**AIA
COTE Top Ten**
for Students

AIA Committee on the Environment 2016-2017 Student Design Competition

AIA COTE Top Ten for Students

2016-2017 Student Design Competition

A design competition to recognize student work that displays sustainable design at the highest level.
Presented by AIA COTE + ACSA.

INTRODUCTION

As today's architecture students move into the profession, they will inherit a rapidly changing world, both in terms of the physical contexts of their work, and the tools, materials and processes available to create it. Preparing students for this challenging, dynamic future calls for greater integration of innovative ecological design thinking within the design discourse of universities across the country.
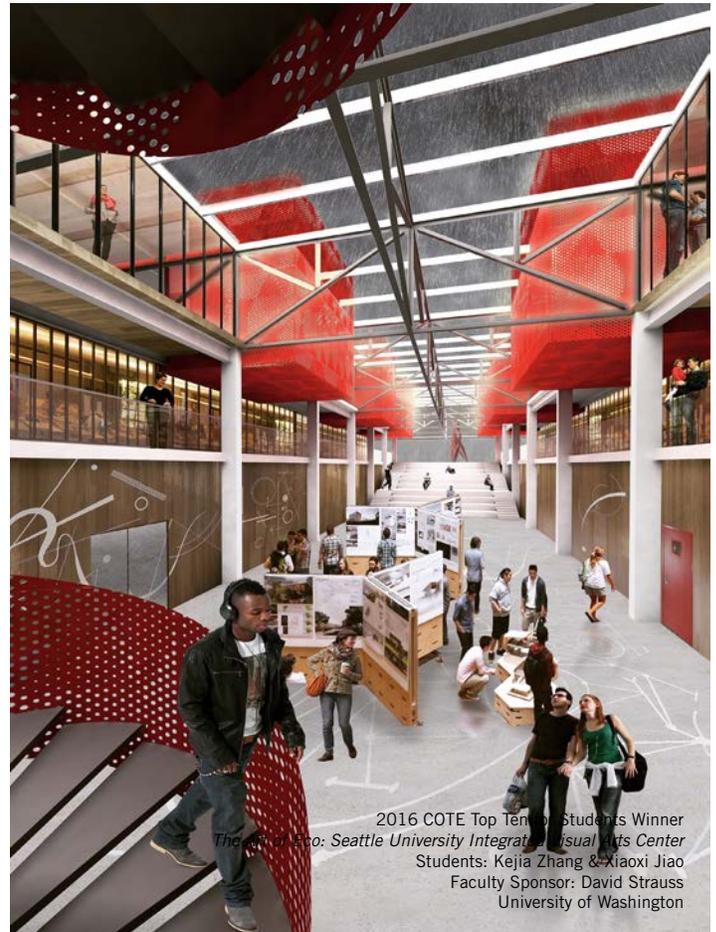
ABOUT THE COMPETITION

The American Institute of Architects Committee on the Environment (AIA COTE), in partnership with the Association of Collegiate Schools of Architecture (ACSA), is pleased to announce the third annual AIA COTE Top Ten for Students. The program challenges students, working individually or in teams, to submit projects that use a thoroughly integrated approach to architecture, natural systems, and technology to provide architectural solutions that protect and enhance the environment. The competition will recognize ten exceptional studio projects that seamlessly integrate innovative, regenerative strategies within their broader design concepts.

CRITERIA FOR JUDGING

Entries will be judged on their success in addressing all ten sustainability measures. Successful responses will demonstrate creative and innovative integration of daylighting, materials, water, energy, and ecological systems, through a cohesive and beautiful architectural understanding. Entries are examined in regard to their design and innovation, integration with their community, land use and effect on site ecology, bioclimatic design, energy and water use, approach to light and air, materials and construction, long-life considerations, and feedback loops. Entries will also be judged for the success with which the project has met its individual requirements, with particular emphasis on design excellence.

The project submission will include for each of the measures a demonstration through narrative, illustration, and in some cases an approach and diagram or metric for the emphasis and intent of the design decisions. These measures are intended to foster leadership (and ability) among designers in all facets of environmental decision-making; and to demonstrate design quality and ways to seamlessly integrate innovative, regenerative strategies within their broader design concepts.

2016 COTE Top Ten for Students Winner
The Other Eco: Seattle University Integrated Visual Arts Center
Students: Kejia Zhang & Xiaoxi Jiao
Faculty Sponsor: David Strauss
University of Washington

Ten Sustainability Measures:

Measure 1: **Design and Innovation**
Measure 2: **Regional/Community Design**
Measure 3: **Land Use and Site Ecology**
Measure 4: **Bioclimatic Design**
Measure 5: **Light and Air**
Measure 6: **Water Cycle**
Measure 7: **Energy Flows and Energy Future**
Measure 8: **Materials and Construction**
Measure 9: **Long Life, Loose Fit**
Measure 10: **Collective Wisdom and Feedback Loops**

ABOUT THE PROGRAM ORGANIZERS

Sponsor - ViewGlass

We are a company on a mission. We believe that View Dynamic Glass will create entirely new possibilities to elevate occupant experience, and change the way we think about architectural design. We will help produce buildings with the expansive views we crave, with abundant natural light, and greater occupant comfort. And conserve energy at the same time. View has assembled a diverse team of entrepreneurs, partners and investors, developing cutting edge technology, that is fuelling a dramatic shift in building design...Living buildings that delight occupants and harmonize with the environment. It is precisely this world of possibility that inspires us every day. If you are inspired by this vision we invite you help us bring about the change. http://viewglass.com/

2016 COTE Top Ten for Students Winner
Creativity Sustaining Community
Students: Erin Barkman & Emily Latham
Faculty Sponsors: Carl Bovill, Peter Noonan, & Jordan Goldstein
University of Maryland

AIA COTE

The **American Institute of Architects** (AIA) **Committee on the Environment** (COTE) works to advance, disseminate, and advocate—to the profession, the building industry, the academy, and the public—design practices that integrate built and natural systems and enhance both the design quality and environmental performance of the built environment.AIA COTE serves as the community and voice on behalf of AIA architects regarding sustainable design. The founding of the AIA COTE in 1990 grew from a series of conversations and debates that date back twenty years. Today AIA COTE celebrates a robust definition of sustainability that frames the process of sustainable design as one that includes the full range of human settlement and ecological issues. Since 1997 the AIA COTE Top Ten Awards program has honored professionals for practices that integrate built and natural systems and enhance both the design quality and environmental performance of the built environment. Information on the awards program and the AIA COTE Measure of Sustainable Design can be found at http://network.aia.org/committeeontheenvironment/

ACSA

The **Association of Collegiate Schools of Architecture** is a nonprofit, membership association founded in 1912 to advance the quality of architectural education. The school membership in ACSA has grown from 10 charter members to over 250 schools in several membership categories. These include full membership for all accredited programs in the United States and government-sanctioned schools in Canada, candidate membership for schools seeking accreditation, and affiliate membership for schools for two-year and international programs. Through these schools, over 5,000 architecture faculty members are represented. In addition, over 500 supporting members composed of architecture firms, product associations and individuals add to the breadth of interest and support of ACSA goals. ACSA provides a major forum for ideas on the leading edge of architectural thought. Issues that will affect the architectural profession in the future are being examined today in ACSA member schools.

ELIGIBILITY

The competition is open to students from ACSA Member Schools from the U.S., Canada and Mexico. The competition is open to upper level students (third year or above, including graduate students). Students are required to work under the direction of a faculty sponsor. Submissions will be accepted for individual as well as team projects. Teams must be limited to a maximum of five students.

Students are invited to submit their studio projects. Entries must be buildings, but can be of any program, at any scale, in any environmentally responsible location. Projects can be a remodel or adaptive re-use.

Work should have been completed in a design studio or related class from January 2016 – present.

SCHEDULE

December 7, 2016	Registration Deadline (free) + Submission Site Opens
January 18, 2017	Submission Deadline
Spring 2017	Jury Convenes
April 22, 2017	Winners Announced / Media Release on Earth Day
April 27-29, 2017	Reception and display at the AIA Convention; Orlando, FL

AWARDS & RECOGNITION

Ten projects will be chosen for recognition at the discretion of the jury. Winners and their faculty sponsors will be notified of the competition results directly. Winning projects will be displayed at the AIA Convention in Orlando, FL, April 27-29, 2017. Winning projects will also be promoted on the ACSA web site at www.acsa-arch.org and the AIA COTE web site at www.aia.org/cote.

The top 10 winning projects will receive a $500 stipend to attend the 2017 AIA National Convention in ORlando, FL, April 27-29, 2017.

BUILDING PROGRAM + SITE

Students are invited to submit their studio projects. Entries must be buildings, but can be of any program, at any scale, in any environmentally responsible location. Projects can be a remodel or adaptive re-use.

Work should have been completed in a design studio or related class from January 2016 – present.

2016 COTE Top Ten for Students Winner
Regenerating Water Avenue
Students: Lacey Aley, Alex Collins, & Addison Estrada
Faculty Sponsors: Bill Leddy, Marsha Maytum, & Roger Ota
University of Oregon

SUBMISSION MATERIALS & REQUIREMENTS

The submission will focus on how the project addresses ten sustainability measures through graphics and written narratives/abstract. You will submit the following materials online:

1. **No more than four (4) digital boards at 20" x 20"** (PDF or JPEG files). Boards should address the following:

   Graphics: For each sustainability measure, provide one drawing, rendering, diagram, image and/or graphic that best displays how the project addresses the measure. Some measures ask for a specific diagram, and others are open ended. Following are primary drawings for basic project understanding:
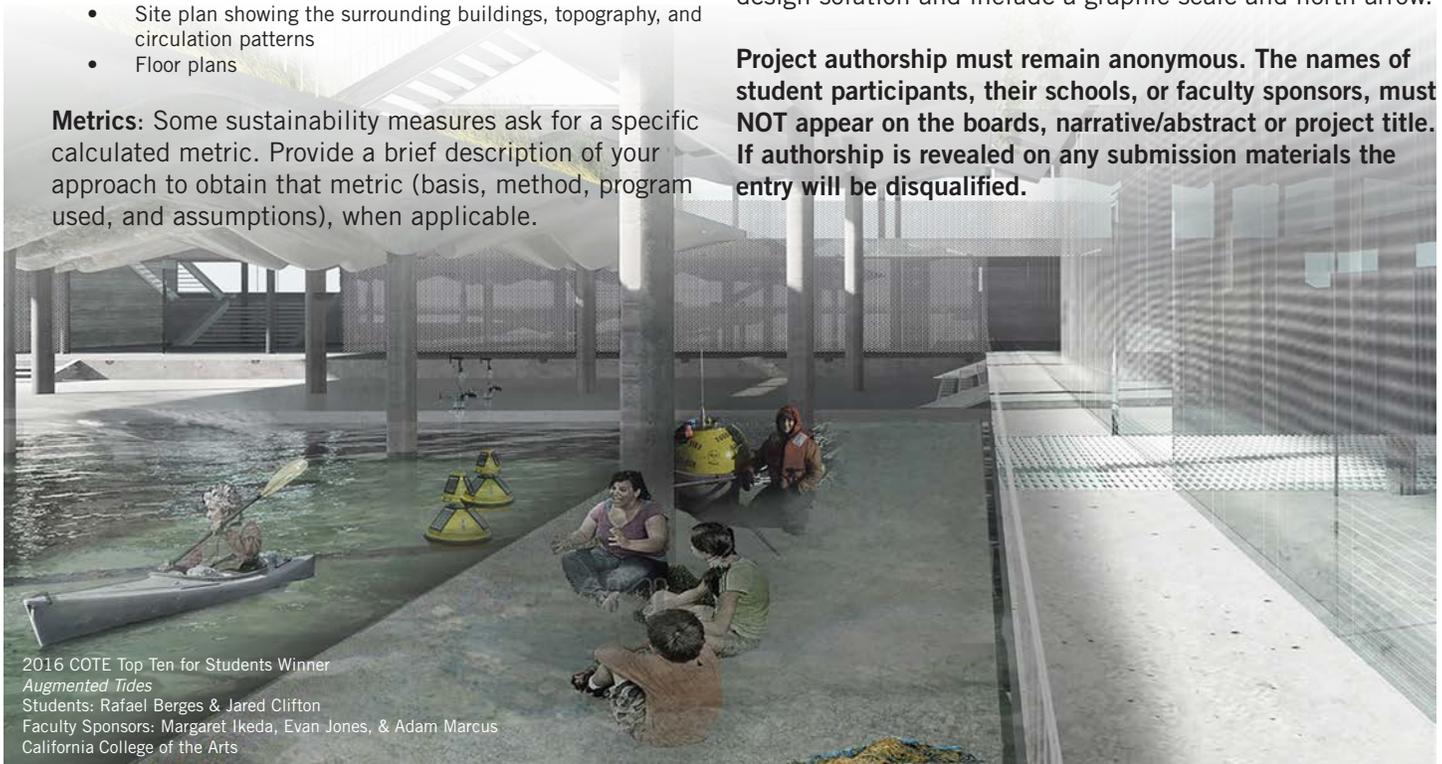
   - Energy Performance Diagrams, Details & systems
   - Three-dimensional representation, either in the form of digital renderings; axonometric; perspective; or model photographs – to illustrate the character of the project.
   - Building/Site sections sufficient to show site context and major program elements
   - Site plan showing the surrounding buildings, topography, and circulation patterns
   - Floor plans

   Metrics: Some sustainability measures ask for a specific calculated metric. Provide a brief description of your approach to obtain that metric (basis, method, program used, and assumptions), when applicable.

2. **Abstract**: (200 words maximum for each sustainability measure for a total of 2,000 word maximum). The narratives should answer the questions posed in the ten measures. The specific questions for each measure are meant to be a guide; each one does not need to be answered. *During submission, simply copy/paste this text into the "Abstract" text field.*

3. **Program Brief**: (200 words maximum) Your project/concept statement (approach/program/intentions/strategies). Also describe the building type, lists all programmatic spaces, gross square footage and project location/setting/context. (200 words maximum) *During submission, simply copy/paste this text into the "Program" text field.*

Incomplete or undocumented entries will be disqualified. All drawings should be presented at a scale appropriate to the design solution and include a graphic scale and north arrow.

Project authorship must remain anonymous. The names of student participants, their schools, or faculty sponsors, must NOT appear on the boards, narrative/abstract or project title. If authorship is revealed on any submission materials the entry will be disqualified.

2016 COTE Top Ten for Students Winner
Augmented Tides
Students: Rafael Berges & Jared Clifton
Faculty Sponsors: Margaret Ikeda, Evan Jones, & Adam Marcus
California College of the Arts

TEN SUSTAINABILITY MEASURES

Measure 1: Design & Innovation

Sustainable design is an inherent aspect of design excellence. Projects should express sustainable design concepts and intentions, and take advantage of innovative programming opportunities.

Narrative: Describe how sustainability strategies are incorporated into the overall design strategy. What are the major environmental issues and goals?

May include:
- Key environmental issues; how and why they became important priorities
- Key ecological goals and concepts for your project and how they shaped your thinking.
- How these goals and concepts were expressed in the design
- Sustainable design innovations
- How sustainability measures led to a better overall project design
- Process of program analysis; resource efficiencies realized by innovative programming
- Efforts to "right size" the project and to reduce unnecessary square footage.

Graphic: Diagram showing major design / sustainability concepts

Measure 2: Regional/Community Design

Sustainable design values the unique cultural and natural character of a given region.

Narrative: How does the design respond to the region where it's located? How does the design promote regional and community connectivity? What steps are taken to encourage alternative transportation?

May include:
- How the design relates to the local context and to larger regional issues
- How the design promotes regional and community connectivity
- How the design promotes a sense of place, public space and community interaction
- How the design educates its users about the environmental strategies it employs
- Efforts to provide for those using transportation alternatives
- Site selection criteria to reduce automobile use
- How mandated parking was reduced

Graphic: Open

Metric: Walk score: (From Walkscore.com)

Measure 3: Land Use & Site Ecology

Sustainable design protects and benefits ecosystems, watersheds, and wildlife habitat in the presence of human development.

Narrative: How does the development of the site respond to its ecological context? Consider water, air, plants, and animals at different scales.

May include:
- How the development of the site responds to its ecological context, including the watershed, and air and water quality at different scales from local to regional level
- How the development of the site and buildings contribute to environmental quality
- How the design accommodates wildlife habitat preservation and creation
- How the design protects or creates on-site ecosystems
- How the design responds to local development density or conditions
- How the design encourages local food networks

Graphic: Native Landscape Profile (flora, fauna)

Measure 4: Bioclimatic Design

Sustainable design conserves resources and maximizes comfort through design adaptations to site-specific and regional climate conditions.

Narrative: Describe how the building reacts to the local climate and site with an emphasis on occupant comfort. Discuss how the building massing and fenestration relates to the sun path and the prevailing winds.

May include:
- Project response to local climate, sun path, prevailing breezes, soil, hydrology, and seasonal and daily cycles through passive design strategies
- Description of internal versus external building loads
- Design strategies that reduce/eliminate the need for non-renewable energy resources
- How these strategies specifically shaped the plan, section, and massing
- How these strategies specifically affected project placement, orientation, and shading
- Integrated pest management considerations

Graphic: Psychrometric or bioclimatic chart profile of local climate that illustrates bioclimatic design strategies; Building section, or other appropriate diagram that demonstrates bioclimatic strategies

Metric: Percent of the year that occupants will be comfortable using passive systems

Measure 5: Light & Air

Sustainable design creates comfortable interior environments that provide daylight, views, and fresh air.

Narrative: Discuss design strategies that relate to daylighting, electric lighting, ventilation, indoor air quality, views, and individual controllability.

May include:
- Design strategies for daylighting, task lighting, and views
- Design strategies for ventilation, indoor air quality, and personal control systems
- How the project's design enhances users' connectedness to nature
- Design team approach to integration of natural systems and appropriate technology

Graphic: Model photos, drawings or diagrams of daylight and ventilation strategies; test models.

Metric: Percent of the building that can be daylit (only) during occupied hours; Percent of floor area with views to the outdoors; Percent of floor area within 15 ft. of an operable window.

Measure 6: Water Cycle

Narrative: How does the design manage storm water? How does the design conserve potable water? How is the project innovative in the way that it uses and treats water?

May include:
- How building and site design strategies manage site water and drainage
- Design strategies that capitalize on renewable water sources (i.e. precipitation) on site
- Water-conserving landscape and building design strategies
- Reuse strategies for water including use of rainwater, graywater, and wastewater

Graphic: Open

Metric: Percent of storm water that is managed onsite: (2 year, 24-hour event. Use supplied spreadsheet)

Measure 7: Energy Flows & Energy Future

Sustainable design conserves energy and resources and reduces the carbon footprint while improving building performance and comfort. Sustainable design anticipates future energy sources and needs.

Narrative: How does the design seek to decrease the total energy use and carbon footprint of the building? Emphasize strategies to reduce heating and cooling loads, reduce peak electricity demand, reduce plug loads, generate onsite energy, and anticipate future carbon free energy sources.

May include:
- How the design reduces energy loads for heating, cooling, lighting, and water heating
- How the design and integration of building systems contributes to energy conservation and reduced use of fossil fuels, reduces green house gas emissions and other pollution improves building performance and comfort
- Use of on-site renewable and alternative energy systems.
- Anticipation of future and carbon neutral fuel sources
- Strategies to reduce peak electrical demand.
- How the design remains functional during power outages or interruptions in fuel supply

Graphic: Open

Metric: Total EUI: (build a simple energy model to calculate EUI using eQuest, Sefeira, Autodesk® Green Building Studio, or another energy modeling program)

Measure 8: Materials & Construction

Sustainable design includes the informed selection of materials and products to reduce product-cycle environmental impacts, improve performance, and optimize occupant health and comfort.

Narrative: Describe the project's material selection criteria, considerations and constraints. What efforts were made to reduce the amount of material waste and the environmental impact of materials over their lifetime? Discuss specific materials used.

May include:
- Efforts to reduce the amount of material used on the project.
- Materials selection criteria, considerations, and constraints for: optimizing health, durability, maintenance, and energy use reducing the impacts of extraction, manufacturing, and transportation
- Enclosure performance in relation to air, moisture, water and thermal characteristics
- Consideration of life cycle impacts and results of life cycle
- assessment if available
- Construction waste reduction plans; strategies to promote recycling during occupancy

Graphic: Wall section of the building envelope design and either a hygro-thermal analysis or life cycle assessment.

Measure 9: Long Life, Loose Fit

Sustainable design seeks to enhance and increase ecological, social, and economic values over time.

Narrative: Describe how the design promotes long-term flexibility, adaptability, and resilience.

May include:
- How the project was designed to promote long-term flexibility and adaptability
- Anticipated project service life; description of components designed for disassembly
- Materials, systems, and design solutions developed to enhance versatility, durability, and adaptive reuse potential
- How the project anticipates and celebrates weathering over time

Graphic: Open

Measure 10: Collective Wisdom & Feedback Loops

Sustainable design strategies and best practices evolve over time through documented performance and shared knowledge of lessons learned.

Narrative: What steps would you take to ensure that the building performs the way that it is designed? What lessons have you learned from this project that you will apply to the next project? What lessons have you learned from past projects that were applied to this project?

May include:
- Modeling and evaluation of the design during the programming and design phases
- Collaborative efforts between design team, consultants, client, and community
- Lessons learned during the design of the building
- How these lessons would change your approach to this project or future projects
- A question that would be investigated in a post-occupancy evaluation of this project

Graphic: Open

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REGISTRATION

A faculty sponsor is required to enroll students by completing an online registration form (available at www. acsa-arch.org) by December 7, 2016. Complete a form for your entire studio or for each individual student or team of students participating. Students or teams wishing to enter the competition on their own must have a faculty sponsor, who should complete the form. There is no entry or submission fee to participate in the competition. Please add the email address competitions@acsa-arch.org to your address book to ensure that you receive all emails regarding your participation in the competition.

During registration the faculty will have the ability to add students, add teams, assign students to teams, and add additional faculty. Registration is required by December 7, 2016, but can be changed, edited, and added to until a student starts a final submission.

FACULTY RESPONSIBILITY

The administration of the competition at each institution is left to the discretion of the faculty within the guidelines set forth in this document. Work should have been completed in a design studio or related class within the 2015-2016 or 2016-2017 academic year. Design work completed before 2015 will not be accepted.

Each faculty sponsor may develop an internal system to evaluate the students' work using the criteria set forth in this Competition Program and the Curriculum Addendum. The evaluation process should be an integral part of the design process, encouraging students to scrutinize their work in a manner similar to that of the jury. The final result of the design process will be a submission of four presentation boards and a narrative describing the design solution and approach to the each of the ten sustainability measures.

ONLINE PROJECT SUBMISSION

All boards are required to be uploaded through the ACSA website in Portable Document Format (PDF) or image (JPEG) files. Participants should keep in mind that, due to the large number of entries, preliminary review does not allow for the hanging end-to-end display of presentation boards. Accordingly, participants should not use text or graphics that cross over from board to board.

Project authorship must remain anonymous. The names of student participants, their schools, or faculty sponsors, must NOT appear on the boards, narrative/abstract or project title. If authorship is revealed on any submission materials the entry will be disqualified.

Students are required to upload final submissions through the ACSA Competition website at www.acsa-arch.org by 5:00 pm, Eastern Time, on January 18, 2017. If the Submission is from a team of students all student team members will have the ability to upload the digital files. Once the final submit button is pressed no additional edits, uploads, or changes can be made. Once the final Submission is uploaded and submitted each student will receive a confirmation email notification. You may "save" your submission and return to complete. Please note: the submission is not complete until the "complete this submission" button has been pressed. For team projects: each member of team projects may submit the final project.

Winning projects will be required to submit high-resolution original files/ images for use in competition publications and exhibit materials. By uploading your files, you agree that the American Institute of Architects (AIA) and the Association of Collegiate Schools of Architecture (ACSA) has the rights to use your winning submission, images and materials in a summary publication, online and in promotional and exhibition resources. AIA and ACSA will contribute authorship of the winning design to you, your team, faculty and affiliation. Additionally, you hereby warrant that the submission is original and that you are the author(s) of the submission.

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RESOURCES

An intention of all ACSA competitions is to make students aware that research is a fundamental element of any design solution. Students are encouraged to research the various measures of sustainability as well as precedent projects from professional practice. These tools and resources will get you started, however you may use whatever tools and resources are available to you.

REFERENCES & TOOLS

1. AIA **COTE Top Ten for Students: Curriculum Addendum** (see document)
2. AIA **COTE website**: aia.org/cote
3. AIA **COTE Top Ten for Professionals Projects**: http://www.aiatopten.org/taxonomy/term/9
4. Architecture2030 organization and 2030 Palette: Architecture2030.org
5. ARCHIVE online exhibition of faculty and student projects and stories: Archive100.org
6. DeKay, Mark and G.Z. Brown. Sun, wind & light: architectural design strategies. 3rd ed. Hoboken: John Wiley & Sons, 2014. Print.
7. Kwok, Alison, and Walter Grondzik. The Green Studio Handbook, 2nd ed. London: Routledge, 2011. Print.
8. Muller, Brook. Ecology and the Architectural Imagination. London: Routledge, 2014. Print.
9. Wells, Malcolm. "A Regeneration-Based Checklist for Design and Construction," Society of Building Science Educators, 1999. http://www.sbse.org/resources/
10. Climate Consultant: http://www.energy-design-tools.aud.ucla.edu/climate-consultant/request-climate-consultant.php
11. PVWatts Calculator: http://pvwatts.nrel.gov/
12. Hawken, Paul, Amory B. Lovins, and L. Hunter Lovins. "Tunneling Through the Cost Barrier." Natural capitalism: creating the next industrial revolution. Snowmass, CO: Rocky Mountain Institute, 2008. Available at: http://www.natcap.org/images/other/NCchapter6.pdf

FOR MORE INFORMATION

Program updates, including information on jury members as they are confirmed, may be found on the ACSA web site at www.acsa-arch.org/competitions. Additional questions on the competition program and submissions should be addressed to:

Eric Wayne Ellis
ACSA Director of Operations and Programs
eellis@acsa-arch.org
202.785.2324

2016 COTE Top Ten for Students Winner
TETHER
Student: Tim Schneider
Faculty Sponsor: Gerald Gast
University of Oregon