Iowa opened to European-American settlers in 1834, and ever since it has been a place where Americans have held a tenuous grip on the land and against a climate that resists occupation. Its soil produces grain for the entire continent; its legendary work ethic has fueled generations of farmers but also writers, poets, musicians, and astronomers. It is a place that takes the real world seriously, but that has also raised the products of such engagement to poetic levels; the novels of Marilynne Robinson, the music of Greg Brown, and the paintings of Grant Wood all speak to this possibility among the sublime landscapes of our state. But it is also a place of technological engagement and advancement: Iowa State can make a legitimate claim to be the birthplace of digital computing, a legacy reflected in its investment in fabrication and analysis initiatives today.

BTES’ first meeting in the Midwest offers an opportunity to ask how building can address both practical and poetic desires. The ‘hard, humble work’ of constructing in an indifferent environment can balance our needs with what that environment has to offer while touching our deeper sensibilities. Indeed, cognitive science has produced evidence suggesting that beauty, in the words of Denis Dutton, is “nature’s way of acting at a distance,” an instinctive preference for objects, landscapes, and sustenance that can leverage our relations with the world.

How do the pragmatics and the poetics of building coincide? How do they resist, challenge, or provoke one another? How do buildings and the ways in which we build bridge realms of material performance and aesthetics? And how does a new generation of tools collide with, enhance, or critique these traditions? We seek papers on a broad range of topics that address how and why we build, that examine technology and technoe in the contexts of function, beauty, and poetics, and that reveal these links both in contemporary practice and throughout history. Papers that address Midwestern traditions are particularly welcome, but we seek a broad mix of geographical, conceptual, and disciplinary approaches.
Keynote Speakers

Fiona Cousins

I am an Arup Fellow with expertise in mechanical engineering and sustainability consulting. I have a particular interest in building physics, thermal comfort and energy efficiency, and spent the first few years of my career developing software to analyze the performance of highly-glazed buildings. My interest in energy efficiency in buildings broadened to include all aspects of environmental and social impacts of buildings. The projects that I am most proud of are those where we have achieved strong sustainable performance as well as excellent design and place-making. These projects include Princeton University's Frick Chemistry Building and the US Embassy in London. I lead the sustainability team in the New York office of Arup and am one of the leaders of the mechanical engineering team there. I am a LEED® Fellow and have served for two years as the chair of the New York Chapter of the US Green Building Council (Urban Green). I am the 2016 chair of the board of directors of the USGBC. I frequently present on the topics of low-energy design and sustainability.

Fiona Cousins lecture is made possible by sponsorship from The American Institute of Architects.

Rod Kruse

Rod Kruse has built a reputation as one of the Central States Region's strongest design talents. Rod's body of work includes a diverse variety of project types for clients within both the private and public sectors. His portfolio includes a significant number of higher education clients and projects that include more than 110 projects and studies on 14 campuses. Well established as a leader in design, Rod's work has been included in several traveling exhibitions, and he has lectured widely. Rod's work and writings have also been featured in numerous national and regional periodicals including Architecture, Architectural Record, I.D. Magazine and Iowa Architect.

In addition to his design work, Kruse is also a mentor, an educator, a leader, an advocate and generous volunteer. He has served on numerous committees including the AIA Jury of Fellow for the College of Fellows for three years. He served as Chair of the 2012 AIA Institute Honor Awards Jury and a member of the 2013 Jury selecting the AIA's COTE Top Ten awards. He has also served on the Iowa Architect Editorial Board. Kruse's work has been included in traveling exhibitions, including the 14th International Biennial of Architecture Buenos Aires in 2013. He has lectured extensively, recently for the 2012 CoreNET Global Summit. For his service to the local community, Kruse received a Distinguished Service Award from Downtown Des Moines, Inc.

Thomas Leslie

Thomas Leslie, AIA, is a Morrill Professor and the Pickard Chilton Professor in Architecture at Iowa State University, where he teaches building design, history, and technology. Leslie has degrees from the University of Illinois at Urbana-Champaign and Columbia University, and he spent seven years with Norman Foster and Partners, London prior to teaching.

Leslie is the author of Louis I. Kahn: Building Art, Building Science (Braziller, 2005), Chicago Skyscrapers, 1871-1934 (University of Illinois, 2013), and (forthcoming) Beauty's Rigor: Patterns of Production in the Work of Pier Luigi Nervi (University of Illinois, 2017). His research into the historical relationship between engineering, design, and construction has been funded by the National Endowment for the Humanities, the Graham Foundation, and the American Philosophical Society, and has appeared in the Journal of Architectural Education, the Journal of the Society of Architectural Historians, Construction History, Design Issues, and Technology and Culture, among others. He has held visiting faculty positions at the McCormick School of Engineering at Northwestern University, the University of Technology-Sydney, Australia, and the Bauhaus-Universität in Weimar, Germany. His teaching has been recognized with awards from the Association of Collegiate Schools of Architecture, the U.S. Green Building Council, and the American Institute of Architects. In 2013-2014, Leslie was the Booth Family Fellow in Historic Preservation at the American Academy in Rome, and he is currently the Director of Graduate Education for the Department of Architecture at Iowa State.
1 Des Moines Art Center 4700 Grand Ave, Des Moines, IA 50312
2 Sculpture Park 1330 Grand Ave, Des Moines, IA 50309
3 Drake Campus

1 Marriott Hotel 700 Grand Ave, Des Moines, IA 50309
2 Sculpture Park 1330 Grand Ave, Des Moines, IA 50309
3 PapaJohn Education Center 1200 Grand Ave, Des Moines, IA 50309
4 Central Library 1000 Grand Avenue, IA 50309
Thursday, June 8

8:00-9:00am: Conference Registration & Breakfast
Location: Pappajohn Education Center Lobby
Food/Drink: LaMie Bakery

9:00-10:15am: Welcome, Opening Keynote Lecture:
Lecturer: Professor Tom Leslie, AIA, Pickard Chilton Professor in Architecture
Director of Graduate Education, Iowa State University
Pappajohn Education Center Large Classroom Room 201

10:30am-Noon: Paper Session I (Concurrent Sessions)
Pappajohn Education Center classrooms

**MAKING** Room 108
Session Chair: Shelby Doyle, Iowa State University
Examinging Strategies for Delivering Design/Build Content in High-Enrollment Architecture Courses
Chad Schwartz, Southern Illinois University
Qualitative Collaboration
Margaret Kirk, California Polytechnic State University, San Luis Obispo
Widening the Field: Technology and the Developing World
Nathan Fash, Roger Williams University
Off-Site Construction Education: Results of a Survey of Prefabrication in Design and Construction Academics
Ryan Smith, Jon Eliot And Kevin Grosskopf, University of Utah, Colorado State University, and University of Nebraska - Lincoln

**POETICS** Room 118
Session Chair: Deborah Oakley, University of Nevada - Las Vegas
The Practical and Irrational in Architecture: On the Convergence of the Pragmatics and the Poetics of Building
Randy Deutsch, University of Illinois Urbana-Champaign
What Lies Beneath the Surface
Patrick Dean, Virginia Tech
Operation: Lightness
Bruce Wrightsman, Kansas State University
The Metrics of Poetics: Poetic Detailing and the Study of Daylight Quality at the Gipsoteca Canoviana Addition by Carlo Scarpa
Judith O’Buck Gordon, Kansas State University

**CASE STUDIES** Room 128
Session Chair: Robert Dermorey, Roger Williams University
The Kern Center at Hampshire College – Beauty and Spirit in a Living Building
Naomi Darling, Five Colleges - Hampshire, Mt. Holyoke, UMass Amherst
Jobsite as Laboratory
Laine Hancock, Louisiana Tech University
Communicating the Technological, Functional, and Aesthetic Virtues of a Comprehensive Row House Renovation
Clifton Fordham, Temple University
Sukkah Shalom: Finding Cultural Sustainability in Architectural Construction
Peter Raab, Texas Tech University

Thursday, June 8 continued

12:15-1:15pm: Lunch & Presentation by Autodesk
12:30 Room 201 Presentation by Autodesk
Food/Drink: Tacopocalypse
Lunch Location: Pappajohn Education Center Lobby

1:30-3:00pm: Paper Session II (Concurrent Sessions)
Pappajohn Education Center classrooms

**MATERIALS** Room 108
Session Chair: Marci Uihlein, University of Illinois at Urbana-Champaign
A Detail(Ed) Analysis: Unpacking the Latent Meanings of “God Lies in the Details”
Chad Schwartz, Southern Illinois University
Concrete and Latin American Architects: A Love Affair
Ane Gonzalez Lara, University of New Mexico
Manufacturing the Material City: Responsive Material Codes and Industrial Growth
Jeana Ripple, University of Virginia
Fearless: Confronting Weight and Gravity in Manipulating Matter
Lisa Huang, University of Florida

**STUDIO** Room 118
Session Chair: Dana Guiling, North Carolina State University
Reaping What You Sow: Cultivating Technology for Design
Jerry Silvers, Oklahoma State University
Overt Operations: Teaching Technology in Intensive Design Studio Workshops
James Leach and Kristin Nelson, University of Florida
Oft Sketch, New Meaning: An Architectural Outreach Exercise
Margaret Morin, Marywood University
Comprehensive Design Studio for The Beginning Design Student
Brian Grieb, Morgan State University

**DIGITAL TOOLS** Room 128
Session Chair: Andrzej Zarzycki, New Jersey Institute of Technology
Application of BIM Simulation Tools in Architecture Education
Mahnar Mohsenin, Florida A&M University
Virtual: Construction Modeling & Material Logic
Robert Holton, Louisiana State University
Digital Integration: Synthesizing Poetic Possibilities and Pragmatic Production
Vincent Hui, Jennifer McArthur and Pierre-Alexandre Lelay, Ryerson University
Thursday, June 8 continued

3:00-3:15pm Coffee Break
   Location: Pappajohn Education Center Lobby
   Food/Drink: LaMie Bakery

3:15-4:45pm Paper Session III (Concurrent Sessions)
Pappajohn Education Center classrooms

TECTONICS Room 108
Session Chair: Diane Armpriest, University of Idaho
A Taxonomy of Architectural Tectonics
Chad Schwartz, Southern Illinois University
Hands and Things: Leveraging Technology to Incite Constructive Participation
Daniel Harding, Dustin Albright and David Pastre, Clemson University
Earth + Form: Experience
Ismael Olivares, Texas Tech University
Toward a Theory of Architectural Technology: Tracing Attempts to Reconcile the Technical in Design
Michael McGlynn, Kansas State University

HISTORY Room 118
Session Chair: Thomas Leslie, Iowa State University
Intent vs. Interpretation: the Prosaic Poetics of Lewerentz and Nyberg
Matthew Hall, Auburn University
On the Role of History in Architectural Technology Education
Scott Murray, University of Illinois
Assessing the Aesthetic and Functional Contribution of Shading Devices to Richard Neutra’s Library at Simpson College in Iowa
Clifton Fordham, Temple University
Optimized Material, Expressive Forms: Precast Concrete Modern Architecture in the Pacific Northwest
Tyler Sprague, University of Washington

5:00-7:00pm Des Moines Tours
   Downtown Tour
   Drake University Tour
   Des Moines Social Club Tour

7:30-9:00pm: "Dine Arounts" in Des Moines and Peer Mentoring Session
Reservations made at several restaurants in downtown Des Moines near conference location
Sign-ups at registration desk. (Cost not included in the conference registration)

Friday, June 9

7:30-9:00am: Breakfast / Coffee
   Location: Pappajohn Education Center Lobby
   Food/Drink: LaMie Bakery

8:00-8:45am: BTES Board Meeting
   Pappajohn Education Center Classrooms
   Coffee / Tea available

9:00-10:15am: Keynote Lecture:
   Lecturer: Rod Kruse, FAIA, Principal, BNIM,
   Location: Room 201 Pappajohn Education Center

10:30am-Noon: Paper Session IV (Concurrent Sessions)
Pappajohn Education Center classrooms

ATMOSPHERES Room 108
Session Chair: Naomi Darling, Five Colleges
Intersections
Chad Schwartz, Southern Illinois University
Comfort Zones and Weather Patterns
Andrew Cruse, Ohio State University
Invisible Flows: Experiencing Ambient Energy in Architectural Design
Bess Krietemeyer and Amber Bartosh, Syracuse University
The Beginning Is Place
Peter Raab, Texas Tech University

TECH PEDAGOGY Room 118
Session Chair: Patrick Tripeny, University of Utah
Building Science Education Entrepreneurism
Ryan Smith and Keith Diaz Moore, University of Utah
Towards a Multi-Faceted Integration Model for Teaching Architectural Design and Technology
Diane Armpriest and Carolina Manrique, University of Idaho
Building Technology within a New Architecture Curriculum
Patrick Tripeny, Robert Young, Ryan Smith and Erin Carrara, University of Utah
Pencils Down, Hands-on: Interactive Instruction in Building Structures
James Leach and Lisa Huang, University of Florida

12:15-1:15pm: Lunch & BTES Presentation
12:30 Room 201 BTES Book Award and Emerging Faculty Winners Present
Food/Drink: P515
Lunch Location: Pappajohn Education Center Lobby

1:30-3:00pm Round-Table Discussion
   Strengthening Research and Practice Partnerships
   Sponsored by AIA in partnership with TAD Journal
   Des Moines Public Library, Wells Fargo Meeting Room
Friday, June 9 continued

3:00-3:15pm Coffee Break: Coffee Break
   Location: Pappajohn Education Center Lobby
   Food/Drink: LaMie Bakery

3:15-4:45pm Paper Session V (Concurrent Sessions)
   Location: Pappajohn Education Center Classrooms

**STRUCTURES** Room 108
   Session Chair: Rob Whitehead, Iowa State University
   Performance-Driven Structural Design – Biomimicry in Super High-Rise Structure Design
      Ming Hu, University of Maryland
   Constructing Relationships: Examining Project Structures to Align Design Conception and Realization
      Caryn Brause, University of Massachusetts
   Building Structural Education: An Examination of the Books Used to Teach Structures to Architectural Students
      Marci Uihlein and Patrick Tripeny, University of Illinois at Urbana-Champaign, University of Utah
   Chasing Time: The Forgotten History of NAAB and the Evolution of the Structures Student Performance Criteria
      Deborah Oakley, University of Nevada - Las Vegas

**DIGITAL TOOLS** Room 118
   Session Chair: Kris Nelson, University of Florida
   An Architecture of Performance
      Robert Holton, Louisiana State University
   Hackers and Makers: Prototyping with Emerging Technologies
      Andrzej Zarzyczki, New Jersey Institute of Technology
   Assembly of similar building components, A thesis studio in robotics
      Gernot Riehler, New Jersey Institute of Technology
   CAM Matures: A Survey of CAM’s Indirect Uses in Architecture
      Dana Gulling, North Carolina State University

**SKINS** Room 128
   Session Chair: Scott Murray, University of Illinois
   Luminawall: Collaborative Development of a High Performance Wall System for Daylit Buildings
      Michael Gibson, Kansas State University
   Motivations and Means for Constructing High-Performance Transparent Building Skins
      Mary Ben Bonham, Miami University
   Bio-Enabled Façade System Integrated into the Internet of Things (IoT)
      Martina Decker, New Jersey Institute of Technology

Friday, June 9 continued

5:00-5:15pm Transportation provided to Des Moines Art Center

5:15-6:15pm: Cocktails in the Courtyard
   Des Moines Art Center Des Moines Art Center Courtyard and Lobby
   (Eliel Saarinen, I.M. Pei, and Richard Meier building wings enclosure courtyard)
   Food/Drink: Catered by Tangerine

6:15-7:30pm: Final Keynote Presentation
   Fiona Cousins, Arup Fellow
   AIA sponsored keynote speaker
   I.M. Pei Levitt Auditorium, Des Moines Art Center

7:30-9:00pm: Awards Dinner & Reception
   Des Moines Art Center Courtyard and Lobby
   Food/Drink: Catered by Tangerine

9:00-9:30pm: Transportation back to Downtown Des Moines and Drake
Saturday, June 10

**Location**
Thank you to our sponsor BNIM for hosting the workshops:
317 6th Ave. Ste. #100 (6th and Locust) Des Moines, IA

**Workshop Registration**
btes2017.wordpress.com/register/workshops

**10:00-12:00pm Workshop**
**Parametric Structural Design**
Moderator: Shelby Doyle, Iowa State University
Presenter: Jeana Ripple, University of Virginia

The Parametric Structural Design workshop at the BTES conference will introduce frameworks for teaching parametric structural design. Attendees will work through sample definitions, will be provided with assignment examples (and shown outcomes), and will discuss integration into structural and studio curricula. Attendees must bring a laptop loaded with the latest versions of Rhinoceros 3d, Grasshopper, and Karamba3d (a finite element analysis plugin that we will use to test Rhino geometry). Preloading and submittal of a license file is required by memorial day (see linked pdf for instructions). No prior Grasshopper experience is required. Basic familiarity with Rhino is preferred. Participants will be provided licenses prior to the workshop, details to follow.

**12:00-1:00pm Special Conversation Session**
**The Future of Structures Education: A Candid Conversation**
Moderator: Tom Leslie, Iowa State University
Presenters: Robert Dermody, Roger Williams University
Deborah Oakley, University of Las Vegas Nevada

This special Conversation Session is formatted as an open discussion focusing on structures teaching in architecture programs across the US. It is intended to formalize and build on the many informal conversations about structures teaching that have occurred at past BTES conferences. Critical discussion themes will include, what makes good structures teaching, a review of the variety of pedagogic approaches that exist, how to balance between technical ability and conceptual understanding, the merits of hands-on and alternative teaching approaches, and the existing wording of the NAAB structures criterion and whether it is considered adequate, or too vague to be of use. All interested educators are encouraged to attend.

**1:00-3:00pm Workshop**
**Integration, Consolidation, or Inertia? The Role of Building Technology Courses in Changing Curricula**
Moderator (and Presenter):
Rob Whitehead, Iowa State University (ISU Technology Curriculum Chair)
Panelists and Presenters:
Pat Tripeny, University of Utah
Erin Carraher, University of Utah
Jason Alread, University of Florida

In 2007, ACSA held a conference at Cranbrook Academy of Art themed, “Integrated Practice and the Twenty-first Century Curriculum.” 120 participants were tasked with exploring how architectural education could change to be more responsive to the changing conditions of an integrated practice model. Panelists presented ideas for alternative pedagogies, new technologies, and new ways of thinking what integrated practice could mean. Perhaps unsurprisingly, many teams suggested that the most impactful changes could be made at the curricular level—each team proposed some variation of an integrated, multi-disciplinary, and more agile curriculum in which traditional silos of coursework are challenged. In his closing response, BTES’ own Ed Allen wondered how any new changes could occur in “curriculum that is already in some respects depleted and, in other respects, overcrowded?”

So what has changed in the last decade? Some programs have moved towards this vision of an integrated curriculum, others have been forced to consolidate their courses (due to budget cuts and/or the “overcrowded” curricular challenges), other programs have maintained the same curriculum format (focusing on the pedagogy and technology changes), and others have maintained the common inertia of academia. What are the pros and cons of these approaches? What has worked, or not worked? Ultimately this workshop seeks to answer the question, “How can building technology courses be integrated into a curriculum in a way that is responsive to these changing conditions (in academia and practice)?”

This workshop will be a round-table discussion about curricular changes that affect building technology courses and a collaborative working session for those interesting in bringing new ideas back to their institutions. The first half of the workshop will feature in-depth presentations from several educators that have changed (or are changing) their building technology courses—the good, bad, and the ugly challenges will all be discussed. Participants will exchange ideas about course development, curricular integration, and administrative roles in the process.
History
The Building Technology Educators’ Society (BTES) was formed to provide an opportunity for faculty members in Schools and Colleges of Architecture teaching in the areas of structures, construction, and technology an opportunity to meet and share teaching ideas, pedagogies, and research. The first official BTES conference took place at the College of Architecture at the University of Maryland in August 2006. The organization legally incorporated as a 501(c)(3) nonprofit organization in March 2008.

Membership
The BTES maintains regular membership of 100+ faculty representing schools and colleges across the continent and around the globe. The organization is inclusive of all as well as part-time and adjunct faculty from accredited degree programs as well as community colleges and trade schools. As part of its five-year strategic plan, the organization has a goal to increase membership through expansion of representation to all ACSA member programs.

Architecture + Design (TAD)
BTES is a sponsor of the new ACSA Journal of Technology | Architecture + Design (TAD) and has been supportive of the aims of the journal since its inception. The research specialties and scholarship of BTES members closely align with the mission of the Journal to raise the discourse on building technologies in relation to architectural design and professional practice. A majority of the Founding Editorial Board Members of TAD are also long-standing members of BTES or have served as the organization’s leadership. Additionally, a number of the Advisory Board Members are part to the BTES ecosystem as members or conference participants. The BTES membership has long advocated the need for such a publication platform and will continue to support the journal through the conferences, outreach, and other academic or professional events.

Mission
The BTES is an organization of architectural educators, passionate about teaching the technology of building design and construction. The mission of BTES is to promote and publish the best pedagogic practices, relevant research, scholarship, and other creative activity to facilitate student learning, advance innovation, and enhance the status of building technology disciplines in the profession at large. To achieve this mission, the BTES seeks to:

- promote and share the best architectural technology teaching practices among all who are concerned with effective teaching in these subject areas
- foster critical discourse and the scholarship of teaching on issues related to pedagogic theory in architectural technology through peerreviewed publications of its work for public dissemination
- enhance the mentoring process among faculty, students, and practitioners for the enrichment of all involved and for the preservation and propagation of accumulated experience and wisdom
- stress the issues concerning technology in architectural curricula to help influence change when necessary in the related accreditation process
- support the continued betterment of the profession by serving as a point of contact for the discussion of issues related to building technology with the design professions and building industry at large
- bring issues of concern to affiliated entities in the academy, profession industry, and associated regulatory agencies, and
- facilitate connections among like-minded individuals for collaborative research.

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2017 Conference Organizers
Shelby Doyle, AIA, LEED AP | doyle@iastate.edu
Assistant Professor in Architecture
Daniel J. Huberty Faculty Fellow
Iowa State University
Tom Leslie, IA | tleslie@iastate.edu
Pickard Chilton Professor in Architecture
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Iowa State University
Rob Whitehead, AIA, LEED AP | rwhitehd@iastate.edu
Assistant Professor in Architecture
Iowa State University

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