University Facilities for the Sciences and Advanced Technologies 2019

Engineering
Health Sciences
Robotics
A.I. / Data Sciences
Biological / Physical Sciences
Maker Spaces
Innovation Hubs

October 28-29
Hilton Austin Downtown Convention Center in Austin, Texas
Who Should Attend?

This is the annual meeting for

- Capital Project Teams
- Facility Space Planners
- Facility Engineers
- Project Managers
- Campus Architects
- Faculty
- Deans
- Financial Officers

to benchmark plans and programs and build on the latest successes and innovations.

New construction, renovation, and space planning initiatives for the sciences, engineering, and advanced technologies are delivering totally new space types, configurations, and layouts, and very different physical infrastructure platforms needed for:

1. **Increasingly blurred lines between physical, digital, and biological learning/research**
2. **Widespread program convergence of science**, engineering, and advanced technologies
3. **Active, experiential, and project-based learning**
4. **Growth in cyber-physical systems (CPS), and data-science-driven research/teaching**
5. **The boom in maker culture and entrepreneurship**
6. **High demand for skilled graduates in transdisciplinary, high-technology fields**

Attend this conference to check your plans against what others are building for education, discovery, and innovation success in engineering, health sciences, biological/physical sciences, robotics, automated intelligence (AI), data sciences, biotechnology, nanotechnology, applied sciences, and other high-priority, high-tech programs. Here, you'll get the details on state-of-the-art facility concepts, planning models, and capital project strategies for:

- Renovation, reuse, and repurposing of outdated facilities for new-era STEM programs
- Improved space utilization for labs, learning, and support space
- New classroom configurations (flipped classrooms and project-based learning)
- Research laboratory workspace and core labs
- High-growth programs (robotics, bioengineering, computational science)
- Trends in academic program convergence and space
- Flexibility and adaptability for shared use and multiple modalities
- Effective social and informal learning activity
- Increased faculty-student interaction
- Collaboration and interaction for students and researchers
- Product design, ideation, prototyping, and maker space
- “Startup and innovation” space for student entrepreneurship
- Industry-academic partnerships space
- New academic workspace models for researchers, faculty, and students
- Transparency and visual connections among students and programs
- Integrated science and engineering teaching and research
- Scientific lab furniture and casework
- Building automation and newly emerging facility technology
- Energy reduction, water conservation, and sustainability strategies
- High-efficiency, low-cost mechanical systems

Make this a key planning event to get your project stakeholders (capital project people, facility planners, facility engineers, design architects, consulting engineers, science and engineering program chairs, deans, faculty members, financial officers, and operations managers) on the same planning page with respect to the details, numbers, processes, and expectations. Consulting architects and engineers must register with their clients.

We very much look forward to seeing you in Austin in October.

“I was only able to attend one conference this year, and I chose Tradeline. I am glad I did! I share the overwhelming opinion of my fellow attendees of the value added.”

Errol Millington
Director, Office of Campus Planning
University at Albany, SUNY

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**Steven L. Westfall, Ph.D.**
Founder and CEO
Tradeline, Inc.

**Derek Westfall**
President
Tradeline, Inc.
Sunday, October 27

Fundamentals of Planning and Design of University Science and Engineering Facilities

7:30 a.m. Registration/Continental Breakfast • 8:00 a.m. – 4:30 p.m. (a total of 6 hours of instruction)

Leaders:

Chernoff Thompson Architects
Russ Chernoff, MAIBC, MAAA, AIA, NSAA, OAA, AAPEI – Founding Partner
Naomi F. Gross, MAIBC, MAAA, NSAA – Partner

TreanorHL, Science and Technology
Timothy Reynolds, PE – Principal

Henderson Engineers, Inc.
Kelley Cramm, PE, LEED AP – Associate

What you will learn:

This course covers the basic elements of planning and design of labs and facilities for teaching and research – upfront planning and programming, teaching lab designs, active learning space designs, informal learning space designs, research lab designs, building design, and planning for mechanical, electrical, plumbing, and lighting systems components. Participants will come away with a basic understanding of the terminology, concepts, processes, standards, numbers, and types of labs, scientific equipment, and furniture (as applicable) involved in teaching and research facility planning and design. The course also serves as primer for the two-day conference that follows and will be highly interactive with Q&A throughout.

Who should attend:

This one-day course is open to all who have interest in lab planning and design: project managers, facility planners and managers, lab managers, architects, engineers, construction engineers, faculty, researchers, and scientists employed at colleges and universities, and A/E/C firms.

Cost for this course:

$1,140 Fundamentals Course only
$1,000 with registration to two-day conference October 28-29
(Feues include course materials, continental breakfast, refreshment breaks, lunch)

Space is limited and enrollment is subject to approval.

What past attendees have said...

“This was the best continuing education course I have ever attended. Wow.”
“Definitely will recommend.”
“GREAT, GREAT, GREAT!”
“I can’t think of a better way to comprehensively cover so much material in one day without breaking it down to specialty courses. This has been extremely useful for my purposes.”
“Fabulous presentation.”
“Great content. Managed to distill large topics into digestible segments. Thanks!”
“Obviously all four presenters are knowledgeable professionals. They presented and explained excellent information in an excellent format. Thank you all for this session!”
“Awesome job! All questions repeated. Panel all EXPERTS in their fields!”
“All the presenters were excellent! Course provided valuable information. Nothing to tweak.”
“Comprehensive, useful for people at a variety of levels of understanding and for those with a variety of backgrounds (project managers, academic senior leadership, engineers, etc.).”
“Wonderful course, many critical take-aways for me personally, and great knowledge across the entire building system.”
“Great day of info, kept it fresh and moving. Did great with info for a WIDE range of people in the class.”
“Excellent basic knowledge for designing a lab in a short class.”
“This was an excellent course – well communicated, knowledgeable speakers, great handout book – good use of time. Thank you!”
Facility Site Tours

Sunday, October 27

Tour #1: Engineering Education and Research Center (EERC) and Gates Computer Science Complex and Dell Computer Science Hall, University of Texas at Austin

Check-in at tour desk in hotel lobby at 12:15 p.m.; Departs at 12:30 p.m.; Returns to hotel by 5:00 p.m.

The Engineering Education and Research Center – The Engineering Education and Research Center contains 430,000 square feet of open and flexible space for interactive learning, hands-on student projects, and 21st-century teaching and research labs for creating new technologies and solving real-world problems. The EERC’s North Tower has 50,000 square feet of large-scale, multidisciplinary research labs; the South Tower is home to the Cockrell School’s Department of Electrical and Computer Engineering and houses seven research neighborhoods focused on developing new technologies in computing, power, electronics and wireless networking. The Cockrell School’s Innovation Center will be located inside the EERC, becoming the first space dedicated to entrepreneurship training and commercialization programming. Equipped with the latest Texas Instruments (TI) technologies, the TI teaching and project labs will give electrical and computer engineering undergraduates space to design and build sensors, robots, wearable technologies, and more.

Bill & Melinda Gates Computer Science Complex – The 140,000-sf Bill & Melinda Gates Computer Science Complex brings together all programs, faculty and students of the Computer Science Department for the first time in the department's history. The complex, which includes Dell Computer Science Hall, features 10 "research clusters," which are designed to encourage collaboration and innovation with large glass-walled labs including nearly 24,000 square feet of instructional space, and is surrounded by a mix of faculty, graduate student and visitor offices, open discussion areas and a large conference room. The building also features an open atrium for student community-building and studying, a lecture hall, dedicated spaces for the undergraduate honors program and other computer science student groups, computing labs and study lounges.

Wednesday, October 30

Tour #2: Welch Hall College of Natural Sciences Renovations and Norman Hackerman Building, University of Texas at Austin

Check-in at tour desk in hotel lobby at 7:45 a.m.; Departs at 8:00 a.m.; Bus continues to Austin International Airport for drops at airport terminals at 12:45 p.m.; Returns to hotel by 1:15 p.m.

Welch Hall College of Natural Sciences Renovations – The largest building on the UT Austin campus, Welch Hall, was built in 1929 to be the home of the chemistry and biochemistry departments and is currently in the process of undergoing several phases of renovation and repurposing to modernize research and teaching labs, and to add new active-learning classrooms and specially designed spaces for the Freshman Research Initiative. The East Wing has been repurposed with a mix of computational and theoretical research labs, administrative space, meeting and interaction space, and wet lab space for both undergraduate chemistry teaching and inorganic chemistry research. The West Wing Renovation includes a combination of low, medium and high fume hood-intensive chemistry research labs; chemistry labs supporting the UT Freshman Research Initiative; and a 100-seat, flexible, technology-enabled and problem-based learning studio.

Norman Hackerman Building, University of Texas at Austin – The recently completed eight-story, 294,000-square-foot Norman Hackerman Building (NHB) was built following the demolition of a 55-year-old existing science building, and it provides space for an integrated and interdisciplinary approach to education, research and development for the College of Natural Sciences including Neuroscience, the Center for Learning and Memory, and Organic Chemistry Teaching and Research. The building is also home to inorganic chemistry teaching and research, and the administrative offices for the School of Biological Sciences. Its sophisticated and technologically advanced core facilities include a large vivarium, an NMR facility, an MRI Facility and an Electron Microscopy Core Facility. It also includes a newly completed greenhouse on the roof.

Important Site Tour Notes:

• YOU MUST SIGN UP IN ADVANCE (SEE REGISTRATION FORM) AND HAVE WRITTEN CONFIRMATION FROM TRADELINE IN ORDER TO ATTEND THE TOURS.
• Site tour attendance is limited. Space on the site tours will be filled on a first-registered, first-served basis.
• No more than 5 people per organization will be confirmed on a tour.
• Failure to check-in at the tour desk in the lobby 15 mins. prior to departure time may result in your seat being forfeited to those on the stand-by list.
• All tour participants must arrive at the site on the tour bus with the tour group. For security reasons, no one may meet the group at the tour site.
• A $25 bus transportation fee will be charged to your registration fee. This fee is non-refundable for cancellations made within two weeks of the tour date.
Conference Participants

Speakers
- A&E Architects
- Ayers Saint Gross
- Carnegie Mellon University
- Chernoff Thompson Architects
- CO Architects
- Cooper Carry
- EwingCole
- EYP
- Flad Architects
- Georgia Institute of Technology
- Hastings+Chivetta Architects, Inc.
- Henderson Engineers, Inc.
- HOK
- Lord Aeck Sargent
- Milwaukee School of Engineering
- Montana State University
- Northeastern University
- Perkins+Will
- Purdue Engineering
- Research Facilities Design
- Santa Clara University
- Siemens Smart Infrastructure
- SLAM Collaborative
- SmithGroup
- Stanford University
- The Whiting-Turner Contracting Company
- TMC
- Treanor HL, Science and Technology
- University of Glasgow
- University of Minnesota Health Sciences Education Center
- University of Texas at Austin
- University of Virginia
- University of Washington
- Ursinus College
- Vermeulens
- ZGF Architects

Exhibitors
- Air Master Systems
- Ambient Air Technologies, LLC
- American Epoxy Scientific
- Durcon - A Wilson Art Company
- Environmental Growth Chambers
- Erlab, Inc.
- Field Management Services
- Labconco
- MGC, Inc.
- Mott Manufacturing Ltd.
- Phoenix Controls
- Siemens Industry, Inc.
- TMC
- Trespa NA
- Vacuubrand, Inc.

Special Event Host
- CPP, Inc.
Sunday, October 27

Registration Sign-in/Continental Breakfast for Fundamentals Course 7:30 a.m. – 8:00 a.m.

* Fundamentals of Planning and Design of University Science and Engineering Facilities 8:00 a.m. – 4:30 p.m.

* Facility Site Tour (must be pre-registered) 12:30 p.m. – 5:00 p.m.

Hosted Reception; Registration Sign-In 7:30 p.m. – 8:30 p.m.

Monday, October 28

Registration Sign-in/Continental Breakfast 8:00 a.m. – 8:30 a.m.

General Session 8:30 a.m. – 10:55 a.m.
Conference Overview
Speakers: Milwaukee School of Engineering; University of Glasgow; Georgia Institute of Technology; University of Texas at Austin

Concurrent Forum Sessions 11:10 a.m. – 12:05 p.m.
A. A high-tech ecosystem for applied research: Strategic facility design at Northeastern University’s Innovation Campus
B. Renovation or new construction for high-tech facilities? Programmatic, infrastructure, and cost considerations
C. Interprofessional, technology-forward health sciences education center that transforms learning
D. Stanford University positions itself for the next tech-driven 50 years with the Science Cluster

Luncheon Hosted by 12:05 p.m.

Concurrent Forum Sessions 1:10 p.m. – 2:05 p.m.
E. Blurring the lines between physical, digital and biological spheres: The next-gen Cyber Engineering and Academic Center (CEAC)
F. Trans-disciplinary clusters: Novel program combinations, facility plans, and unexpected benefits
G. Case Study: The University of Glasgow Research Hub for Technology Innovation and Entrepreneurship
H. Mashup majors and fusion programs: A deep dive into the new space types that support science and tech programs

Concurrent Forum Sessions 2:20 p.m. – 3:15 p.m.
I. Trends, layouts, and metrics for next-generation science and technology facilities
J. Sustainable strategies for the logistics of renovations: Phases, moves, and no vacating required
K. Construction cost forecast and timing decisions for science and advanced technology capital projects

General Session 3:45 p.m. – 4:45 p.m.
Speakers: University of Washington; Carnegie Mellon University

Hosted Reception (Guests Welcome) 4:45 p.m. – 5:45 p.m.

* Additional cost to attend  + Presented at this time only.

Special Events and Features:

Hosted Pre-Conference Reception
Sunday; October 27, 7:30 p.m. Light appetizers, desserts and beverages. Attendees may sign in and pick up their conference materials at this time. Guests welcome.

Hosted Reception
Monday; October 28, 4:45 p.m. - 5:45 p.m. Guests welcome.

Food and Beverage
Registered attendees will be provided with lunch and refreshment breaks on both meeting days.

A continental breakfast will be served on the first meeting day and a full breakfast will be served on the second meeting day.

Please Note The Following
Dress for this conference is business casual. It is our goal to maintain the temperature of the meeting rooms at an acceptable level for all attendees. However, for your maximum comfort we suggest that you plan to dress in layers.

Audio or video recording devices are not permitted at this conference.

* Courtesy of TreanorHL; Photo by Randy Braley

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* Courtesy of TreanorHL; Photo by Randy Braley
Tuesday, October 29

Hosted Breakfast

Concurrent Sessions

L. + Esports arenas are coming soon to your campus: The planning factors you need to know
R. + Leveraging the entrepreneurial mindset of Silicon Valley: The Sobrato Campus for Discovery and Innovation at Santa Clara University
N. + The new standard in world-class engineering education: The integration of transparency, learning, and discovery

General Session

Speakers: Ursinus College; Purdue Engineering

Concurrent Forum Sessions

B. + Renovation or new construction for high-tech facilities? Programmatic, infrastructure, and cost considerations
O. + Advances in design communication: Dashboards, immersive VR and algorithmic design
P. + Intelligent integrated solutions for controlling the total research lab environment

Concurrent Forum Sessions

F. + Trans-disciplinary clusters: Novel program combinations, facility plans, and unexpected benefits
Q. + Translating data and strategic vision into a physical space plan for engineering and applied sciences
M. + Critical vibration control strategies for nanolithography, e-beam metrology and high-sensitivity instruments

Hosted Luncheon

Concurrent Forum Sessions

A. + A high-tech ecosystem for applied research: Strategic facility design at Northeastern University’s Innovation Campus
E. + Blurring the lines between physical, digital and biological spheres: The Next-Gen Cyber Engineering and Academic Center (CEAC)
I. + Trends, layouts, and metrics for next-generation science and technology facilities

General Session

Town Hall Knowledge Roundup

Adjourn

Wednesday, October 30

* Facility Site Tour (must be pre-registered)

* Additional cost to attend + Presented at this time only.
Monday, October 28

AI, robotics, and data sciences: Raising the bar for next-gen facility competitiveness

*Milwaukee School of Engineering*

**John Walz**, PhD – President

To recruit and retain the brightest minds and tackle new challenges in artificial intelligence, robotics, cybersecurity, and cloud computing, higher ed institutions are now engaged in an arms race of high-powered data infrastructure, strategic industry partnerships, and innovative learning environments. **John Walz** profiles key capabilities of the just-opened Dwight and Dian Diercks Computational Science Hall and how they will advance MSOE’s priorities of turning out highly competitive, workforce-ready graduates, forging new alliances, and breaking new ground in technology innovation. He highlights distinguishing features of leading-edge classrooms and teaching labs, dedicated spaces for partnerships and faculty, a 250-seat auditorium for guest lectures, and, of course, an NVIDIA supercomputer.

The University of Glasgow’s new innovation campus for science, engineering, and business convergence

*University of Glasgow*

**Neal Juster**, PhD – Senior Vice-Principal and Deputy Vice-Chancellor

The University of Glasgow’s new $1B next-gen campus is being built on a foundation of science, engineering and business convergence and innovation. **Neal Juster** sets out the development plan to deliver an idealized academic/industry growth environment, and highlights the first “tip of the spear” foundational capital projects Glasgow is using to kickstart the initiative and draw in partners and funding. He identifies winning concepts gleaned from high-performing innovation centers across the US, and charts the target performance metrics, space and capital efficiency advantages, and the organizational agreements necessary for success.

Georgia Tech Coda facility mingles academia, research and industry for data science innovation

*Georgia Institute of Technology Capital Planning & Space Management*

**R. Jarrett Muncy**, AUID, NCIDQ, LEED NB+C – Senior Facilities Planner

Georgia Tech anchors the new 755,000-sf developer-built, mixed-use Coda facility, which is designed to foster organic collaboration with entities on the forefront of technology and transform how the institute conducts research in data engineering and science, health and energy science, machine learning, and more. **Jarrett Muncy** profiles the cutting-edge approach to occupant identification and how shared resources act as the organizing basis for spurring interaction across the institute and industry alike. This includes space configuration and programming decisions for innovation ecosystems and new opportunities in interdisciplinary research, commercialization, and sustainability. He examines organizing principles of the building’s research neighborhood model, and the technical infrastructure required for next-gen technology programs.

New construction and repurposing solutions for next-gen engineering programs

*University of Texas at Austin*

**Sharon L. Wood**, PhD – Dean, Cockrell School of Engineering

Align your institution’s capital plans with the explosive growth of integrated engineering programs, or risk losing the competitive edge in recruiting and retaining students, faculty, and researchers, and collaborating with industry partners. **Sharon Wood** distills must-have building features and lessons learned from UT Austin’s latest engineering facility capital project initiatives: The Energy Education and Research Center, Energy Engineering Building (under construction), and the renovation of a historic gymnasium to create centralized flexible space for interdisciplinary robotics research programs. She examines infrastructure requirements for current and future engineering programs.
Attend all of the General Sessions below

UW Gates Center brings open and welcoming environments to computer science & engineering innovation

*University of Washington*
Troy Stahlecker – Senior Project Manager

The recently-opened Bill & Melinda Gates Center for Computer Science & Engineering delivers sophisticated program spaces – a 3,000-sf robotics lab, a 240-seat auditorium, sophisticated maker space, virtual and augmented reality labs, teaching and research labs, and classrooms – in an environment that promotes an open, interactive, and welcoming culture. Troy Stahlecker highlights variations in project and funding strategies in response to a highly involved client. He identifies key components that complement neighboring facilities, accommodate current and future program requirements and growth projections, and facilitate both purposeful and serendipitous interaction at the forefront of computing innovation.

Carnegie Mellon’s maker ecosystem revitalization initiative

*Carnegie Mellon University*
Ralph Horgan – AVP Campus Design & Facility Development
Mike Kelley – Principal Project Manager

Carnegie Mellon’s leadership in the research and development of advanced robotics, artificial intelligence, materials science, and 3D printing is rapidly transforming manufacturing and catalyzing economic development. Key to making that happen is the College of Engineering’s Maker Ecosystem, an integrated set of resources where faculty and students create and develop new ideas, concepts and products for courses and research. Here Ralph Horgan and Mike Kelley profile recent maker space revitalization initiatives to maintain the university’s competitive edge. They illustrate decisions on facility upgrades for simulation, rapid prototyping, electronic fabrication, and CNC machining to allow design and fabrication at the nano, micro, and macro scales.

Tuesday, October 29

Interdisciplinary and entrepreneurial facility solutions that integrate previously-siloed programs

*Ursinus College*
Victor J. Tortorelli, PhD – Samuel H. and Anna M. Hess Professor of Chemistry

Facilities that integrate previously-siloed disciplines are unlocking space and program synergies, enhancing recruitment initiatives, and equipping students for tomorrow’s interdisciplinary and entrepreneurial problem solving. Vic Tortorelli examines strategic opportunities, decision-making, and post-occupancy results from Ursinus College’s new Innovation and Discovery Center (IDC), which was designed within the context of an extensive master planning study of the College’s science facilities. Vic profiles teaching and research labs linking biology with other disciplines, such as psychology, biochemistry, and health and exercise physiology. He describes the design of active-learning classrooms, support spaces, and interdisciplinary centers incorporated within the IDC.

Purdue University’s new FlexLab building inspires cross-disciplinary innovation

*Purdue Engineering*
David Kish, PhD, PE – Director, FlexLab
Donna Ahlen – Manager of Facilities Planning & Construction

Purdue University’s recently-opened FlexLab adapts to the creative and innovative needs of Engineering professors and their students, and enables teams to collaborate on interdisciplinary research and discovery ranging from advanced manufacturing to imaging, and from information technology to medical devices. Dave Kish and Donna Ahlen examine key facility space assets including high-bay research space and low-vibration basement labs, easily modifiable wet and bench space and computational labs, open workspace, mobile workstations, and dedicated and shared offices. They set out the operating model, criteria for assigning space to research groups, and the recruitment and retention advantages.

Town Hall Knowledge Roundup

*Facilitator: Tradeline, Inc.*
Derek Westfall – President

This closing session is where key ideas, new developments, and findings that have been revealed over the course of the entire two-day conference (including sessions you may have missed) get clarified, expanded upon, and affirmed or debated. This is also the opportunity to get answers from industry leaders and the entire audience to specific questions on key and challenging issues.
A. A high-tech ecosystem for applied research: Strategic facility design at Northeastern University’s Innovation Campus

**EYP**
Christopher Baylow, AIA – Principal, Academic Research
Northeastern University
Jeremy Munn – Program Director – Facilities Division

Strategic collaborations between academic and industry and government partners are now producing a myriad of new technologies with immediate market impacts – and these partnerships will likely be a top priority in your next project. This session explores the planning and design strategies that elevate higher education applied research programs to create innovation clusters for students, faculty, and government and industry partners. Chris Baylow and Jeremy Munn examine Northeastern University’s emerging Innovation Campus and new 104,000-sf mixed-use research building that delivers research lofts for tenants, technology-intensive maker spaces, specialized scientific cores, and unassigned areas for intellectual exchange.

**Monday 11:10 a.m. – 12:05 p.m. | Tuesday 1:45 p.m. – 2:40 p.m.**

B. Renovation or new construction for high-tech facilities? Programmatic, infrastructure, and cost considerations

**Lord Aeck Sargent**
John Starr, AIA – Principal
Ben Elliott, RA – Director of Science and Technology Innovation

The easy answer to increased demand for science and innovation space is to build a new facility, but underappreciated and underutilized older buildings are too often overlooked as a potential resource. The presenters examine build new vs. renovate decision-making rationales being employed to meet increased space requirements, and they identify cost mitigation effects of responsive programming and facility reuse. They enumerate key functional needs for advanced technology and discovery-based facilities including a wide array of new space types that respond to the increasingly team-based, collaborative, and interdisciplinary activities. They demonstrate how new construction or reuse might best support the next generation innovators and learners.

**Monday 11:10 a.m. – 12:05 p.m. | Tuesday 10:35 a.m. – 11:30 a.m.**

C. Interprofessional, technology-forward health sciences education center that transforms learning

**Perkins+Will**
Heidi Costello, CID, IIDA, LEED AP ID+C – Senior Interior Project Designer
SLAM Collaborative
Karen Glass Parzych – Project Architect
University of Minnesota Health Sciences Education Center
Janice Jaguszewski, MSLIS – Associate University Librarian and Director of Health Sciences Libraries

A new benchmark for emerging high-tech, high-touch spaces that facilitate experiential, team-based learning for modern interprofessional education is the new Health Science Education Center (HSEC) at the University of Minnesota. Session leaders set out the visioning process, successes, and lessons learned in the design of the HSEC including new space prototypes, key adjacencies, and exciting advancements in space typologies. They detail space allocations and configurations for data and visualization labs, maker spaces, virtual and augmented reality labs, 1:Button Studios, and teaching and learning-focused faculty commons that enhance and encourage interprofessionalism, as well as new models for quiet study environments and open collaboration zones.

**Monday 11:10 a.m. – 12:05 p.m.**

D. Stanford University positions itself for the next tech-driven 50 years with the Science Cluster

**Stanford University**
Stephen Pond – Project Executive, Dept. of Project Management
Flad Architects
Andrew Cunningham, RIBA, LEED AP – Principal
The Whiting-Turner Contracting Company
Thomas Wooden – Vice President

Benchmark this: Stanford’s vision to address global challenges in a rapidly changing and interconnected world of technology is the Science Cluster, a science quad encompassing Biology and Chemistry programs strategically placed near the School of Medicine and School of Engineering. Session leaders detail the new interdisciplinary district strategic plan, the buildings that will be constructed, and programs that will encourage cross-collaboration and transform campus capabilities. They chart the roadmap to success including a research facility addition, teaching classroom renovation, and campus landscape, amenity and infrastructure components that will knit it all together.

**Monday 11:10 a.m. – 12:05 p.m.**

“Tradeline conferences have been one of my greatest resources outside of my institution and have provided me with a great place to crowd source information from other organizations willing to share information.”

Angela Foss
Associate Dean of Operations & Innovation, College of Engineering, Technology & Aeronautics, Southern New Hampshire University
E. Blurring the lines between physical, digital and biological spheres: The next-gen Cyber Engineering and Academic Center (CEAC)

EwingCole
Timothy Winstead, AIA, LEED AP – Regional Director
Jennifer Brophy, NCIDQ – Practice Planning Specialist

The World Economic has defined the Fourth Industrial Revolution as a fusion of technologies that blur the line between physical, digital and biological spheres – and that is what the Cyber Engineering and Academic Center at West Point is built to do. Session leaders detail solutions for housing Civil & Mechanical Engineering, Electrical Engineering & Computer Science, and Systems Engineering (SE) under one roof, and packing 59 different types of labs into 136,000 gsf. They illustrate space configurations for cybersecurity and network development, advanced electronics, photonics, telecom, alternative energy, robotics, computer, mechatronics, as well as biomechanics, systems design, supply chain, and cost analysis.

Monday 1:10 p.m. – 2:05 p.m. | Tuesday 1:45 p.m. – 2:40 p.m.

F. Trans-disciplinary clusters: Novel program combinations, facility plans, and unexpected benefits

CO Architects
Andrew Labov, AIA, LEED AP – Principal
Jennifer Swedell, AIA, LEED AP – Laboratory Planner

There are few existing models or planning typologies that adequately define a “transdisciplinary laboratory,” and this session sets out best practices for estimating the potential needs of these initiatives. Andrew Labov and Jennifer Swedell set out four scales of planning for transdisciplinary programs: program, building, neighborhood, and campus, and the resulting unique and specialized facilities that anchor grant funding and recruitment of new faculty and students. They examine four leading case studies involving biotech and biochem, aeronautical and bio-engineering, neuroscience, and more, and they highlight support space types, collaborative and flexibility features, and design features for connecting people.

Monday 1:10 p.m. – 2:05 p.m. | Tuesday 11:45 a.m. - 12:40 p.m.

G. Case Study: The University of Glasgow Research Hub for Technology Innovation and Entrepreneurship

HOK
Randy Kray, AIA – Senior Principal | Director of Science + Technology
The University of Glasgow
Neal Juster – Senior Vice-Principal + Deputy Vice-Chancellor

The University of Glasgow Research Hub sets a new bar for thematic “big thinking” interdisciplinary research that intends to relentlessly expose individuals and research areas to each other thereby increasing multi-disciplinary problem solving and fostering entrepreneurship and innovation. Session leaders detail the visioning and design principle for the anchor building on a new £1B campus expansion for the University; a gateway to the new campus and the bridge between academic and industry research and innovation. They address the unique challenges of interdisciplinarity, integrating the functional, cultural and infrastructure requirements in a flexible platform centered on performance, collaboration and engagement.

Monday 1:10 p.m. – 2:05 p.m.

H. Mashup majors and fusion programs: A deep dive into the new space types that support science and tech programs

SmithGroup
Ed Burton, RIBA – Vice President | Corporate Practice Director, Science & Technology
David Lang – Learning Environments Lead Planner

Traditional definitions of science, engineering and technology programs, and the spaces that support them, are rapidly evolving as disciplines and majors cross-pollinate and converge more fluidly than ever before. Ed Burton and David Lang dig deep into the drivers that are shaping modern science and technology programs, and the evolution of spaces over time from pure STEM, to interdisciplinary programs, to integration with entrepreneurial experiences. They illustrate diverse space types that are now required and need to be planned for to support world-class programs. They demonstrate changes in pedagogy and the impact on student environments, from active (participatory) learning, maker space, and exposure to research.

Monday 1:10 p.m. – 2:05 p.m.
I. Trends, layouts, and metrics for next-generation science and technology facilities

Research Facilities Design
Sean Towne, FAIA, LEED AP – Principal
Terry Brown – Laboratory Consultant
Jorge Garcia, AIA, NCARB – Laboratory Designer

Highly competitive STEM programs are pushing to attract and retain students, increase capacity, and improve student outcomes – and key to meeting those goals are cross-disciplinary convergence, experiential learning, and collaboration areas, and leveraging the entire building as learning and maker space. In this session, RFD charts the emerging trends, metrics, and layouts for world-class STEM facilities, and the facility design solutions that successfully balance complex building system requirements with inspirational environments for learning and discovery. They identify must-have program-enabling facility elements and profile recently completed and ‘still on the boards’ projects from across the US, highlighting design and layout strategies and pitfalls to avoid. [AIA HSW]

Monday 2:20 p.m. – 3:15 p.m. | Tuesday 1:45 p.m. – 2:40 p.m.

J. Sustainable strategies for the logistics of renovations: Phases, moves, and no vacating required

Cooper Carry
Allison M. Ciafardini – Senior Associate
Markus Wilms – Senior Associate

A plethora of outdated 1960s to 1970s campus buildings are lying in wait to deliver hotly-demanded STEM space and this session sets out strategies to renovate and renew them – sustainably and without having to vacate prior to occupancy. In this session, Allison Ciafardini looks at key phasing logistics strategies including shifting spaces, finding space, and creating spaces to reduce the disruptive impacts of renovations. She sets out planning methods to prep, transition, and work with users of the building during construction, and best practices for blending spaces together to create more collaboration among users. [AIA HSW]

Monday 2:20 p.m. – 3:15 p.m.

K. Construction cost forecast and timing decisions for science and advanced technology capital projects

Vermeulens, Boston
James Vermeulen, LEED AP, PQS, Construction Economist – Managing Principal

Vermeulens, San Antonio
Blair Tennant, LEED AP Construction Economist – Associate Principal

Mounting pressure on construction costs will impact all science facility projects on the drawing boards, both new construction and renovations. Attend this session to get better pricing and more accurate budget figures, and better understand construction cost drivers for different academic science programs. Vermeulens will deliver up-to-date construction cost forecasts based on the latest employment data, government spending trends, commodity prices, and cost data from more than 100 projects. Using analyses of equities, GDP, and construction labor markets, they illustrate regional construction pricing targets for the next two years and demonstrate bid and purchasing strategies that lock in costs and reduce risk. [AIA]

Monday 2:20 p.m. – 3:15 p.m.

L. Esports arenas are coming soon to your campus: Planning factors you need to know

Hastings+Chivetta Architects, Inc.
Christopher Chivetta, P.E., LEED AP BD+C – Principal/President
William Schneck, AIA, LEED AP BD+C – Associate | Project Designer

Universities are ramping up facility investments and recruiting efforts for the next sports craze – esports – to boost institutional reputation, create leading-edge new academic programs, and promote (surprisingly) student wellness. Competing for space on campus are esports arenas packed with state-of-the-art equipment like virtual reality headsets and high-performance gaming computers, hefty monitors, and thematic lighting. Chris Chivetta and Will Schenck survey recent esports facility initiatives at leading institutions and detail five high-priority planning issues that must be considered. They will also illustrate an array of space funding and program ownership solutions, space and equipment configurations, infrastructure requirements, and desirable adjacencies. [AIA HSW]

Tuesday 8:05 a.m. – 9:00 a.m.

M. Critical vibration control strategies for nanolithography, e-beam metrology and high-sensitivity instruments

TMC
Steve Ryan – Division Vice President

Electron beam lithography, electron microscopes, and emerging ultra-precision instruments are becoming critical for the success of nanotech, materials, and life science research programs and facilities, and building vibration is a potential program killer you need to get ahead of! Steve Ryan details how to plan for the extremely low-vibration environments demanded by nanoscale and other advanced technology spaces, including passive vibration isolation, massive isolated plinths, and point-of-use inertial active vibration control pedestals. He examines case studies of new construction and renovations at Oregon Health Sciences University, MIT. Nano, and the New York Structural Biology Center. [AIA HSW]

Tuesday 11:45 a.m. – 12:40 p.m.

N. The new standard in world-class engineering education: The integration of transparency, learning, and discovery

ZGF Architects
Todd Stine, AIA, LEED AP BD+C, DBIA – Partner
Dana Forfylow, LEED AP – Associate Principal

A&E Architects
Dusty Eaton, AIA, LEED AP – CEO/Principal

Montana State University
Brett Gunnink, PE – Dean of Engineering

This case study of the new Norm Asbjornson Hall at Montana State University identifies key facility components of modern, world-class engineering education. Session leaders examine design strategies used to put science, engineering, and technology on display, accelerate innovation, encourage interdisciplinary engagement, and stimulate student-faculty interaction. They illustrate how users have responded to a diverse mix of active learning classrooms, science, engineering, and tech laboratories, as well as informal learning spaces and maker spaces, and the co-location of the College of Engineering and the Honors College. [AIA HSW]

Tuesday 8:05 a.m. – 9:00 a.m.
O. Advances in design communication: Dashboards, immersive VR and algorithmic design

CO Architects
Scott P Kelsey, FAIA – Principal
Nuri Miller – Director of Digital Technology
Jenna Knudsen, AIA – Principal

Fully immersive and interactive planning and design tools are enabling rapid exploration of ideas, improving quality of engagement among stakeholders, and making expansive use of rich data sets – with superior project outcomes. Session Leaders demonstrate a range of new dashboards, immersive VR and algorithmic design tools and methodologies that enable complex data synthesis (campus, building, program) and rapid iteration to support immersive and inclusive design and communication for highly complex facility projects. They identify best practices for visualizing information, promoting efficiency, and increasing stakeholder input. They deliver a live demonstration of the VR experience. 

Tuesday 10:35 a.m. – 11:30 a.m.

P. Intelligent integrated solutions for controlling the total research lab environment

Siemens Smart Infrastructure
Paul Fuson – National Sales Manager Life Science

New intelligent technologies that combine control and management of HVAC, containment, lighting, and daylighting in a single platform are enabling organizations to move beyond the traditional (and costly) “lab as energy consumer” approach to a holistic operating efficiency strategy. Paul Fuson demonstrates the advantages of Siemens’ Total Room Automation for Life Science in engaging building operators, energy managers, EHS officers, lab managers, and scientists to significantly impact energy consumption, operations, safety and compliance. He illustrates new technology implementations, and new ways of using old technologies, to monitor utilization, improve interaction of lab occupants and building systems, and deliver safe and efficient buildings.

Tuesday 10:35 a.m. – 11:30 a.m.

Q. Translating data and strategic vision into a physical space plan for engineering and applied sciences

Ayers Saint Gross
Alyson Goff, M.Ed, MPA – Associate Principal
Dana Perzynski, AICP, EDAC, LEED AP – Associate Principal

Many institutions are constrained by quality and quantity of STEM space and struggle to achieve their vision for growth – and as a result, student and faculty recruitment and retention suffer. Here, session leaders demonstrate a process for incremental, strategic renovations that unleash the academic potential of underutilized and outdated buildings. They deliver a case study from the University of Virginia’s School of Engineering and Applied Science where the interdisciplinary research enterprise has been expanded utilizing existing buildings. They detail the shakeup of traditional departmental structures, and illustrate UVA’s “road map” to align the School’s academic plan and strategic goals with its existing space inventory.

Tuesday 11:45 a.m. – 12:40 p.m.

R. Leveraging the entrepreneurial mindset of Silicon Valley: The Sobrato Campus for Discovery and Innovation at Santa Clara University

ZGF Architects
Amanda Hills – Associate Principal
Santa Clara University

STEM programs across the country are looking to integrate student entrepreneurship programs with science, engineering and technology curricula, and there’s no more fertile ground for this than in Silicon Valley. Presenters will detail how nine campus buildings at Santa Clara University were designed, renovated, and occupied over the course of 10 months to create a 330,000-sf integrated center for transformational STEM education. Learn how they set out key details for collaborative learning environments that mirror the entrepreneurial mindset of the surrounding region, and established learning neighborhoods, project, and maker spaces to support cross-discipline inquiry and collaboration among traditionally disparate academic programs.

Tuesday 8:05 a.m. – 9:00 a.m.
Registration:

**Conference Registration Fees**

- Registration fees with payment by 9/27/19
  - $1890 for single registration
  - $1740 each for groups of 2 or more
- Registration fees after 9/27/19
  - $2090 for single registration
  - $1940 each for groups of 2 or more

**Registration fee includes:**

- All general sessions, selection of forums, a dessert reception, two lunches, one breakfast, a wine and hors d'oeuvres reception, refreshments, and a conference workbook guide. Presentations will be made available for download to attendees.

**Team Discounts!**

- For groups of 5 or more, please call Tradeline for additional discounts available.

**Pre-Conference Training**

**Fundamentals of Planning and Design of University Science and Engineering Facilities**

- $1140 Stand-alone course
- $1000 with full conference participation

**Facility Site Tours**

- $25 Transportation Fee/each

**Hotel and Travel Information:**

**Room Reservations**

- Tradeline has reserved a block of sleeping rooms for this event at The Hilton Austin. For registrations received by October 4, 2019 Tradeline will handle and confirm room reservations [based on availability] according to your instructions on the registration form.

  **After October 4 please call Tradeline for room availability.**

**Changes:**

- All room reservations and changes must originate through Tradeline, Inc. to obtain the special rate. If you contact the hotel directly, you may be informed that they are sold out, or you may be charged a higher rate.

**Room Rate**

- The discounted room rate for this event is $279/night, single or double occupancy. A limited number of rooms are available at the government per diem rate for U.S. federal government employees.

  **This is a non-smoking hotel.**

**Room Payment**

- Tradeline does not accept payment for room reservations. Hotel charges are paid to the hotel directly upon checkout.

**Travel Information**

**Airport-to-Hotel Transportation**

- The Hilton Austin hotel is just 15 minutes from the Austin-Bergstom International Airport. Taxis or shuttles are readily available from all airport terminals. Taxi fares will run approximately $30 each way.

**Register with payment by Sept. 27 and Save $200**

TradelineInc.com

The conference will be held at:

**Hilton Austin Downtown Convention Center**

500 East 4th Street
Austin, TX 78701

**Online**

TradelineInc.com

**Fax**

925.254.1093
From outside the U.S. 1.925.254.1093

**Mail**

Tradeline, Inc.
115 Orinda Way
Orinda, CA 94563, USA

**Questions**

Call 925.254.1744 ext. 112
From outside the U.S. 1.925.254.1744 ext. 112

**International Attendee Discount**

A $250 discount will be applied to the 2-day full conference registration fee for non-U.S. residents traveling from outside of the U.S.

Use promo code INTL2019 if registering online.
University Facilities for the Sciences and Advanced Technologies 2019
October 28-29 • Hilton Austin Downtown Convention Center in Austin, TX

1. Please Type or Print Clearly (or register online at www.TradelineInc.com)
   - Conference registration is not complete until confirmed by Tradeline, Inc.
   - Please confirm airline reservations only after confirmation of registration.
   - Only one registrant per form.

Name ___________________________ First Name for name badge ________________
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City___________________________________ State ______  Zip Code _________________________________
Country _______________________________Phone ______________________Fax _______________________
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2. Register with payment before September 27 and Save $200!
   Payment by 9/27/19* Full price*
   Single Registration   ☐ $1,890   ☐ $2,090
   Team Registration Discount** ☐ $1,740/Attendee   ☐ $1,940/Attendee
   **Name of other team registrant(s) __________________________________________________________

3. Conference Add-Ons:
   Sunday, October 27
   Fundamentals of Planning and Design of University Science and Engineering Facilities
   ☐ $1,140  ☐ $1,000 with registration to the full 2 day conference October 28-29
   ☐ $25 Tour 1 – Engineering Education and Research Center (EERC) and Gates Computer
   Science Complex and Dell Computer Science Hall, University of Texas at Austin
   Wednesday, October 30
   ☐ $25 Tour 2 – Welch Hall College of Natural Sciences Renovations and Norman Hackerman
   Building, University of Texas at Austin

4. Select a Method of Payment
   To receive early discount, payment must accompany registration. Payment or P.O. # must be
   received by conference date in order to attend.
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   Card # ____________________________________________ Exp. Date ________ Security Code ______
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   ☐ CHECK: Make payable to TRADELINE, INC. Check # ____________________________
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5. Hotel Reservations
   Please do not call the hotel directly. The special room rate below is available at The Hilton Austin
   through Tradeline only.
   ☐ Yes, please reserve a room for me. Arrival Date: _______ Departure Date: _____________
   ☐ Single occupancy ($279/night +15% room tax) ☐ Double occupancy ($279/night +15% room tax)
   Special Requests ***:
   ☐ No, I will not require a hotel reservation.

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Questions
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1.925.254.1744 ext. 112

Policy on Cancellations, Changes and Refunds: All cancellations and changes to registrations must be received by Tradeline, Inc. in writing. You may make substitutions at any time; please notify us as soon as possible. Full refunds given for cancellations received 14 days or more prior to the event. A $250 service fee will be charged for cancellations received between 14 and 6 days prior. No refunds will be given within 5 days of the event.

*International Attendee Discount: A $250 discount will be applied to the 2-day full conference registration fee for non-U.S. residents travelling from outside of the U.S.

**Team Discount pricing above applies to groups of 2 or more. For teams of 5 or more please call Tradeline for additional discount availability.

***All requests will be honored based upon availability at hotel upon time of arrival. Tradeline will inform the hotel of your preferences but cannot guarantee any special requests.

All room reservations are guaranteed. For changes or cancellations, please notify Tradeline at least 72 hours prior to your scheduled arrival. No-shows and cancellations within 72 hours of arrival are subject to a charge equal to one night’s stay.
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