BUILDING THE FUTURE:

PREEMINENT LEADERSHIP IN CONSTRUCTION EDUCATION & RESEARCH

STRATEGIC PLAN

2020 - 2025

CONSTRUCTION SCIENCE

TEXAS A&M UNIVERSITY

Welcome Letter from the Head

Patrick C. Suermann, Ph.D., P.E., LEED AP
Department Head, Associate Professor
Charles Dewey McMullan Chair in Construction Science

We are pleased to present this strategic plan for the Texas A&M University College of Architecture Department of Construction Science, the largest construction higher education program in the world. This document reflects the goals and principles that will guide our organization through the year 2025. It began with an analysis of the strengths we have, the opportunities we offer, our aspirations, and our results (i.e., SOAR), as led by our Associate Department Head, Dr. Kunhee "KC" Choi. Key focus areas were identified, and several meetings were held to establish the essential goals and strategies. I appreciate the contributions of the many stakeholders who helped create this document. This plan is strengthened by our sustained interaction with our current and former students, faculty, staff, and industry partners.

The department's previous strategic plan laid out goals that helped us usher in a new era of success, and we accomplished nearly all of those objectives two years ahead of the targeted timeline. This brings us to the present opportunity to plan for our future progress. Moving forward, the main challenge will be to prepare builders, researchers, and professionals to succeed in this diverse globalized economy. When we teach future leaders about the built environment, pursue research opportunities that positively impact the state of Texas and beyond, and engage in service and outreach activities to share our knowledge, we strengthen our country's way of life by improving a profession that provides nearly 12% of the national GDP. Our overarching goal is not only to be the largest, but more importantly, the best program in the United States. The strategic plan presented here is the roadmap we will follow to achieve our 2025 goals and earn the right to be considered the premier program of its kind, as evidenced by our habit of persistent daily excellence. With your continued support, we will be equally successful at achieving our objectives these next five years as we have been in the past. Thank you for your support.

OUR VISION

The Texas A&M University Construction Science Department will retain its position as the preeminent program of its kind through dedicated teaching, research, and service.

OUR MISSION

The Construction Science Department is dedicated to education, discovery, development, and the application of knowledge in the field of construction, while also fulfilling the land grant mission of Texas A&M University and enhancing the economic development of the great state of Texas. Our mission of providing the highest quality academic programs is inseparable from our goal of developing a new level of understanding through teaching, research, and service. We prepare students to assume responsible leadership roles and serve society.

OUR VALUES

In education, research, service, and industry relationships, we value:

- Preeminence
- Unity
- Transformational Learning
- Transformative Research
- Industry Partnership
- Innovation
- Diversity and Inclusion
- Cross-Disciplinary Training
- Critical Thinking

STRATEGIC PILLARS

In Fall 2019, the Department of Construction Science began the process of creating a new strategic plan and setting the department's course for the next five years. This process was an inclusive, grass-roots effort guided by the Construction Science Strategic Plan Steering Committee (COSTCO) and informed by Appreciative Inquiry and the SOAR method of strategic planning. Over 70 staff, students, faculty, and industry partners participated in the six-month effort, which included data collection, the development of infographics, structured conversations, a department-wide SUMMIT, and informal workgroup activities. Together we discovered the collective strengths of our department and its people; uncovered opportunities for the department to grow, flourish, and meet the challenges of an ever-evolving construction industry; and crafted the strategic plan that follows. Together we will implement this plan and co-create our shared future by supporting the four pillars of COSC's fundamental academic mission.

I. Deliver on Our Core Research and Teaching Mission

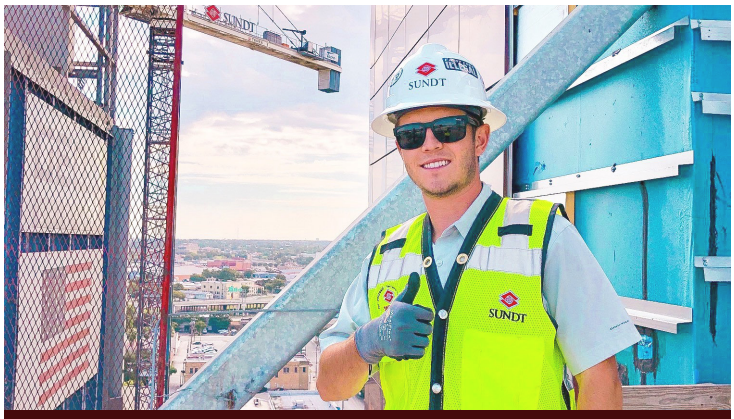
We will continue to expand our research and teaching impact by supporting the cross-disciplinary training of our faculty and students.

II. Build for the Future

We will seek innovative ways to enhance our research and teaching works ecosystem by expanding our footprint both physically and virtually.

III. Champion Excellence in Diversity

We will grow to better reflect the face of Texas, a place where all are welcomed, valued, and have the opportunity to thrive.



IV. Reach Beyond Francis Hall

We will develop a mutually beneficial relationship with our industry partners and constituents in Texas and beyond.

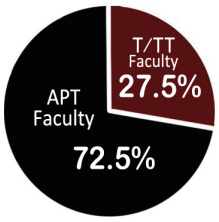
Pillar I: Deliver on Our Core Research and Teaching Mission

TEACHING AND LEARNING

As a land-, sea-, and space-grant institution, Texas A&M University appropriately focuses on accessible education that prepares graduates to shape the future of construction in Texas, our nation, and across the globe. We are mindful of the rapid technological advances in the construction industry and eager to respond to the challenge this productive, yet disruptive, innovation presents. Our department takes pride in providing the best academic and technical opportunities possible to our students, while also nurturing future construction leaders who exemplify Aggie values. To this end, we strive to enhance the educational experience we offer through the implementation of transformational learning pedagogical practice, as well as teaching the use of technology in the industry. We promote professional development and provide technical support. We believe that technology is an integral part of transformational learning and encourage faculty to use technology in the management, instruction, assessment, and communication of their courses.

Student-to-Faculty Ratio

26



Teaching Load

GOAL

1. Promote Undergraduate Excellence

Provide a rigorous academic and leadership development experience to highly qualified students.

1.1 Recruit excellent undergraduate students who exemplify Aggie values, especially integrity and leadership.

- Develop a menu of leadership indicators (e.g., volunteer activities, club leadership, etc.) to use as an admissions screen.
- Engage with K-12 students to increase awareness of our programs.

1.2 Raise the bar on academic and extracurricular excellence from the outset.

- Establish department-level awards for academic excellence.
- Encourage and reward students for active leadership in A&M clubs and organizations and engagement in department-wide events, including serving as recruiting ambassadors.
- Encourage and reward student participation in professional organization events and other extracurricular activities.
- Seek support from industry partners to fund awards.

Pillar I: Deliver on Our Core Research and Teaching Mission

1.3 Develop and deliver high-impact leadership development curricula.

- Integrate leadership content into existing courses.
- Encourage and reward cross-pollination among faculty who teach leadership content.
- Establish a process to regularly evaluate the undergraduate and master's leadership curricula.

GOAL 2. Develop Interdisciplinary Coursework

Develop interdisciplinary courses that leverage A&M and external partnerships.

2.1 Promote integrated collaborative pedagogy among COSC faculty to promote transformational teaching and learning experiences.

- Develop coursework that links theory, practice, critical thinking and communication skills.

2.2 Create interdisciplinary course(s) at the undergraduate and master's levels.

- Establish a committee of interested faculty, staff, and students.
- Explore faculty interest from programs within the College of Architecture, College of Engineering, and Mays Business School.
- Create a pilot course and refine it based on results.

GOAL 3. Offer Transformational Learning Opportunities

Provide a hands-on curriculum that responds to changing industry conditions to best prepare students for the world in which they will work.

3.1 Review the existing undergraduate curriculum to ensure that our program delivers cutting-edge knowledge and meets evolving technology and construction industry challenges.

- Research offerings at peer institutions.
- Seek input from industry partners.
- Monitor industry trends and emerging technology and modify courses as appropriate.

Pillar I: Deliver on Our Core Research and Teaching Mission

3.2 Use current resources to increase experiential learning opportunities within existing undergraduate and graduate courses.

- Devise and offer summer hands-on experiences to Freshmen and Sophomore students.
- Expose students to more diverse sub-sectors beyond commercial and residential construction.
- Leverage existing infrastructure-enabled classrooms.

3.3 Develop new experiential learning opportunities at the undergraduate and graduate levels.

- Promote research opportunities for undergraduate students.
- Explore opportunities to use A&M campus construction projects and RELLIS facility as teaching/learning labs.
- Support and train teams for local, state, and national competitions.

3.4 Maintain and strengthen study abroad programs.

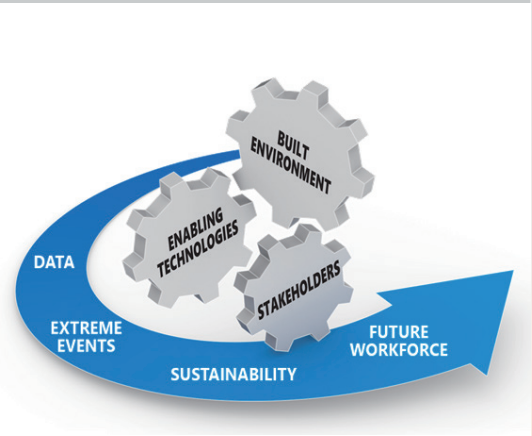
- Grow the program in visibility and prominence by implementing a dynamic public outreach plan.
- Enhance departmental program support by diversifying funding sources.
- Facilitate and coordinate wider faculty participation.
- Maintain stronger relations and communication with student advisors.
- Attend international conferences to present transformational learning benefits.

3.5 Maintain and strengthen facility management minor program.

- Grow to offer an interdisciplinary learning environment by proactively reaching out to students with diverse backgrounds.
- Monitor the latest industry FM trends while seeking direct input from industry practitioners.
- Provide transformational learning benefits to students by engaging in industry trends and evolving technologies, along with the possibility to expand the program with new FM elective courses.
- Promote FM Research Experiences for Undergraduates (REU) and disseminate REU outcomes through prominent international conferences and journals.

COSC Transformational Learning Practice

Pillar I: Deliver on Our Core Research and Teaching Mission



COSC Research Convergence Theme

FACULTY AND RESEARCH

As a Tier 1 University, Texas A&M is dedicated to its mission of discovery, development, and dissemination of new knowledge through world-class research with high societal impact. The Department of Construction Science (COSC) has a strong track record of contributing to this mission. Since 2017, with new strategic faculty hires, COSC faculty have produced high-impact research leading to transformative inventions and the integration of research with teaching. COSC faculty tackles real-world problems through convergent research and scholarly activity at the intersection of the built environment, enabling technologies, and stakeholder needs and quality of life, while addressing challenges associated with data and information systems, extreme events, sustainability, and future workforce development. In 2019 alone, our faculty secured an enviable $3.51 million in research funding from more than 40 external grants. Currently, nine faculty hold editorships with top-tier journals. Over the next five years, we are committed to expanding our impact by supporting the transformative research of our faculty and students. We will continue to create knowledge that advances the collective understanding of imminent investigative frontiers in construction science, education, and management domains.

GOAL 4. Harness Existing Research Strengths

Produce world-class research that contributes to the theoretical and practical aspects of Construction Science.

4.1 Build a nationally acclaimed Ph.D. program to begin Fall 2022.

- Secure approval for the program from the college, university, and state.
- Ensure a broad base of faculty support for the program with consistent and transparent communication at all levels.
- Create cutting-edge programs and course-specific learning objectives that inform curriculum development.
- Recruit high-caliber doctoral students who demonstrate technical and professional excellence.

4.2 Promote interdisciplinary activities and improve visibility and prominence.

- Develop opportunities for intellectual cross-pollination among research and Academic Professional Track (APT) faculty.
- Incentivize interdisciplinary research projects across the university, college, and department research units.
- Host an annual international research conference to foster collaboration and improve department visibility and prominence.

Pillar I: Deliver on Our Core Research and Teaching Mission

GOAL 5. Attract and Retain Top Faculty

Attract top faculty and create and sustain a thriving research culture where all faculty members are productive, supportive, and engaged. Provide faculty with the resources they need to be successful.

COSC Research and Faculty Highlights

Faculty

41

T/TT Faculty

- 3 Professors
- 8 Associate Professor
- 4 Assistant Professor

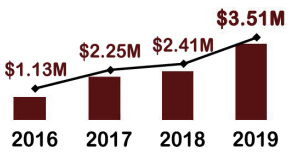
APT Faculty

- 4 Instructional Professors
- 13 Senior Lecturers
- 9 Lecturers

Research Funding

$ 9.30 M

in the last 5 years



COSC Research Funding

4.3 Create a major research center that serves as a global network.

- Facilitate research collaboration and education activities among research and APT faculty.
- Target major federally funded centers to further expand research expenditures.
- Develop tools and data that help our partner industry practitioners.

5.1 Balance the number of tenured and tenure-track faculty.

- Identify strategic research areas and focus on new faculty searches in those areas.
- Develop a strategic hiring plan to attract and retain qualified tenured and tenure-track applicants.

5.2 Leverage APT faculty capabilities.

- Develop a strategic hiring plan to attract qualified APT faculty.
- Provide professional development to retain APT faculty.

5.3 Support teaching and increase research and scholarly productivity.

- Create summer internship programs for tenure-track faculty members.
- Sponsor faculty development related to new technology tools and expertise.

5.4 Develop and communicate a transparent performance evaluation process.

- Define research and outline what is counted and how it is measured.
- Develop and communicate guidelines for annual performance reviews.

Pillar II: Build for the Future

INNOVATION AND GROWTH

The construction industry of the future will face increasing technology and human capital challenges. Our department can best position itself to address these forces by combining traditional and non-traditional growth strategies. While we will seek innovative ways to address our on-campus space constraints, we must also think more creatively about ways to expand our footprint both geographically and virtually.

GOAL

6. Expand Physical and Technological Infrastructure

Meet research and teaching challenges through additional investment.

6.1 Develop space and resources for teaching and research outside of Francis Hall.

- Explore the expansion of Francis Hall.
- Secure new faculty offices and lab space outside of Francis Hall.

6.2 Regularly upgrade our software, hardware, audio/visual technology, and multimedia offerings and incorporate these into teaching and learning activities.

- Explore the renovation of BIM CAVE.
- Identify core classrooms and upgrade those with state-of-the-art teaching and learning technologies.
- Upgrade classrooms equipped with a remote teaching platform.

Cutting-Edge Virtual Reality (VR) Demonstration inside BIM-CAVE Housed in Francis Hall.

GOAL 7. Prioritize Online Delivery

Develop our online program to improve access, especially to non-traditional students.

7.1 Develop online programs.

- Design online experiences to meet students' needs and interests.
- Identify classes where online delivery is appropriate and feasible.
- Recruit and incentivize current COSC instructors who are willing and able to teach in an online environment.
- Invest in the technology needed for optimal student and instructor experience.
- Develop online Master's program or option.

7.2 Invest resources to support online delivery.

- Leverage existing learning management systems and subject matter experts to set up initial classes and learning features.
- Procure all required technical equipment.
- Provide training for faculty and technical support staff.

7.3 Develop high-quality on-the-job videos to serve as learning tools.

- Involve local communities or on-campus projects that are within reach.
- Promote intellectual collaboration with industry experts and community representatives.

Pillar III: Champion Diversity, Inclusion, and Excellence

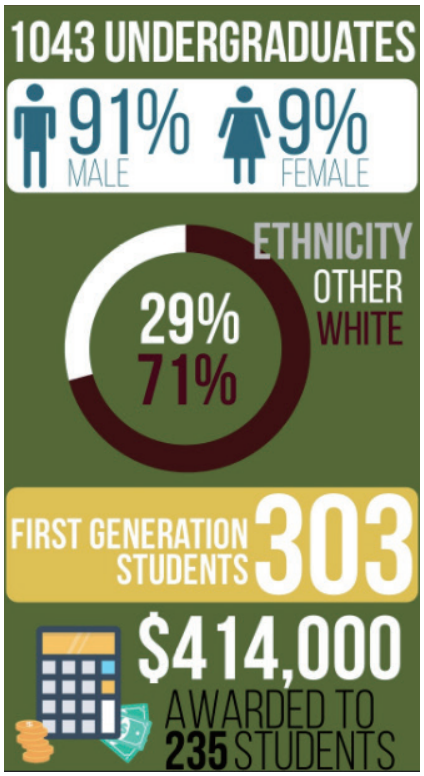
GOAL
8. Increase Diversity and Inclusion Across Construction Science

Create and sustain a diverse and inclusive environment for students, staff, and faculty.

THRIVING TOGETHER

It has been said that "the face of Texas reflects the face of the world." Indeed, the diversity across our state is more than a fact to be celebrated, it is a resource to be leveraged. Research has shown that diverse cross-functional teams lead to more innovative solutions and better outcomes. A diverse body of students and faculty enables transformational learning and transformative research by creating cross-pollination effects with peers who offer distinct ideas rooted in their different backgrounds. These kinds of experiences are invaluable because they equip students and faculty with the skills they need to succeed in a highly imbricated world. We recognize the many benefits of diversity in academia, and in the next five years are committed to further diversifying our body of students and faculty. We will grow to better reflect the face of Texas, a place where all are welcomed, valued, and have the opportunity to thrive.

COSC Undergraduates Highlights



8.1 Champion diversity and inclusion in all departmental activities.

- Acknowledge and honor our existing diversity.
- Actively support diversity of thought and practice among students, staff, faculty, and industry partners.
- Develop programs that enhance inclusivity at all levels within the department.

8.2 Align recruitment, admissions, and retention activities to enhance access and diversity in our undergraduate and graduate student population.

- Secure industry-sponsored scholarships for non-traditional, first-generation, and underrepresented students.
- Recruit high-achieving graduate students by working together with the Alliance for Graduate Education and the Professoriate (AGEP) honors program.

Pillar III: Champion Diversity, Inclusion, and Excellence

GOAL
9. Cultivate a Climate of Excellence

Develop a welcoming professional environment where students, staff, and faculty can thrive.

9.1 Encourage and provide financial support to faculty and staff for professional development opportunities.

- Identify individual development objectives related (but not limited) to leadership, technology, tools, teams, and communication skills.
- Acknowledge and reward professional development in the annual review process.

9.2 Create a culture that values mutual support and sharing.

- Connect APT with research-active faculty.
- Organize opportunities for APT and research faculty to present to one another.
- Create programs for faculty to share teaching and learning best practices.

COSC Undergraduate Program by the Numbers

Pillar IV: Reach Beyond Francis Hall

CONNECTING TO SUCCESS

The true measure of our department's success is our lasting impact on the construction industry. We affect the workplace in the short term by providing a reliable source of job-ready graduates from our undergraduate and master's programs. Over the long term, our COSC graduates positively impact the profession by leading with integrity and tenacity. Research output from our faculty and doctoral candidates provides a basis for industry innovation that has wide-ranging influence. While our efforts might coalesce in the physical space of Francis Hall, our effect is predicated on a mutually beneficial relationship with our industry partners and constituents in Texas and beyond.

GOAL

10. Strengthen Industry Partnerships

Strengthen our construction management industry partnerships in ways that mutually benefit the industry, our students, our faculty, the department, the College of Architecture, and Texas A&M.

10.1 Strengthen robust industry connections to ensure strong student employment opportunities and financial support.

10.2 Regularly seek input from Owners, Architects, Engineers, and Construction (OAEC) professionals and CIAC sector advisors regarding changes to the curriculum.

GOAL

11. Tell Our Story

Effectively communicate our accomplishments to the world to attract faculty, students, and financial support.

11.1 Market our department's accomplishments. Determine what sets us apart from all other Construction Science programs and champion that to the world.

11.2 Promote a positive image of the construction industry.

11.3 Engage in strategic development activities targeted at departmental priorities.

ACKNOWLEDGEMENT

This strategic plan was developed over nine months. It was led by the Construction Science Strategic Plan Steering Committee (COSTCO), the members of which are listed below. This plan is the result of a Strengths, Opportunities, Aspirations, and Results (SOAR) summit held on February 20, 2020, that was attended by more than 70 participants. These participants were challenged to dream big, imagine our future, and determine our areas of highest priority for the years ahead. For this summit, the COSTCO gathered department-, college-, and peer-level data on research, teaching, and the industry. Based on the information collected, three infographics were developed that explain where we rank in relation to our peers. The department head's vision was also enthusiastically incorporated into this plan. The invaluable participation of faculty, staff, students, and industry partners is greatly appreciated.

Chair

Kunhee (K.C.) Choi

Associate Professor
Cecil Windsor Endowed Professor
Associate Department Head

Process Consultant

Mary Léa McAnally

PWC Professor
Department of Accounting
Mays Business School

Members

Edelmiro Escamilla

Associate Instructional Professor

H. David Jeong

Professor
James C. Smith CIAC Endowed Professor

Hernan Guerra Santos

Senior Lecturer
Industry Relations Coordinator

Jonathan Houston

Senior Lecturer

Patrick Suermann

Associate Professor
Department Head

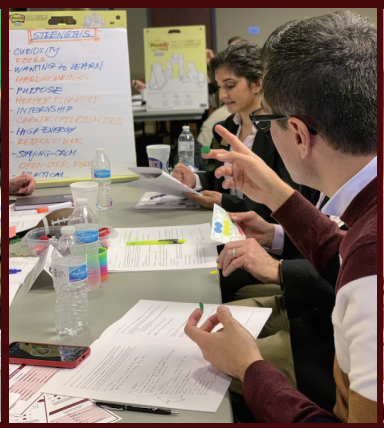
Shelley Smith

Undergraduate Program Director

Zofia Rybkowski

Associate Professor
Harold Adams Interdisciplinary Professor

THANK YOU



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TEXAS A&M UNIVERSITY

3137 TAMU | College Station, TX 77843-3137
cosc.arch.tamu.edu