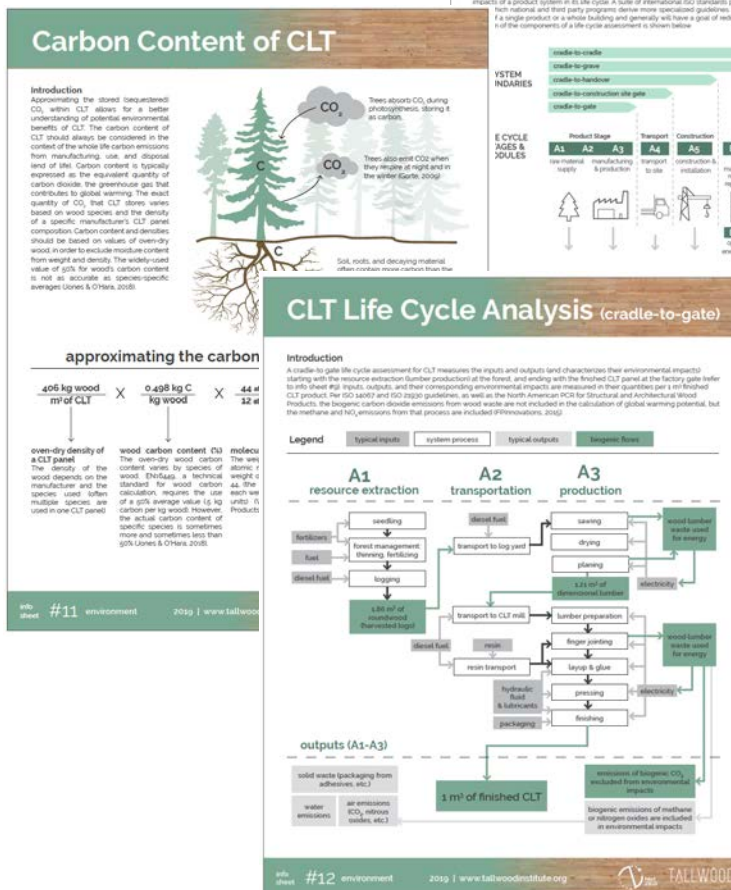
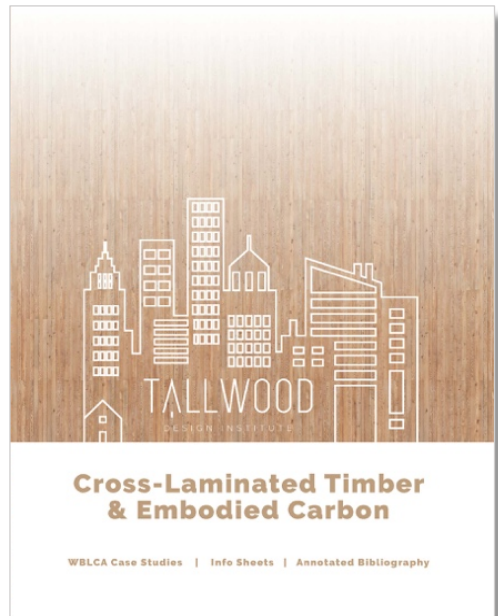
# Cross-Laminated Timber and Embodied Carbon: WBLCA Case Studies, Info Sheets, Annotated Bibliography

Sponsor: OSU TallWood Design Institute  
2018–2019

Team: Project Investigator Alison Kwok with graduate students Hannah Zalusky, Isabel Rivera; consultant Lindsay Rasmussen (Architecture 2030), and exchange student Hannah McKay (CalPoly San Luis Obispo)

## Summary

The case study series highlights *five whole building life cycle assessments* (WBLCA) of buildings incorporating the building material known as cross-laminated timber (CLT) into some or all of their structure, using a primary cradle-to-grave system boundary. *Eighteen Info Sheets* provide a general overview of cross-laminated timber in buildings, relevant design information, and a synthesis of research on embodied and stored carbon of CLT. An intensive *literature review of data and resources* drawn primarily from current studies in Canada and the United States, these sources were selected for their relevance to cross-laminated timber and its embodied carbon (greenhouse gas emissions) and stored carbon.





## TRANSFORM by Design Process

# Hale Malama Passive House

### Stories from Practice

Sponsor: Alison G. Kwok Architect, owner

Location: Eugene, Oregon; Completion: 2020

Size: 1720 ft<sup>2</sup> (160 m<sup>2</sup>); Recognition: Earth Advantage Platinum, PHIUS+2018 pre-certified; HDD: 4,821 base 65°F (2,678 base 18.3°C); 210 base 65°F (117 base 18.3°C)

Builder: Allen Co. Design It! Build It!; Mechanical: Paul Modell; CPHC: Jonathan Bean; Quality Assurance: Earth Advantage Portland; Advisors: PHIUS, Roger Ota, CPHC, Christopher Deel, CPHC

### Summary

Hale Malama residence is designed to achieve passive house energy targets. Growing up in Hawaii (“hale” means house, “malama” means care/protect) it was important that the house also function passively for indoor-outdoor living for as much of the year as possible. The house captures the full potential of existing features of the site using a geometry and orientation maximize solar exposure, high levels of insulation, extremely airtight construction, high-performing triple-glazed, European windows, and a heat pump ventilator heater-air conditioner-dehumidifier system to provide comfort. Providing a flexible live-work condition, the two levels address the program requirements with separate entrances. Insulation under the slab on-grade concrete floors provides thermal storage to stabilize temperatures in the cooling season. The envelope layers: Japanese-style of burned cedar siding as a rain screen over mineral wool insulation; air- and weather-resistant sheathing; 2x6 [38X140 mm] framing with blown in dense pack fiberglass. A 4.7-kW photovoltaic system offsets source energy use and a rain garden provides stormwater retention for runoff from the roof and deck. Building could only be accomplished by working in close collaboration with all trades even after occupancy. Real time lessons learned through one’s own practice creates numerous teaching moments.



## TRANSFORM by Design Process

# Case Studies of Carbon Neutrality

## AIA Upjohn Initiative

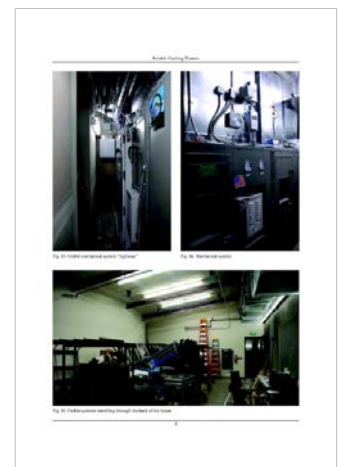
Sponsor: AIA Knowledge Resources Upjohn Initiative  
2009

Project Investigator Alison Kwok with Technical Advisor, Nick Rajkovich, Pacific Gas & Electric

### Summary

Six Case Studies of Carbon Neutrality (Orinda City Hall, Chartwell School, Tillamook Forest Center, Stephen Epler Hall, The Gerding Theater, and East Portland Community Center) describe the design intent, construction, and processes to operate these notable early green buildings. Trained students conducted focused interviews with practitioners from architectural and engineering firms on the design process and strategies that delivered buildings that meet carbon neutrality. Performance outcomes were measured by using a nationally implemented set of investigative protocols that focus on particular design strategies. Examining the results of post-occupancy performance will offer practice a means to “close the loop” of design lessons learned in building design. This information is valuable to design professionals, educators, and students for discussions of the design process and design strategies necessary to meet the 2030 Challenge.

Project	Chartwell School Seaside, CA 2006	Orinda City Hall Orinda, CA 2007	PSU Stephen Epler Hall Portland, OR 2003	Tillamook Forest Center Tillamook, OR 2006	The Gerding Theater Portland, OR 2006	E. Portland Community Ctr. Portland, OR 2008
Information	21,000 s.f. Predicted 50% below code Measured EUI 27.9 kBtu/sf/year	13,900 s.f. Predicted 72% below code Modeled EUI: 59.6 kBtu/sf/year	64,400 s.f. Predicted 49% below code Measured EUI: 41 kBtu/sf/year	18,800 s.f. Predicted 30% below code Measured EUI: 99 kBtu/sf/year	55,000 s.f. Predicted 35% below code Measured EUI: 61 kBtu/sf/year	22,000 s.f. Predicted and measured data not available
Architect	EHDD Architecture San Francisco, CA	Siegel & Strain Architects Emeryville, CA	Mithun Architects Seattle, Washington	Miller Hull Partnership Seattle, Washington	GBD Architects Portland, OR	SERA Architects Portland, OR
Engineer	Taylor Engineering Alameda, CA	Taylor Engineering Alameda, CA	Interface Engineering Portland, OR	PAE Consulting Engineers Portland, OR	Glumac Engineers Portland, OR	Interface Engineering Portland, OR



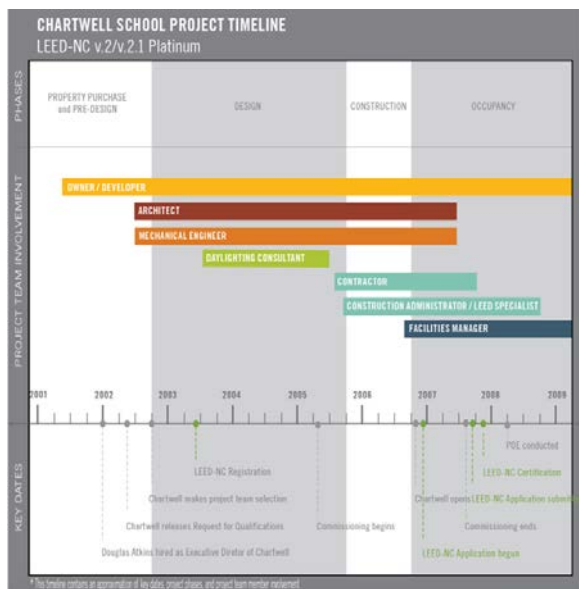


# USGBC LEED Buildings

## Stories from Practice

Team: Project Investigator Alison Kwok with Co- PI Nick Rajkovich with graduate students: Christopher Nielson, Britni Jessup Churnside, Amanda Rhodes, Rachel Auerbach

Six Case Studies of Carbon Neutrality (Orinda City Hall, Chartwell School, Tillamook Forest Center, Stephen Epler Hall, The Gerding Theater, and East Portland Community Center) describe the design intent, construction, and processes to operate these notable early green buildings. Trained students conducted focused interviews with practitioners from architectural and engineering firms on the design process and strategies that delivered buildings that meet carbon neutrality. Performance outcomes were measured by using a nationally implemented set of investigative protocols that focus on particular design strategies. Examining the results of post-occupancy performance offers practice a means to “close the loop” of design lessons learned in building design. This information is valuable to design professionals, educators, and students for discussions of the design process and design strategies necessary to meet the 2030 Challenge.



Team Building  
Goal Setting  
Technology  
Design Process  
Management and Relationships  
Barriers  
Future Work





## TRANSFORM by Design Process

# Case Middle School

## Stories from Practice

Sponsor: Punahou School

2015–2016

Team: Project Investigator Alison Kwok with Co-PI

Dr. Ruth Fletcher; graduate student: Erik Schmidt

*Punahou Building Stories: Case Middle School*, 72 pp.

April 2016

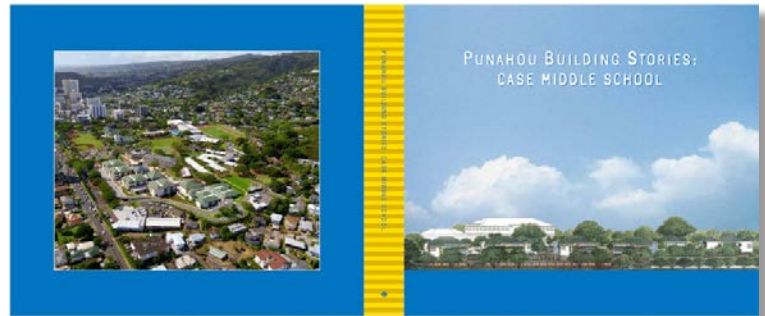
### Summary

Case Middle School (completed in 2003) was the first LEED building in Hawai'i and the largest multi-building LEED project in the U.S. Punahou School, the largest independent day school in the U.S. has grown an extraordinary campus of innovative and rejuvenated buildings that synthesize educational leadership, research, design, construction, and operations. For each new building on campus, teachers, administrators, and architects come together to discuss education and design. These buildings serve as artifacts of the collective thinking about the future of education.

We documented the processes via interviews with the design team, administrative leadership, and school committees, creating narratives describing the successes, the struggles, adjustments, challenges, and the perceived impact on leading, teaching and learning. This case study book, describing how Case Middle School inspired learning at Punahou and aspires to capture the lessons-learned on the building journey, so others can continually learn from these experiences.

**The building process served as an education change agent – ultimately shaping the learning experience for both adults and individual students.**

Dr. James K. Scott, President



## TRANSFORM by Design Process

# Porterville Courthouse

### Stories from Practice

Sponsor: CO Architects, Los Angeles  
2015

Team: Project Investigator Alison Kwok with graduate students: Annie Chiang, Jenny Nieto Ordóñez; undergraduate students: Annie Calhoun, John Loest, Garrett Watkins

*Porterville Courthouse Daylighting and Electric Lighting*, 55 pp for CO Architects, January 22, 2015

### Summary

Completed in 2013, the South County Justice Center in Porterville, California is a 95,200 sf LEED Silver certified building designed by CO Architects of Los Angeles. Notable features include a large shaded courtyard, providing a comfortable gathering area for the community, nine daylit courtrooms, and large expanses of glass that connect the interior circulation pathways with the courtyard and assist in way finding through the building. The student team conducted a building performance study on the daylighting and electric lighting conditions throughout the courthouse and found the design is very sensitively designed to orientation, lighting, shadow, and needs of the users.

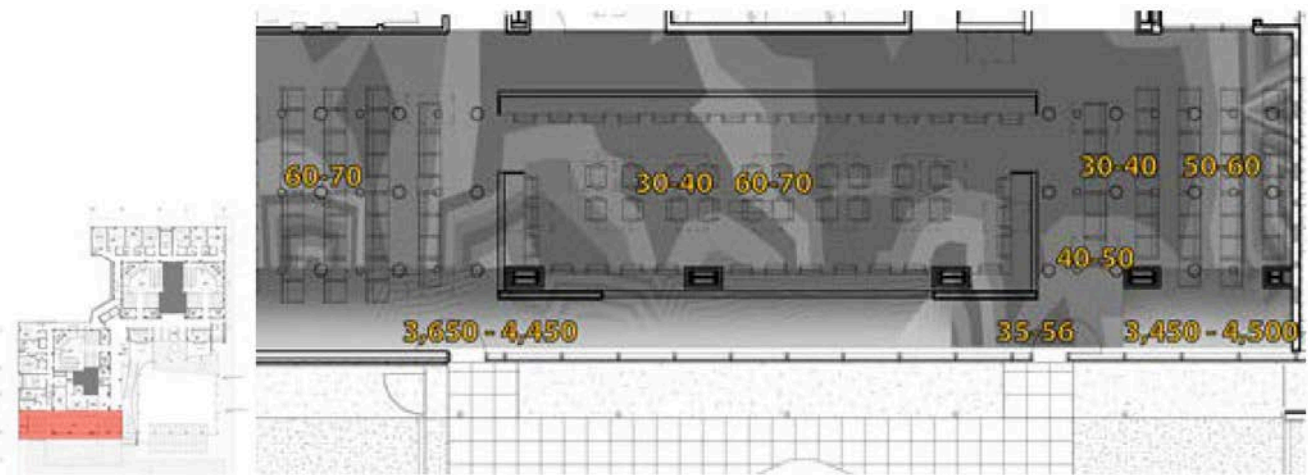


Figure 25 a,b - Jury Assembly Room (Lights ON) HDR



## TRANSFORM by Design Process

# Stellar Apartments

### Stories from Practice

Sponsor: St. Vincent DePaul Society, Bergsund DeLaney Architects  
2013–2015

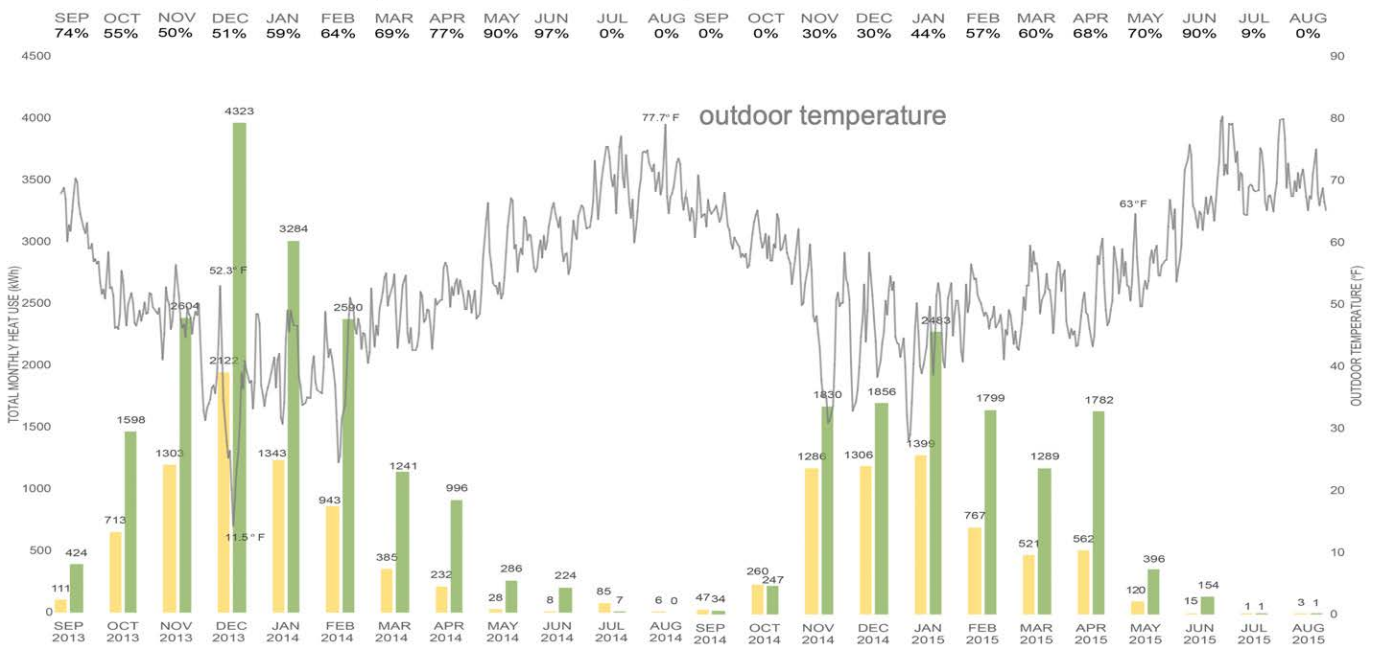
Team Lead Alison Kwok with graduate students: Annie Chiang, Ryan Dirks, Eric Schmidt, Gabrielle Steffel, Karen Tse, Ashley Tuffo, Ayush Vaidya;  
undergraduates: Lindsay Rasmussen, Matthew Roberts  
NetZED Laboratory. *The Stellar Apartments*, February 4, 2016 [www.lulu.com](http://www.lulu.com)

### Summary

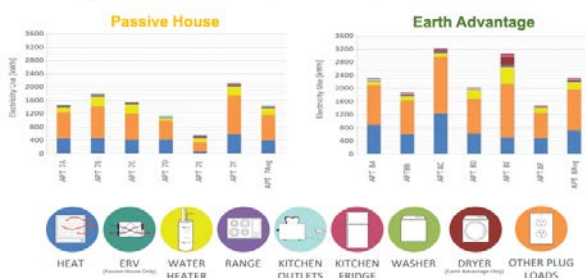
The Stellar Apartments: The story and data behind the nation's first affordable multi-family passive house. The team evaluated the two buildings for two years comparing the performance of a passive house building and an identical building next to it built to the Earth Advantage standard. Both buildings had the same orientation, number of occupants, and apartment layouts. The team downloaded and analyzed weekly data from the first week of occupancy.



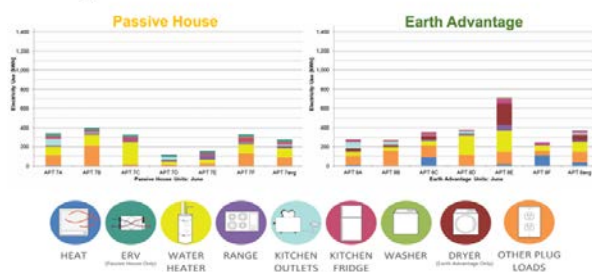
## Heat Use: September 2013 – September 2015



Energy End-Use: WINTER (December 2013)



Energy End-Use: SUMMER (June 2014)



## TRANSFORM by Design Process

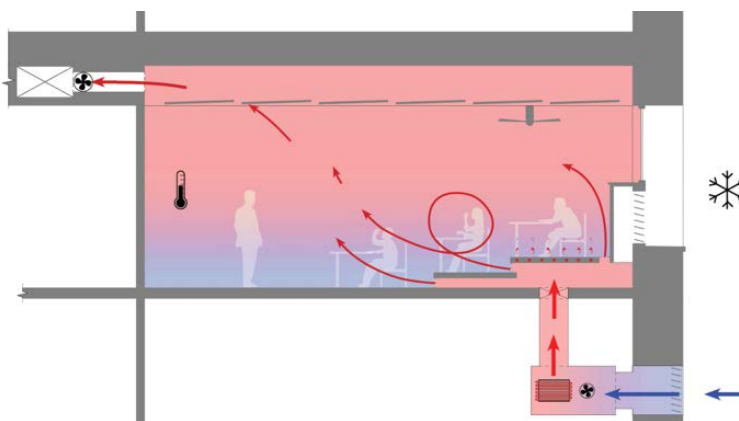
# Visible Ventilation

Sponsor: ASHRAE Undergraduate Equipment Grant Program  
2013–2014

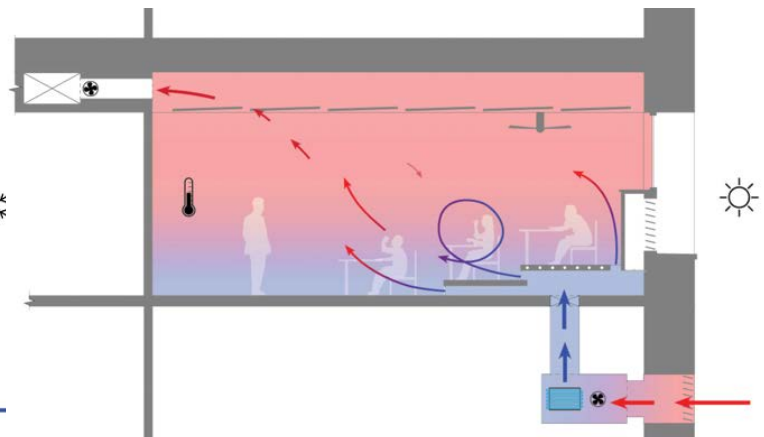
Team: Project Investigator Alison Kwok with graduate students: Sophia Duluk, Heather Nelson, Toshi Woudenberg, Tom Collins; undergraduate students: Tyler Mavichien, Regan Greenhill, Wes Thompson

### Summary

Lillis Business School on the University of Oregon campus was completed in 2003 as one of the first LEED certified buildings on campus as a four-story addition connecting three preexisting buildings, including a pass through atrium, a cafe, public meeting rooms, classrooms, and offices. The building uses different ventilation strategies in different parts of the building, including 100 percent natural ventilation (no mechanical cooling or ventilation air) in the atrium and faculty offices on the north side, hybrid natural and mechanical ventilation and cooling in the classrooms, and 100 percent mechanical ventilation and cooling in the faculty offices on the south. To better understand how these modes occur, students created a series of animations to compare theory and their actual measurements of in the classroom.



heating mode



cooling mode



## TRANSFORM by Design Process

# Campus Audit Squad Plug Loads and Behavior

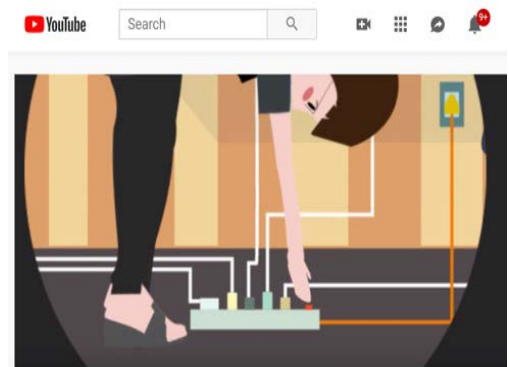
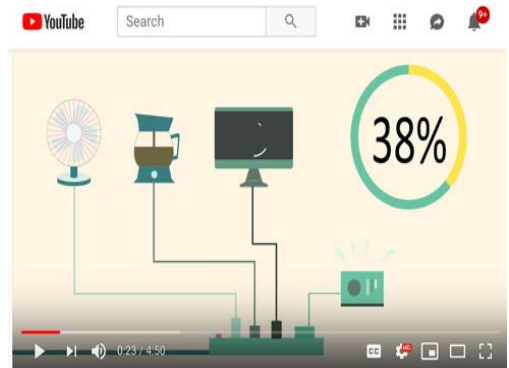
Sponsor: ASHRAE Undergraduate Equipment Grant Program  
2014–2015

Team: Project Investigator Alison Kwok with undergraduate students: Nita Tjahjana, Nathan Leigh, Sang Pham; graduate student advising: Isabel Rivera

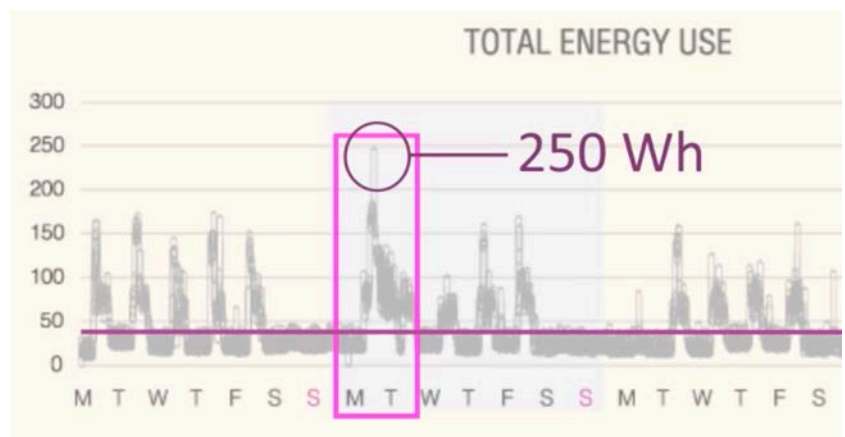
### Summary

This project challenges teams of students to explore and investigate buildings on campus, perform energy audits, and create a comprehensive report of their findings. This project aids in understanding textbook theory and provides students with the opportunity to use expert testing equipment to match theory with actual outcome. With proper preparation and training, the energy audit can be preformed during the two-hour class period and can also be adapted to a more in-depth study later in the school year. Students with experience in this kind of study are able to correlate the topic discussed with the tangible experience and outcomes.

Students looked at the energy use of every appliance, computer, printer, coffee maker, refrigerator, photocopier, heater, fan and so on in the the University of Oregon Department of Architecture office over 4 weeks using plug load dataloggers. They created a You-tube video of their findings and presented it to 400 peers at the ASHRAE Annual Conference.



<https://youtu.be/HPzKATWgoN8>



# Agents of Change Project

Sponsor: U.S. Department of Education, Fund for the Improvement of Post-Secondary Education  
2000–2005  
Project Investigator Alison Kwok

### Summary

Agents of Change was funded by the U.S. Department of Education Fund for the Improvement of Postsecondary Education (FIPSE) 2000-2005, to better prepare students as future teachers, architects, and stewards of the built environment. The project delivered 7 workshops with direct training for more than 170 faculty and teaching assistants from 42 accredited architecture programs and 13 non-accredited institutions, to investigate actual buildings, conduct post-occupancy surveys, and develop exercises to implement at their home institutions. Seventy-five toolkit loans have borrowed the Agents of Change Toolkits through our toolkit loan program to conduct case studies in buildings near their home institutions. A sample template is offered to faculty to procure equipment from their own institutions or organizations. Professor Kwok collaborated with more than 50 faculty and graduate students over the duration of the project. Agents of Change has increased the pool of qualified architectural technology practitioners and motivated graduate students to enter the teaching ranks; helping further the goal to ultimately train future generations of designers to create buildings that provide for human health and well-being while using energy responsibly.

#### Training Workshop: Falmouth 2004 Schedule

Falmouth, MA (October 14-16, 2004)  
Organizer: Alison Kwok <[akwok@uoregon.edu](mailto:akwok@uoregon.edu)>

Logistics [pdf \(361kb\)](#) [word doc \(354 kb\)](#)

#### Wednesday, October 13: Check In (Lodging Provided)

Participants Arrive

#### Thursday, October 14: Investigating (Lodging Provided)

**Breakfast on your own**

9:00–10:00 am **Welcome & Team Introductions**

10:00–10:30 am **Project Introduction**

- case study structure
- methodology overview

10:30am–12:30pm **Tools Training Treasure Hunt**

- toolkit introduction
- equipment use
- exploratory exercises
- launching a Hobo

12:30–1:30 pm **Take a Tool to Lunch (Sandwich Buffet)**

1:30–3:15 pm **Description of Design Intent and Tour of Woods Hole Research Center**

- Mark Rylander, AIA, Project Architect
- William McDonough + Partners
- Bob Crowell and Bob Somers, 2nw Consulting Engineers
- Joseph L. Hackler, WHRC Research Associate & Building Monitoring Operations

3:15–3:45 pm **Break**

3:45–6:00 pm **Case Study Structure: Hypotheses**

**Team Meetings**

- review drawings
- develop questions
- generate hypothesis
- develop methodology
- assemble equipment list

6:00 pm **Team Meeting Discussions Continue at Group Dinner**

After Dinner **Case Study Structure: Toolkits**

- assemble equipment

#### Friday, October 15: Measuring (Lodging Provided)

**Breakfast on your own**

9:00 am–12:30 pm **Case Study Structure: Measurements in Buildings**

**Woods Hole Research Center**

- teams conduct field evaluations
- hypotheses re-visited
- methodologies revised
- information collected and documented

12:30–1:30 pm **Take a Tool to Lunch (Box Lunch)**

1:30–3:15 pm **Case Study Structure: Data Analysis and Report Generation**

3:15–3:30 pm **Break**

3:30–5:30 pm **Team Presentations & Group Photo**

6:00 pm **Group Dinner**

- Design Lessons Learned discussion

#### Saturday, October 16: Teaching (Lodging Provided - optional)

**Breakfast on your own**

9:00–9:30 am **Case Study Examples**

9:30–11:00 am **Exercise Development**

- Institution teams brainstorm implementation ideas, exercises, and course approach (15-20 min.).
- Teams report and share their ideas with the group as a whole.

11:00–11:45 am **Implementation Roundtable**

**Benefits to curricula, student learning, and the profession**

- evaluation strategies: pre- and post-intervention, syllabi comparison
- networking
- sharing information
- questions along the way
- obtaining tools (grants, AoC and VS toolkits)
- AoC workshop evaluation

11:45am–12:00 pm **Toolkit Loans, Evaluation Packets Distribution**

12:00–1:15 pm **Lunch & Roundtable Discussion with Onset Computer Representatives**

1:15–1:30 pm **Clean-up & Farewells**

2:30–7:30 pm **Optional Architectural Walking Tour - Edgartown, Martha's Vineyard**

- Don Corner, University of Oregon
- 45 min. ferry ride from Falmouth to Edgartown





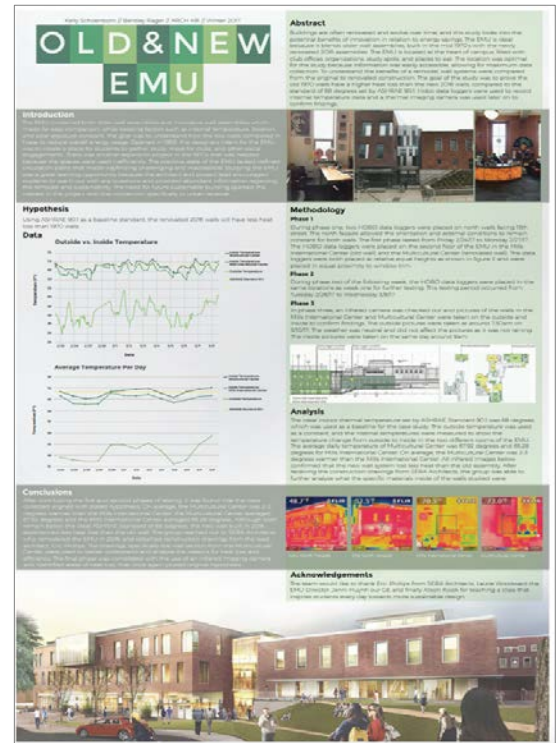
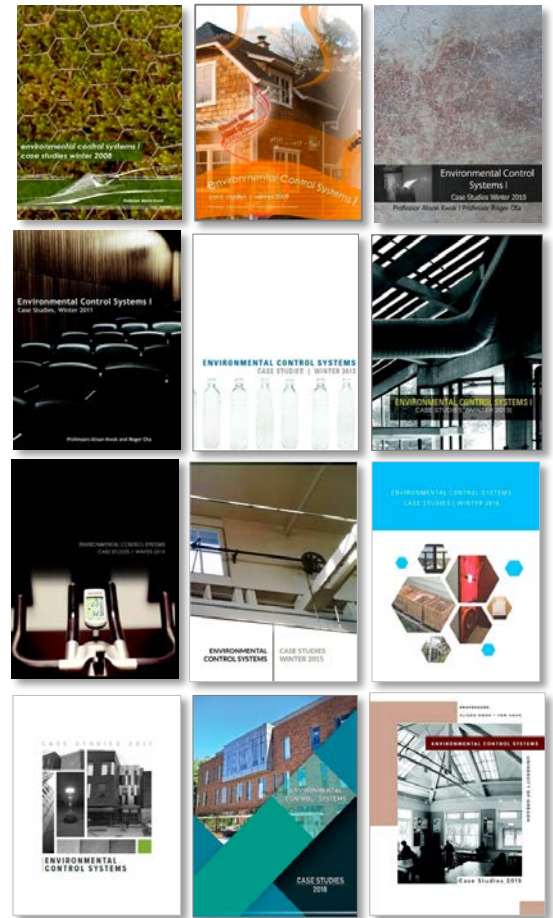
# Environmental Control Systems: Building Performance Case Studies

University of Oregon  
Alison Kwok, course instructor and co-instructor

## Summary

This course, the first of two, is about the buildings and design strategies that are generally poorly described as *climate control systems*. We aspire to provide foundational passive architectural know-how surrounding the environmental design of buildings and communities with regard to energy use, conservation, thermal comfort, cognizant codes and standards, renewable energy, measurement and verification, and the tools needed to understand an ecological approach to design. The graduate student and faculty instructors of this course are enthusiastic, committed, and critical about the pedagogy. They have carefully choreographed active participation and learning through experiential design exercises that prepare future stewards of the built environment. During the 10-week quarter, the major assignment is a 5-week, collaborative, building performance case study project of a building or building material of the student team's choice. As a team, they conduct a study, compare design intent and actual outcome, set forth a hypothesis, develop research questions, apply appropriate methodology and analyze outcomes.

Each year, approximately 40 case studies are produced, culminating in a peer-reviewed 6-page paper and poster, with exemplary projects selected for Case Study Hall of Fame and Honorable Mention awards. The teaching assistants design and publish a case study book each year, as a model for future case studies.



## TRANSFORM by Training

# Tool Day Training Workshops

Sponsor: Society of Building Science Educators (SBSE), 7-8 AIA LU  
Instructors: Bruce Haglund (lead), University of Idaho; Walter Grondzik, Ball State University; and Alison Kwok, University of Oregon

### Summary

Intensive Tool Day Training Workshops are offered to architects, engineers, builders, facility operators, educators, and students to gain experience in the use of equipment and instrumentation and post-occupancy methodology to better understand building system and component performance. Participants learn to set a framework, hypothesis, timetable, appropriate methodology and the use of instrumentation to support building performance investigations. Tool Day training focuses on the development of a case study that will be used as a model for future investigations. Organizers select interesting and noteworthy buildings to study, arrange for architects and facility manager to provide insights, perspectives and a tour. Workshops are no cost— we simply enjoy spending a day in a beautiful garden or space and get to see a great building from a range of different perspectives. Our team has conducted more than 20 workshops in the U.S., Europe, and Asia.

### Sunday, June 2, 2017

Patrick Geddes Room, John Hope Gateway  
Royal Botanic Garden Edinburgh  
Arboretum Place  
Edinburgh, Scotland EH3 5NZ.  
[Map and directions.](#)

Please find your own transportation to the Garden.

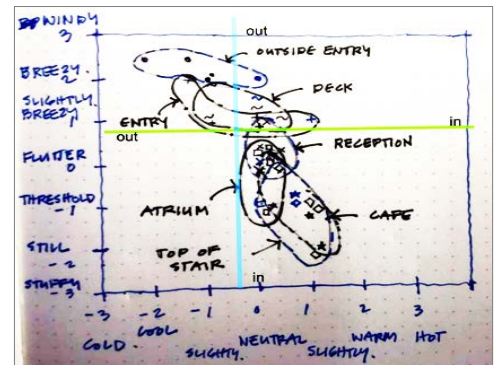
- **10:00A** The Garden opens.  
Go to the Geddes Room in the Hope Gateway.  
We'll start the day there!
- **10:00A** Introduction and Tour
- **11:00A** Vital Signs Exercises with Equipment
- **Noon** Hypothesis Forming Discussion
- **1:00P** Team Investigations and Explorations
- **1:00P** No-Host Working Lunch—Methodology Development  
(Three venues on site\*)
- **3:30P** Team Presentations
- **5:00P** Adjourn
- **6:00P** Garden closes  
Those registered for PLEA 2017 may decamp for PLEA's Historic Environment Scotland Party at Edinburgh Castle (6pm until 8:30pm).

7 AIA/CES credits may be awarded to AIA members



### Rock Garden

Becca Behrens, Michael Coleman, Mark Dekay,  
Vanessa Gomes Da Silva, Ulrike Passe





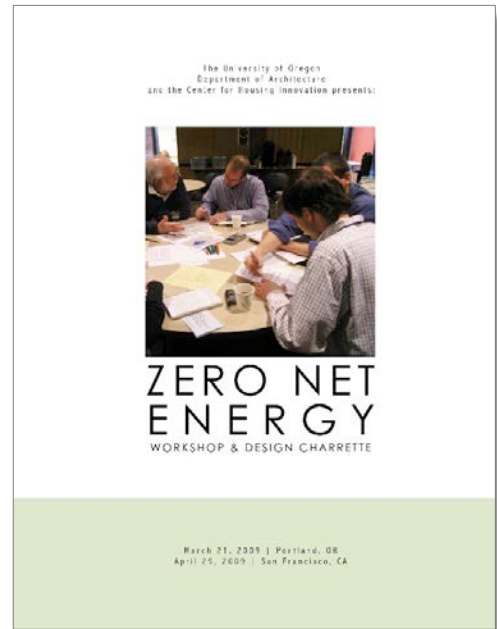
# Zero Net Energy: Workshop and Design Charrette

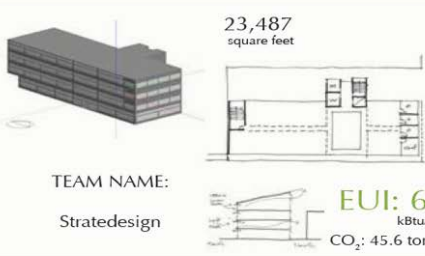
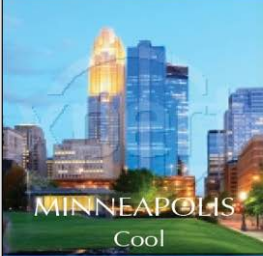

Sponsor: Van Evera Bailey-Oregon Community Foundation Faculty Award

Kwok, Alison G. and Nicholas B. Rajkovich, eds. *Zero Net Energy Workshop & Design Charrette*. University of Oregon Center for Housing Innovation and the University of Oregon Department of Architecture, 262 pp. July 14, 2009

## Summary

Through a series of presentations and an interdisciplinary design charrette, participants in these zero net energy design workshops developed a roadmap to understanding the issues, barriers, and institutional needs at the start of the design process, followed by a schematic design for a prototypical office building. Results from two workshops are featured in this book: 1) Portland, Oregon on March 21, 2009 for 50 architects and engineers, and 2) San Francisco, CA on April 29, 2009 for 50 architects at the AIA Convention. Charrette designs were put through DesignBuilder energy simulation to determine EUI and related carbon emissions for Portland, Minneapolis, Atlanta, Los Angeles, and New York.



CLIMATE	April 29, 2009 - San Francisco Workshop - Charrette Response	
 <p><b>PORTLAND</b> Temperate</p>	 <p>23,487 square feet</p> <p>TEAM NAME: Stratedesign</p> <p><b>EUI: 61.9</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 45.6 tonnes/yr</p>	 <p>13,204 square feet</p> <p>TEAM NAME: CZ<sup>3</sup></p> <p><b>EUI: 71.7</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 29.8 tonnes/yr</p>
 <p><b>MINNEAPOLIS</b> Cool</p>	 <p>15,217 square feet</p> <p>TEAM NAME: CDRTV</p> <p><b>EUI: 140.0</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 42.8 tonnes/yr</p>	 <p>18,775 square feet</p> <p>TEAM NAME: "No Gas Factory"</p> <p><b>EUI: 127.8</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 53.5 tonnes/yr</p>
 <p><b>ATLANTA</b> Hot Humid</p>	 <p>20,500 square feet</p> <p>TEAM NAME: AODE</p> <p><b>EUI: 55.1</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 41.1 tonnes/yr</p>	 <p>9,090 square feet</p> <p>TEAM NAME: Eight Balls</p> <p><b>EUI: 52.1</b> kBtu/sq.ft.*yr CO<sub>2</sub>: 37.1 tonnes/yr</p>

# SBSE Curriculum Retreats

Co-organizer for retreat programs or venues since 1998

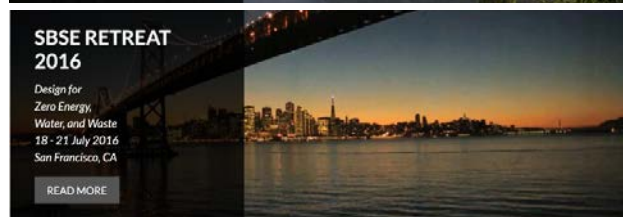
### Summary

The Society of Building Science Educators (SBSE) is an association of university educators and practitioners in architecture and related disciplines who support excellence in the teaching of environmental science and building technologies. SBSE's goal of promoting and supporting quality instruction in building science is realized through a broad range of practical activities. Each summer a venue and program is organized to share materials, spawn collaborative projects, and continually enhance curricula.



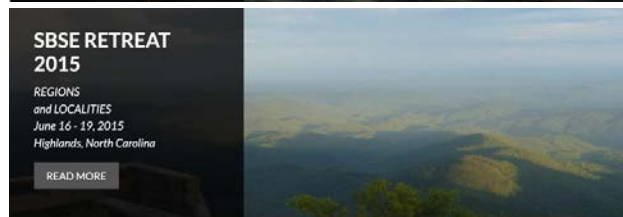
Program Committee: Simi Hoque, Drexel University; University; Omar Al-Hassawi, Washington State University; Fred Tepfer, Alexandra Rempel, University of Oregon

Site Coordinator: Alison Kwok and Isabel Rivera, University of Oregon



Program Committee: Sophia Duluk, EHDD Architecture; Seth Holmes, University of Hartford; Omar Al-Hassawi, Washington State University; and Alexandra Rempel, Rensselaer Polytechnic Institute.

Site Coordinator: Alison Kwok, University of Oregon



Program Committee: Alison Kwok, University of Oregon; Erik Herman, Mississippi State University; Alexandra Rempel, Rensselaer Polytechnic Institute; Seth Holmes, University of Hartford; Emily McGlohn, Mississippi State University

Site Coordinator: Emily McGlohn, Mississippi State University



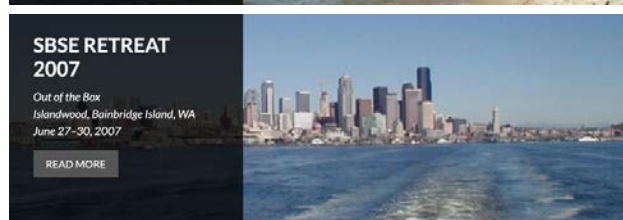
Program Committee: Alison Kwok, University of Oregon; Wendy Meguro, University of Hawaii; Alexandra Rempel, University of Oregon; Meredith Sattler, Louisiana State University

Site Coordinator: Meredith Sattler, Louisiana State University



Program Coordinators: Walter Grondzik, Florida A&M University; Bruce Haglund, University of Idaho

Site Coordinator: Alison Kwok, University of Oregon



Program Coordinator: Alison Kwok, University of Oregon

Site Coordinator: Bruce Haglund, University of Idaho

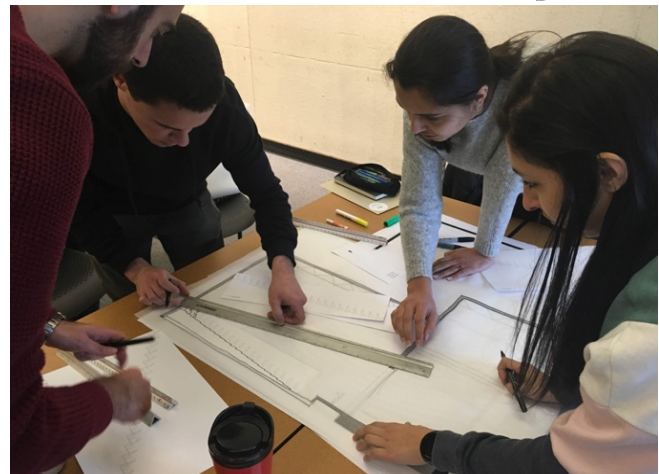
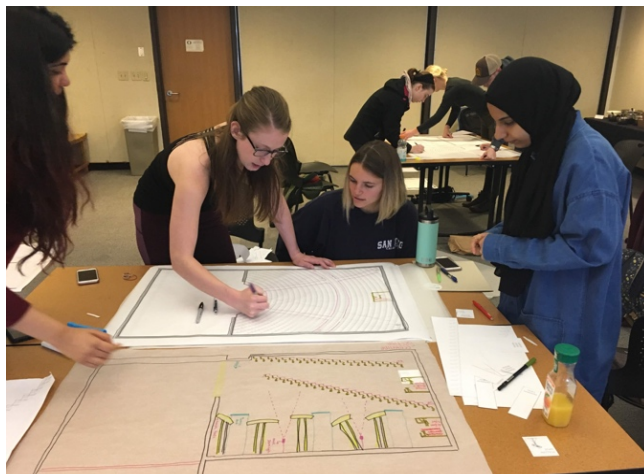
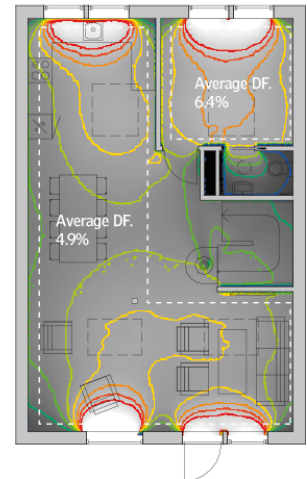
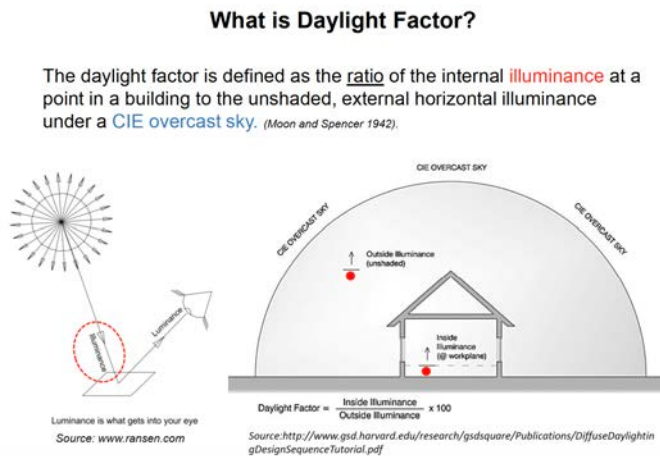


# Technical Teaching Certificate

24 credit certificate program for MARCH, MIARC, M.S. and PhD students  
Director Alison Kwok since 1999, (co-director C. Theodoropoulos 2001–2005)

## Summary

The Technical Teaching Certificate in Architecture is a program that focuses on well-integrated teaching that seamlessly combines design and technical subjects in architecture: environmental building systems, construction methods and materials, enclosure and structural systems. The certificate is available to graduate students interested in teaching during their architectural careers and can be acquired as they pursue a Master of Architecture, Master of Science, or Master of Interior Architecture or Ph.D. degree programs at the University of Oregon. Participating students are challenged to develop an area of experience in one or more technical subjects, understand critical principles and concepts, issues of sustainability within the discipline, curricular innovation, as well as how theoretical and pragmatic issues are carried into practice. Recognizing the need for training to produce qualified design teachers, the Technical Teaching Certificate program was developed by Emeritus Professors John Reynolds and Edward Allen. Thirty eight students have earned the technical teaching certificate since 2002.



Above: Student presentation materials. Below: acoustical design workshop for an auditorium.

# Reynolds Symposium: Education by Design

October 18–20, 2019

Organizing Team: Professor Alison Kwok, Ph.D., FAIA and Emeritus Professor John Reynolds, FAIA, University of Oregon [co-organizers]; Isabel Rivera, Ph.D., University of Oregon [Symposium coordinator]; Professor Walter Grondzik, P.E., Ball State University; Professor Bruce Haglund, AIA Assoc., University of Idaho; Assistant Professor Emily McGlohn, AIA, Auburn University; Associate Professor Ulrike Passe, Ph.D., Iowa State University; Assistant Professor Siobhan Rockcastle, Ph.D., University of Oregon; Sharon Refvem, FAIA, LEED Fellow, Senior Associate and Director, Sustainability Resource Group, Hawley Peterson Snyder

## Summary

We are at a critical transition in architectural education – a transition that must propel schools to address the urgency of the multiple challenges facing our current environment. We have organized an abstract and paper review process for faculty, practitioners, content experts, and students to shape the future of design teaching through sharing their most effective lessons; those that will move design away from creating fossil-fuel based communities, toward building environments that are healthy, resilient, and carbon-emissions-free. Twenty one schools of architecture from four countries are represented at this symposium.



### Day 1 Friday, October 18, 2019

- 3:00–5:00 Registration (White Stag Building, 70 NW Couch St. Portland, Oregon)
- 5:15–6:30 Keynote: *From Sustainability to Resilience – Preaching Outside the Choir*  
Nina Maritz, [Nina Maritz Architects](#), Windhoek, Namibia [1.0 AIA LU/HSW]
- 6:30–7:30 Welcome Reception

### Day 2 Saturday, October 19, 2019

- 8:00–8:30 Registration, Coffee + Carbs
- 8:30–8:50 Welcome and Overview
- 8:50–9:50 Keynote: *Redefining Design Excellence for a Climate Positive World*  
Marsha Maytum and Bill Leddy, [Leddy Maytum Stacy Architects](#) (LMSA) San Francisco [1.0 AIA LU/HSW]

Parallel Paper Sessions [1.0 AIA LU/HSW]

- 10:00–11:00 Session 1 Design Integration  
Chair: Emily McGlohn, Auburn University
- 10:00–11:00 Session 2 Design with Climate  
Chair: Ulrike Passe, Iowa State University
- 11:00–11:30 Coffee
- Parallel Paper Sessions [1.0 AIA LU/HSW]
- 11:30–12:30 *Session 3: Design Integration*  
Nancy Cheng (Head, Department Architecture), University of Oregon
- 11:30–12:30 *Session 4: Design With Climate*  
Chair: Walter Grondzik, Ball State University

- 12:30–2:00 Lunch
- Parallel Paper Sessions [1.0 AIA LU/HSW]
- 2:00–3:00 *Session 5: Design Integration*  
Chair: Siobhan Rockcastle, University of Oregon
- 2:00–3:00 *Session 6: Digital Approaches*  
Chair Sharon Refvem, FAIA, Hawley Peterson Snyder
- 3:00–4:00 Poster Presentations + Coffee  
Chair: John Reynolds, FAIA, University of Oregon
- 4:00–5:00 In Practice Panel, How Did You Get There? [1.0 AIA LU/HSW]  
Oregon Zoo Education Center selected 2019 AIA COTE® Top Ten Award  
[Opsis Architecture](#): Alec Holser partner-in-charge; Heather DeGrella, Senior Associate and team members
- 5:00–5:20 Closing Remarks, Announcement
- 5:20–7:00 Symposium Reception  
*Sponsored by the Society of Building Science Educators*

### Day 3 Sunday, October 20, 2019

- 9:30–11:00 Oregon Zoo Education Center Tour (optional) [1.5 AIA LU/HSW]  
SW Zoo Road, Portland, 97221. The tour will start promptly at 9:30 am. The Center earned 2019 AIA COTE Top Ten Award, LEED Platinum certification with 82 points, and Portland AIA's 2030 COTE award. Tour will be led by Project Architect, Alec Holser and other OPSIS team members.

<https://reynoldssymposium.uoregon.edu/>