



TEXAS A&M UNIVERSITY

Construction
Science

A construction site with a large piece of machinery, possibly a crane or excavator, being worked on. A worker in a yellow hard hat and safety vest is in the foreground, and a group of people in safety gear are in the background. The sky is overcast.

2016-17
CONSTRUCTION INDUSTRY
ADVISORY COUNCIL

Biennial Report



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TEXAS A&M UNIVERSITY

Construction Science



On the cover:

A general superintendent for Kiewit explains dragline use to a group of Texas A&M construction science students during a Fall 2017 field trip to the company's Walnut Creek Mine in Robertson County, Texas.



“Many lofty goals were set and achieved with the last and finest being Francis Hall as the new home for construction education at Texas A&M University.”

— Dave Fleming
CIAC President
2016 -17

The opportunity to serve as the president of the finest industry advisory board in the construction industry has been a very rewarding experience. From my initial involvement in 1999 with the start of this outstanding organization, it has been a privilege to work with some of the finest leaders in the construction industry. At the Spring 2017 Scholarship and Awards Banquet, we honored those whose visions set the course for what we enjoy today. As the leadership is turned over to a new generation of construction professionals, it is important to look back at just a few of the Construction Industry Advisory Council's major impacts on the construction science program.

Many lofty goals were set and achieved with the last and finest being Francis Hall as the new home for construction education at Texas A&M University. We can be very proud as an organization for the key role that the CIAC played in each step of the process from the initial vision to the ribbon cutting ceremony.

The membership growth from the initial 54 companies in 1999 to 197 at the end of 2017 has provided over 85% of all internships and entry level jobs for COSC students each semester with an ever widening diversity in career options. Based upon the latest ENR ranking of top contractors in Texas and Louisiana, 8 of the top 10, and 37 of the top 50 companies are CIAC members. The best companies having priority access to top students remains one of the primary benefits of a CIAC membership.

Beyond the impact of a new home and outstanding job placement, our organization continued its contribution to the growth in the number of endowed matching scholarships with the addition of 17 new scholarships and increases to two existing ones. From our initial 10 scholarships created in 1999, 87 scholarships now exist through the CIAC endowed matching program providing funding to over 100 students at the most recent awards ceremony,

With the achievement of our initial goals, it was time to provide a new vision for the young leaders that have accepted the challenge of guiding the CIAC. The 12 goals contained in the “CIAC Commits into the Future: The 12th Man of COSC” will continue to serve our organization as the “Gold Standard” for industry support. The leadership of this effort could not be in finer hands than Jeremy Stovall's who has been a tireless and selfless servant over the years.

For the past ten years it has been a pleasure to work with Joe Horlen in his roles as department head and executive director. We owe our sincerest appreciation for what Joe provided through his steadfast determination and professionalism. I feel a personal level of gratitude for his willingness to serve an additional two years during my tenure as president. And finally, after a search that had applicants respond from five different continents, we welcome our new department head, Dr. Patrick Suermann, PE (USAF Ret), into our future plans and hand off to him and Jeremy what I think is “The Greatest Construction Management Program in the World.”

Joe, a job well done. Gig'em.

Dave Fleming, CIAC President

Letter from the Department Head/Executive Director

While completing my Master of Construction Management in 2002-2003, I had the great fortune to study under, and be mentored by, two outstanding construction professionals, Professors Jim Smith and Joe Horlen. It is an honor and privilege to follow in the footsteps of these great leaders and serve as department head of the finest program of construction education in the nation. Jim Smith created the Construction Industry Advisory Council (CIAC) and it has grown in both size and diversity. Most recently, our reaccreditation team, which visited in October 2017, named the CIAC as one of the key strengths of our program. In reviewing our program, a strong industry focus is clearly evident in our curriculum, faculty, job placement and student support. Were he alive today, Dr. Smith would be happy to see we are crescendoing towards 200 members in 2018.

Under Joe Horlen's leadership from 2007-2017, the growth of our industry support was equaled by the increased size and diversity of our students and faculty. Boasting the largest number of military veteran students of any department on campus is but one of our key areas of diversity. Additionally, we have many nontraditional students, first generation students, and are working to attract more historically underrepresented demographics to our department. Thanks to Joe, our program has a world class, state of the art home in Francis Hall that we hope all our former students and industry partners have a chance to visit. We will never forget the generosity of your donations that helped us achieve what the accreditation team called "the envy of every other school in the nation" in the completion of Francis Hall.

I want to compliment our Industry Relations Office. George Eustace and Kelli Burns are always working hard to do their best for our industry and students. Our CIAC career fair last fall was my first opportunity to see the tremendous impact of our industry support first hand with 165 companies vying to hire our graduates and interns, as well as give our younger students summer jobs. Our students are truly blessed to have a near 1:5 company to student ratio with 90% of all entry level jobs and internships being with one of our industry partners.

Going forward, our challenge is to further enhance what Jim and Joe established. If you distill our program down to its very essence, it is teaching, research, and service. I am proud to carry on Jim and Joe's legacy while preparing us for continued success in the future with respect to rigorous teaching, strong research, and tireless service.

Lastly, my sincerest appreciation goes to Dave Fleming for his excellent leadership of the CIAC, and his personal time and energy in support of the College of Architecture, as well. We will benefit from his vision with the goals contained in the "CIAC Commits into the Future: The 12th Man of COSC". Jeremy Stovall of Brookstone takes the reins from a program poised for a bright and successful future, thanks to the hard work and dedication Dave Fleming contributed for the past two years.

Patrick Suermann, PE, Ph.D.
Department Head and CIAC Executive Director



"I am proud to carry on Jim and Joe's legacy while preparing us for continued success in the future with respect to rigorous teaching, strong research, and tireless service."

— Patrick Suermann
Department Head,
CIAC Executive Director

A SALUTE

Joe Horlen's vision, leadership significantly advance construction science department

In 2017, the faculty, staff and students of the Construction Science Department bid farewell to Professor Joe Horlen ending one of the longest tenures as department head. After a normal eight-year term of service and at the request of the department's industry partners, he agreed to continue for an additional two years to achieve the final goal of a new home for construction education at Texas A&M with the renovation of Francis Hall. This lofty goal was made possible by the outstanding support provided by the members of the Texas A&M Construction Industry Advisory Council.

Upon assuming his leadership role in 2007 after six years on the faculty and two years as associate department head, Professor Horlen had the vision to enhance and expand the support that the CIAC has provided to the department since its inception in 1998. His first decisive step was the creation of the department's Industry Relations Office (IRO) with a full-time faculty and staff member to provide CIAC members with a responsive point of contact for all industry related concerns



Professor Joe Horlen lead the Department of Construction Science through ten years of extraordinary growth that included the expansion of CIAC and the renovation of historic Francis Hall, the department's award-winning, state-of-the-art Texas A&M campus headquarters.

and questions. The IRO was also tasked to coordinate all industry related event planning, and to facilitate interaction between the faculty and the CIAC membership.

Today, the IRO is the only department-level office of its kind on the Texas A&M campus, and is charged with the "care and feeding" of the CIAC members, conducting a career fair event each semester for the CIAC members, and managing an internship program that is placing 90% of the 300 students annually with CIAC members.

As a result of these initial efforts, Professor Horlen set into motion the

efforts that would grow the memberships in the CIAC from 97 to 197 member firms. In response to this membership growth and the industry demand for both interns and graduates, the level of company participation in the CIAC career fairs rose from 60 companies to 167 companies. The steady growth in career fair participation required the relocation of the event from Langford Hall to its current home at the Brazos County Expo Center. As a result of this growth, the CIAC career fair is the largest department-level career fair on the Texas A&M campus.

The increased CIAC membership fos-

tered by his efforts also resulted in the largest increase in the number of and value of industry related scholarships awarded each year. The financial support that is so impactful on a student's academic success increased from 106 to 235 in number and from \$140,000 to \$444,800 in value, due largely to the number of CIAC matching endowed scholarships.

Other industry-related events set in motion under Professor Horlen's leadership include a CIAC tailgate event each fall, hosting of CIAC members with a "Company Day" program, and a field trip day for over 400 students each semester.

While each of the industry-related events and achievements are impressive, Professor Horlen's crowning achievement was his personal efforts in attaining one of the CIAC's original goals, a new home for construction education at Texas A&M.

When the university announced in March 2011 it was accepting proposals from departments interested in assuming responsibility for the renovation and occupancy of Francis Hall, Professor Horlen wrote the winning proposal that included a commitment to cover the full project costs that were in excess of the funds needed to address the deferred maintenance issues. Having completed a feasibility study for the funds needed for a new building in 2008, Professor Horlen was confident of the level of financial support available from the department's industry partners. Once his proposal was accepted in July of 2011, Professor Horlen set in motion a shared vision to go above just a minimal building upgrade, and instead create a modern, start-of-the-art educational facility by personally raising

roughly \$5 million of the estimated \$10 million cost within a four year time frame. He gained commitments for the project from a large population of former and current students, and industry partners by visiting with donors, making presentations and developing gift agreements. In the process he put more than 30,000 miles on his personal truck driving across Texas.

Professor Horlen's efforts did not end with the fund-raising effort, as he earned an honorary "project manager" certification by personally guiding each step of the planning, design, construction, and occupancy of the building. He experienced firsthand the delays and

unforeseen conditions common to renovation of a historic structure, but used sound judgment, wisdom and dedication to overcome each challenge for the timely, within budget completion of the project.

As a result of his personal efforts from proposal preparation to ribbon cutting, classes in Francis Hall started on January 17, 2015, less than 4 years from the "green light" to proceed with the project.

"Without Professor Horlen's leadership and vision, starting with the creation of the Industry Relations Office," said George Eustace, the department's industry relations coordinator, "this wouldn't have happened."



Four years after the Francis Hall project was approved, Joe Horlen presided over the January 2015 ribbon cutting ceremony with students, faculty, staff, and a host of dignitaries.

About the Construction Industry Advisory Council

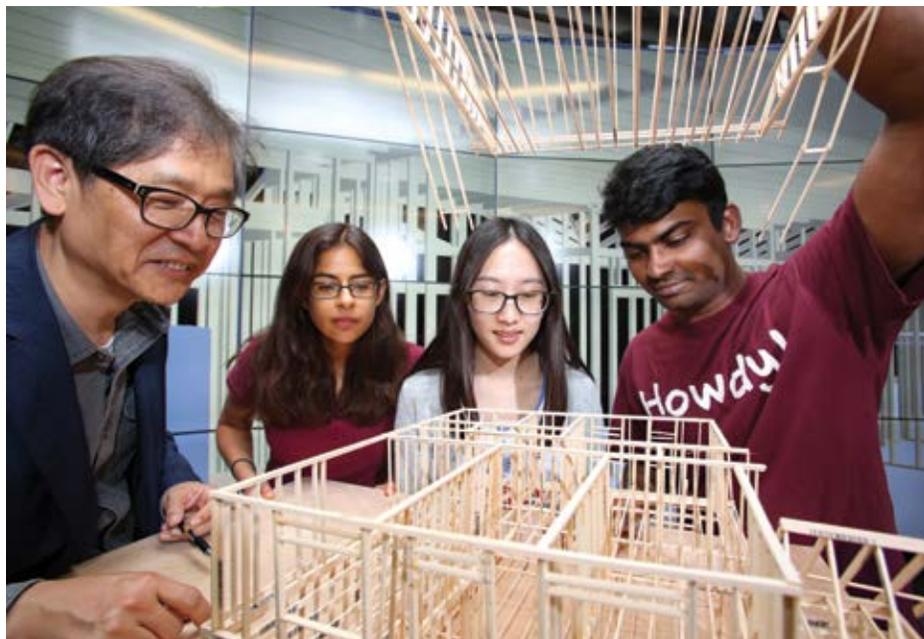
Objectives

The Construction Industry Advisory Council has maintained a commitment to the objectives contained in its by-laws and has been an integral part of the Department of Construction Science at Texas A&M University since its formation in January 1998,

The program of construction education at Texas A&M University maintains its top national ranking among the 73 four-year baccalaureate programs accredited by the American Council for Construction Education (ACCE) with the real world experience that CIAC members provide to the Texas A&M program that advances all aspects of teaching, research and service.

During 2016-2017, the CIAC member companies enhanced the construction education program at Texas A&M by providing 90% of all professional internships and jobs for students. These high numbers of interns and jobs illustrate how CIAC members compete to hire Aggie Constructors by taking advantage of their booth at the fall and spring career fairs, hiring interns, and offering the intern a job prior to graduation.

The presence of council members on campus provides opportunities for active participation, cooperation and coordination between members, faculty and students that increased the quality of the classroom education and internships. Priority access to students is provided by CIAC member involvement as guest speakers, class sponsors, and as internship, field trip and scholarship



Julian Kang, associate professor of construction science and holder of the History Maker Homes Professorship, examines a home model in the BIM CAVE.

providers throughout 2016-2017. The presence of CIAC member companies in Francis Hall was enhanced in 2016 with the scheduling of a "Company Day" program with a space provided for meeting with students, and opportunities to visit classes throughout the day.

CIAC By-Law objectives include:

1. Promoting and improving the construction profession by education and development of the body of construction knowledge.
2. Advancing and supporting the highest quality faculty, educational facilities and

undergraduate and graduate programs for the students enrolled in the Department of Construction Science.

3. Providing liaison between the construction industry and the Department of Construction Science.
4. Developing and implementing innovative programs benefitting the Department of Construction Science, its students and the construction industry.
5. Offering advice and counsel and providing vision for the Department of Construction Science through the active participation of the construction industry.

Governance

CIAC is governed by a set of by-laws that defines principles, policies and procedures that guide this organization made up of 197 business entities, 13 associate members, 45 lifetime individual members, 7 emeritus members, and 9 annual individual members with an annual budget of over \$500,000. The increase in the number of associate members was in response to the creation of a minor degree in facility management and participation by facility management focused trade and professional associations and organizations.

A copy of the by-laws is available on the Construction Science Department's web site at: cosc.arch.tamu.edu/industry.

The majority of the CIAC's affairs and business are conducted through standing committees whose chairs are appointed from the council membership by the Executive Committee.

The president presents the slate of chairs of each committee for the next two calendar years at the fall meeting of each odd numbered year for council approval. The chairs serve for two years beginning January 1 of the next year. The following standing committees are appointed:

1. Budget: The purpose of this committee is to prepare the proposed annual budget for consideration by the full membership. This committee also monitors expenditure of funds from the CIAC account to ensure that expenditures are in accordance with approved budgets.



CIAC members meet with the ACCE Accreditation team in October 2017.

2. Graduate Program Curriculum, Research and Studies:

The purpose of this committee is to provide continuous review of the Department's graduate curriculum and to foster changes where needed to promote continuous improvement, and to determine the priorities for spending CIAC funds on graduate program issues, research and studies to further the objectives of the CIAC.

3. Membership: The purpose of this committee is to promote and solicit CIAC membership, and to develop and manage a CIAC awards program providing appropriate recognition for students, faculty and CIAC individuals

and corporations.

4. Curriculum: The purpose of this committee is to provide continuous review of the department's undergraduate curriculum, and to foster changes where needed to promote continuous improvement.

5. Development: The purpose of this committee is to support and promote the fund-raising activities of the Construction Science Department.

The Executive Committee of the CIAC may appoint task forces from time to time for special purposes with time limitations as set forth by the Executive Committee.

Membership Opportunities

Memberships

CIAC By-Laws provide four categories of membership: business entity, emeritus, associate, and individual.

- **Business Entity Members**, are industry sponsors who pay annual dues of \$2,500. In turn, the companies are entitled to designate two representatives of the business entity to participate in the council's activities. Business entity members are listed on pages 33 - 35.
- **Emeritus Members** are constructors who have distinguished themselves in some aspect of construction and whose expertise and participation are valuable assets to CIAC membership. This is a special category of membership that is approved by the Executive Committee to recognize these very experienced individuals. The member is invited and encouraged to participate in all council activities. Emeritus Members are not required to pay dues, and are non-voting members of the council. Emeritus Members are listed on page 33.
- **Associate Members** are representatives of professional industry organizations (AGC, ABC, TCA, TEXO, ACCE, IFMA, CMAA, BOMA, and HCA of S.A) that are invited by the Executive Committee to be members of CIAC and participate in council events. Associate Members,

in deference to their significant association contributions to the Department of Construction Science, are not required to pay dues, but may vote on CIAC issues. Associate Members are listed on page 35.

- Individual Members are construction industry representatives who desire to support the department and participate in CIAC activities and meetings. Although many are graduates of the Department of Construction Science, membership is open to non-graduates. There are two levels of Individual Membership: Annual and Lifetime. While all Individual Members are invited to participate in CIAC activities and meetings, only Lifetime Members may vote on CIAC matters. Individual Members are listed on page 35.

For additional membership information or to join, contact the Department of Construction Science at 979.862.7354 or by mail: Construction Science Department / Industry Relations Office – CIAC / 3137 TAMU / College Station, TX 77843-3137.

Web: cosc.arch.tamu.edu/industry

The CIAC conducts its regular business meetings each fall and spring semester in College Station, Texas. An agenda for each business meeting is prepared with a full slate of events for the discussion of important funding, curriculum,

development, membership and research issues. The Executive Committee, consisting of the president, vice president, committee chairs, and executive director and past presidents, meets the day prior to the full membership meeting to review the agenda to ensure all important pending issues would be effectively addressed.

Summer informational meetings are held in Houston, Dallas, Austin, San Antonio and Harlingen to update members on the status of strategic plans, academic performance and key assessment factors.

Support to the CIAC membership is provided by the Industry Relations Office (IRO) located in the Construction Industry Advisory Council Industry Relations Suite, Room 216 in Francis Hall. The IRO is the only such department-level office on the Texas A&M campus and was created in 2007 by Professor Joe Horlen when he began his service as department head and executive director.

The IRO is staffed with a faculty member who serves as the Industry Relations Coordinator, and an administrative staff member. Together, the IRO team provides responsive support to the CIAC members, conducts the career fair events, and manages the department's internship program.

In addition, the IRO handles all industry related events such as tailgates, banquets, field trips, meetings, guest speakers, greeting prospective students and parents, and company days.

Executive Summary

Meeting agendas are provided to the CIAC members prior to each meeting. The minutes for the Executive Committee and the full council meetings are recorded and distributed to the membership after each fall and spring semester meeting. The initial agenda item for each CIAC meeting is a department and program level issue that each separate committee addresses and provides industry insight and perspective on.

Copies of the CIAC meeting minutes with more detailed information on the meetings can also be viewed at: cosc.arch.tamu.edu/industry/meetings

Summaries of the program and department issues that were addressed in the full council meetings during 2016–2017 are provided as follows:

April 2016 — President Dave Fleming, Sundt, assumed his leadership role and opened the meeting expressing his appreciation for those in attendance and their continued support of the program as industry partners. He introduced Jim Thompson and Harold Adams as special guests and spoke of their efforts in advancing the creation of a leadership minor. Mr. Thompson and Mr. Adams related their personal stories and professional experiences that formed the basis for a new leadership program based on the “Eight C’s” leadership skills of character, communications, creativity, competition, competence, collaboration, courage and community. The first in a series of three classes was scheduled for fall 2016.



A research paper by Mohammad Reza Farzad, left, a Master of Construction Management student, earned Best Student Paper Award at an April 2016 Conference on Architecture and Civil Engineering in Singapore. Two additional graduate students, Yunkun Cai, center, and Sachin Singh, right, also presented papers at the conference.

Professor Joe Horlen reviewed the meeting agenda and provided direction on the desired outcomes of the committee meetings as well as the student focus group meetings. He highlighted the achievements reflected in the 2014-2015 CIAC Report that were among the goals and objectives set by the CIAC when formed in 1999.

One of the major achievements was a new home for the department in Francis Hall, an award winning project for the restoration and renovation of an historical building. A new goal that was put forth was an endowed chair with matching funds available from Texas

A&M University. A new distinction for the department was having the largest number of veterans than any department on campus.

Professor Sarel Lavy updated the membership on the new facilities management minor, and cited the need for support of the required internship that is separate from the construction related internship required in the COSC degree plan.

Professor Larry Fickel encouraged the membership to contribute to the COSC Assistance Fund that was initiated in 2010,

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2016-17 Meeting Summaries

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and cited examples of how the funds have been used to help students overcome unexpected financial needs.

The CIAC membership was introduced to the Aggie BUILD project by Martin Montgomery, COSC '16 who gave a history and overview of the projects completed with the assistance of COSC students, and the ongoing need for funding support.

October 2016 — Dave Fleming welcomed the CIAC members present and introduced Dean Jorge Vanegas who extended his greetings and appreciation to the CIAC for its longstanding and outstanding support for construction education at Texas A&M University.

Dean Vanegas introduced Professor Elton Abbott, associate dean for international programs and initiatives, and chair of the Construction Science Department Head Search Committee. Professor Abbot addressed the group and explained the committee's membership, formation and the strict search process to be followed. Applications were being received and reviewed using established applicant evaluation criteria. It was stressed that the search process was not secret, but was confidential. Applicants can reveal to others that they have applied for the position, but otherwise their identities would be held in confidence.

Joe Horlen updated the membership on the changes in faculty through retirements and new hires, the fall 2016 student enrollment numbers, and the demographic and academic information



Buses loaded with of upper level Texas A&M construction science students fanned out across the state Nov. 2016, setting a departmental field day record while providing students with firsthand views at the latest construction, material production and manufacturing practices.

for freshmen, change of major and transfer students. Admissions are higher and more competitive as the enrollment approaches 1,000 students with 300 graduates annually. Recruitment of high school students is being achieved with eight summer camps with 216 students participating.

For the first time, the CIAC meeting included faculty focus group meetings with the various committees, an opportunity for those faculty members hired since 2014 to gain input from CIAC members as well as express the faculty members' goals and observations of the

academic climate in the department.

Four COSC students from the summer 2016 study abroad program in the United Kingdom explained their work on the Constructionarium project by discussing the project team's organization, schedule, safety and estimate. The project was helpful in combining the team's classroom lessons with hands-on field experience.

Larry Zuber, assistant vice president for development, updated the members on the status of the university's "Lead by Example" capital campaign that began in 2012 and will end in 2020 with a goal of \$4 billion. The College of Architecture goal is

\$30 million with \$14.4 million accounted to date. To date the Department of Construction Science is well ahead on achieving its portion of the college goal with \$6.1 million donated of which Francis Hall was \$3.4 million.

April 2017 — A highlight of the spring 2017 meeting was Dean Jorge Vanegas's introduction of Dr. Patrick Suermann, PE, as the next department head for the construction science department. He commended Dave Fleming and Jeremy Stovall for their selfless service and contributions as members of the department head search committee

Dean Vanegas also expressed his appreciation to Professor Joe Horlen for his excellent leadership over the past 10 years with increases in the number and excellence of students and faculty, and the noted improvements in teaching, service and research.

Dr. Suermann expressed his excitement with returning to Texas A&M and assuming the role of department head. Dr. Suermann spoke on his vision with a focus on collaboration, resources, communications and accomplishments with the establishment of proper priorities while being bold and impeccable. He pledged to continue the balance of quality with quantity in guiding the largest program of construction education in the nation.

Professors Gary Boldt and Larry Fickel presented the work of the two fifteen-member teams that participated in the Constructionarium in the United Kingdom over the spring break. A total of 50 students have participated in this



Prior to taking the helm of the Department of Construction Science September 2017, Department Head Patrick Suermann spent 20 years in the U.S. Air Force leading large-scale construction projects and earning awards as an educator.

program. The student teams learned to work together as leaders emerged and problem solving skills were developed.

Boldt and Fickel also updated the members on the new Leadership Minor in the Design and Construction Industry that will be graduating its first group of fifteen students. The contents of the three required classes for the minor were described. The first course will focus on the basics of leadership types and theory following by a course in which students learn about themselves and develop personal core values. The concluding course will require each student to produce a personal development plan. CIAC members were encouraged to be guest speakers in the classes.

Dave Fleming concluded the initial morning session by explaining to the

members the process and basis for the development of the "12 Goals in 12 Years" that were in draft form and to be discussed during the committee meetings. The expectation was that the committee discussions would amplify and refine the document by addressing: "What is here?", "What is not here?" and "What needs to be added or revised?"

Following the committees' discussions of the "12 Goals in 12 Years", student focus group meetings were conducted.

October 2017 — The meeting welcomed and recognized special guests that were in town as nominees for the "Aggie 100" award for 2017. There were 20 former students from the College of Architecture

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leading “Aggie 100” firms, with 13 of the former students being COSC graduates.

Dave Fleming introduced Dean Jorge Vanegas who extended his greetings and appreciation for the outstanding support that the CIAC provides to the Construction Science Department. He noted the increased level of collaboration, as well as the high standards the CIAC sets as a model industry advisory board. He expressed his pride in the positive comments from the visiting accreditation team from the ACCE that just completed the reaccreditation review of the COSC program. He acknowledged the department’s success in attracting a stellar cast of research faculty members.

Dave Fleming discussed the goals contained in the “CIAC Commits into the Future: The 12th Man of COSC.” A copy of the goals was provided in the meeting folders.

The slate of officers for the 2018-2019 Executive Committee was presented, along with the assignments to specific committee chairs. A motion was made, seconded and approved for the proposed slate of officers. The Executive Committee is Jeremy Stovall, Brookstone, President; Matt Summerville, Brandt, Vice President and Budget Chair; Lauren Rossman, Kiewit, Membership Chair; Brent Ballard, Marek Brothers Systems, Curriculum Chair; and Leland Rocchio, Jordan Foster Construction, Graduate Program and Research Chair.

Pat Suermann addressed the meeting expressing his goals as department head to honor the past and build on



Martin Montgomery, COSC '17, director of operations for the student organization BUILD, receives a \$25,000 donation from the Construction Industry Advisory Council to fund his group's conversion of a shipping container into a mobile medical clinic. On hand for the presentation were Michael K. Young, president of Texas A&M University, Jorge Vanegas, dean of the College of Architecture, Dave Fleming, CIAC president, and Joe Horlen, head of the Department of Construction Science.

the future. He will be visiting other peer programs of construction education to gain a broader perspective of how other programs pursue excellence. He summarized the findings from the ACCE reaccreditation visit with six noted strengths, and three areas needing slight refinements. He shared his first impressions as department head from his visits with each faculty and staff member and his observations of classes. He asked for the industry’s input for providing transformational learning to place the best prepared graduates into the industry.

The department is moving in the right direction from the leadership of Joe Horlen. He announced that the construction cost for Francis Hall has been paid off as of September 2017, and an endowed account has been established for future maintenance needs. He announced a search for non-tenure track faculty was underway, and asked for the industry’s help to encourage construction professionals within their

industry networks to consider applying for a faculty position.

Professor Amir Behzadan, associate professor and director of research, updated the members on the new research faculty and their primary areas of research. He expressed his appreciation for CIAC member support of the department’s research efforts by partnering to provide access to data with assurances that such data collection would be with the highest regards for safety and the privacy of the information. The department will be targeting more federal research funds from specific agencies as the department seeks to create a brand with six major research clusters. The research faculty will be reaching out to the CIAC to learn of specific industry research needs.

Matthew Doherty, Operations Team Leader, with the Aggie BUILD updated the members on the organizations efforts, and presented their plans for continued development of mobile medical clinics

using standard shipping containers. Alternative designs for mobile units in support of veterinary and dental services are being developed. He concluded his remarks by requesting continued funding support from the CIAC.

George Eustace presented an update on the three primary responsibilities of the Industry Relations Office. The CIAC membership grew from 188 to 197 companies in 2017 with greater diversity in the industry sectors. The interest in CIAC membership is being driven by a company's desire to recruit and hire construction science graduates. Despite the growth in CIAC membership and construction science student enrollment, the ratio of companies to students is at a consistent ratio of approximately one company to five students. This ratio is expected to change slightly as the COSC enrollment remains near the current 1100 level and the number of companies increases to over 200.

Eustace also explained the accounting process changes for the internship management fee to ensure invoices are properly addressed to the company's accounts payable office. Concerns over the growth of the career fairs and the available space at the Brazos County Expo Complex were explained, and the membership was asked for their ideas for addressing the growth and available space. The current configuration of booth spaces allows for approximately 180 booths.

David Fleming, Sundt, expressed his appreciation for the outstanding support he has enjoyed as CIAC president for 2016-2017.



Construction science undergraduates Ian Moss, left, and Cooper Cox, who will be Yell Leaders this fall at Aggie sporting events, exhibit a typical yell hand signal. Moss is also the handler of Reveille, the Texas A&M mascot, through mid-April 2016

CoSci students elected Yell Leaders

The roar of Aggie fans at athletic contests during 2016-17 was led by Cooper Cox and Ian Moss, Texas A&M undergraduate construction science students who were selected as Yell Leaders by a vote of the student body.

Moss, from Southlake Texas, was already part of one of Texas A&M's most hallowed traditions as Reveille IX's handler, a post he held until April 2016, when a new handler is named.

Cox and Moss directed Aggie fans in a series of yells that begin with a variety of hand signals, called "pass backs" at sporting events, clad in the traditional Yell Leader uniform of white button-down shirts and white pants. Once the signal

was passed through the crowd, the Yell Leaders signal fans to "hump it," or lean forward with hands just above their knees and the yell begins.

Cox and Moss, along with their three fellow yell leaders, also led Midnight Yells, which took place at Kyle Field the night before home games.

The Yell Leaders attended road football games, all home basketball games, some road basketball games, and selected home and road contests of additional Aggie sporting events.

They also attended New Student Conferences, Fish Camp and additional events hosted by student and university organizations.



Students lineup at sunup to board buses bound for destinations across Texas. The Construction Industry Advisory Council hosts most of these field trips.

Budget Committee

The Budget Committee was chaired by Jeremy Stovall, Brookstone, who also served as CIAC vice president.

The CIAC's generous financial support is a major factor that enhances the educational experience of all COSC students by funding a wide variety of programs and special events each year. In accordance with established financial accountability, a third-party independent review of the CIAC financial accounts was completed for 2016 and 2017.

The annual budgets for 2016 and 2017 are provided on pages 39 and 40. The actual planned income for both 2016 and 2017 exceeded the budgeted amounts due to the continued growth in the number of CIAC members to 188 and 197 respectively.

During 2016 and 2017, The CIAC contributed \$60,000 to the Aggie BUILD student organization fully funding two complete mobile containerized medical clinics. The initial sponsorship check in 2016 was presented in a ceremony with President Young being present. The CIAC's financial contributions to the

organization's success were recognized during gala events each year.

The funds transferred into the Endowed CIAC Support Fund was increased from \$75,000 to \$100,000 in the 2016 and from \$100,000 to \$150,000 in the 2017 budgets increasing the balance in this account to \$ 505,000 at the close of 2017.

Expense line item funding was established in accordance with CIAC By-Laws for the major program areas: student enrichment, scholarships, research and studies, departmental support, and CIAC operations.

Student Enrichment

Student enrichment funds were provided by the CIAC for field trips, student competitions, graduation events, the awards banquet, and career fairs. This financial support was key to providing students with a wide variety of enhanced learning experiences.

Each semester approximately 400 upper level COSC students board commercial charter buses and travel to ten

field trip sites within a 120 mile radius of College Station. Our CIAC members host most of these field trips and thus provide an enhanced learning experience for the students. During 2016 and 2017 the following industry partners hosted field trips: Acme Brick, Balfour Beatty, Dynamic Systems Inc., Enterprise Precast Concrete, Flintco, Harvey Builders, Heldenfels Precast, Kiewit, M.D. Anderson, M/I Homes, Martin – Marietta, Meritage Homes, Nucor Steel, Pulte Homes, Satterfield & Pontikes Construction, Toll Brothers, Transwestern, and Vaughn Construction.

The construction education program continued to be represented well in the competition teams in ethics, commercial building, residential and heavy civil construction at the regional and national levels. The coaches for the competition teams were Professors Ken Williamson, Ben Bigelow, Gary Boldt and George Eustace.

Four graduate students under the leadership of Professors Zofia Rybkowski and Boong Ryoo participated in a unique interdisciplinary design competition of a

rehabilitation hospital while serving as the construction management members with architecture and engineering students from other universities.

A significant achievement was the selection of team members as the “top speakers” in their respective competitions in 2016 reflecting the program’s emphasis on enhancing the students’ communication skills as requested by our industry partners. The emphasis on written communications was also seen with Justin Lee’s third place finish in the 2017 Associated General Contractors (AGC) James L. Allhands Essay Competition national essay writing competition

Prior to graduation each semester, a hard hat ceremony is held to honor the graduates with the presentation of a personalized “Aggie Constructor” hard hat. Those students earning department-level awards for leadership and academic excellence were recognized with the presentation of a watch and their name on a permanent wall plaque. The award winners for 2016 and 2017 are provided on page 25.

The annual Spring Scholarship and Awards Banquets were held April 7, 2016 and April 6, 2017 at the College Station Hilton. Each business entity member is entitled to a table for four at this event.

The first career fair each semester is reserved for member firms only in order to provide CIAC members with priority access to construction science students. New records for the number of companies participating in the CIAC career fair continued to be set with each consecutive career fair event. A new level for participation was set at the fall 2017 event with 165 companies.



Schools team up for AIA-AAH health facility design contest

Mixed into four multidisciplinary teams composed of students from different schools and disciplines, four Texas A&M construction science students engaged in an intense, 48-hour competition to design and schedule the construction for a 13,000 sq. ft. rehabilitation hospital in March 2017.



Rybkowski

The American Institute of Architecture Academy of Architecture for Health staged the contest, the 2017 Planning Design and Construction Student Challenge, during the International Summit & Exhibition on Health Facility Planning, Design and Construction in Orlando, Fla.

For the competition, Texas A&M construction science undergraduates Shashank Singh, Nikita Baghat, Ralph Salazar and Min Ma were each assigned to a team that included an architecture student from the

University of Florida, a healthcare architecture student from the University of Kansas, and an architectural engineering student from Penn State.



Ryoo

"This arrangement is much more reflective of real life where people from different places gather to do work," said Zofia Rybkowski, holder of the Harold Adams Interdisciplinary Professorship in



Ralph Salazar, a Texas A&M student, works with teammates William Colclasure of the University of Florida and Rachael Barbush of Penn State University at the PDC (Planning Design and Construction) Student Challenge in Orlando, Florida, in March. Salazar's team won first place.

Construction Science at Texas A&M. Rybkowski and her colleague, Boong Yeol Ryoo, an associate professor of construction science, advised students competing in the Orlando event.

Because project cost was capped at \$400 per square foot and the construction window was limited to 34 months, Rybkowski said the interdisciplinary teams had to make realistic, cost-effective design and construction decisions.

"The intent was to expose students to Integrated Project Delivery and Target

Value Design, which are increasingly practiced in the design and delivery of healthcare facility projects," she said.

"The number of different perspectives you get on one problem-solving activity was a highlight for me," said Texas A&M competitor Nikita Baghat, adding that she enjoyed working with students who were taught in different ways.

Ralph Salazar, the Texas A&M student on the winning team, said their design provided "patients a soothing respite from the urban sprawl."

Scholarships

Each student's opportunity to pursue a degree, and the department's reputation for excellence are greatly enhanced by the financial support provided by CIAC members for annual as well as endowed scholarships.

The CIAC Endowed Matching Scholarship program is a hallmark for the number and value of scholarships. Since its formation in 2000, over 2,600 scholarships in excess of \$4,000,000 have been awarded to COSC students. Each CIAC budget includes funds for Endowed Matching Scholarships by providing a \$10,000 match for a CIAC member who pledges \$15,000 for a \$25,000 named scholarship. Donations can be made over a period of time, up to five years, to achieve the minimum funding.

The following endowed matching scholarships were added in 2016-2017, increasing the total number of scholarships to 99:

New scholarships

- IFMA San Antonio Chapter Scholarship
- G. B. "Butch" DeZell Scholarship
- Matthew C. Williamson '82 Scholarship
- Aaron J. Mynar '06 and Kristen A. Mynar '06 Scholarship
- Texas A&M National Association of Home Builder (NAHB) Student Chapter/ International Home Builders' Show Student Travel Endowment
- Class of '83 Endowed Scholarship in Construction Science
- Mike and Susan (Kleinhenz '77) Holland Family Scholarship
- Ramiro (RC) & Gloria Contreras Scholarship for Multifamily
- Todd B. Handwerk '83/Calais Custom Homes Endowed Study Abroad Scholarship
- Aggie Parents of the Year Moss Family Scholarship
- John R. Richardson '68 Endowed Scholarship in Construction Science
- Diana Morin-Richardson/John R. Richardson '68 Endowed Scholarship in Construction Science
- Elbia F. Escamilla and Edeliro V. Escamilla/Mobilization 2 Completion En-

dowed Scholarship

- Charles W. Graham '88 Graduate Fellowship
- Joe Horlen Endowed Scholarship
- The Brandt Companies Scholarship

The following existing endowed scholarships were increased in value by CIAC matching funds:

- Jack Morris Scholarship
- Vaughn Construction Scholarship

At the end of 2017, the market value of all endowed scholarships in support of COSC students was \$4,038,742.

The scholarship ceremony is held each year at the College Station Hilton. The ceremony is planned and conducted by the Sigma Lambda Chi Honor Society.

During the event, a representative from each scholarship provider presents their scholarship certificate to the deserving student and shares a reserved table at the banquet that follows.

At the 2016 ceremony, 245 students received \$514,030 in scholarships. At the 2017 event, \$444,800 in scholarships

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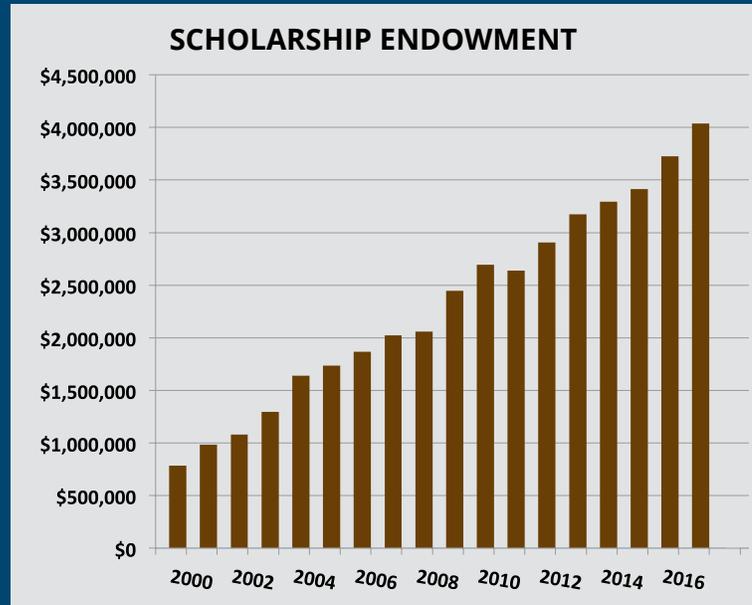
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were presented to 235 students.

The CIAC budget includes funds for freshman scholarships. The combined funding by the CIAC resulted in 45 scholarships awarded to incoming freshmen during 2016-2017. This budget line also includes funding of \$1000 scholarships for students that participated in the department's summer construction management academies who apply to and are accepted into the construction science department.

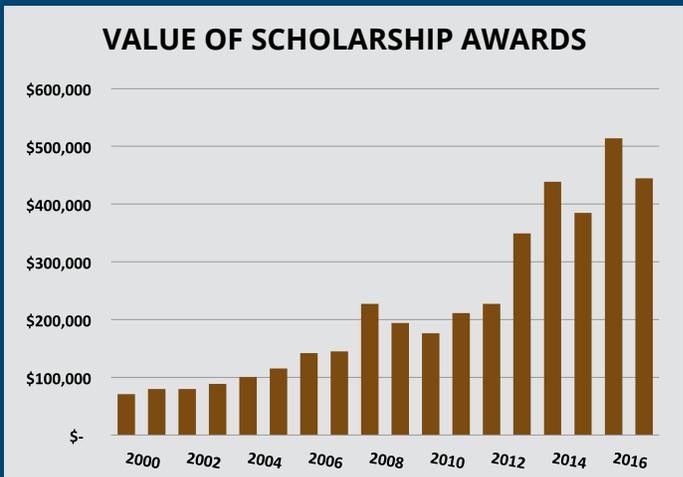
The existing seven endowed professorships where increased with the addition of a new endowments in support of the faculty:

Donna Beth & Jim Thompson '68 Faculty Fellowship, an endowed matching fellowship, was added to support the teaching, research, service and professional development of the faculty in the Department of Construction Science with primary teaching and/or research focus related to the leadership minor or leadership training in the construction industry.



The market value of all endowed scholarships continued to grow to over \$4 million with the addition of 17 scholarships and additions to existing scholarships in 2016 -2017, and the favorable economic climate.

COSC students submit applications online for university, college, and department scholarships provided by CIAC members, external professional organizations, individuals and private companies. A scholarship committee made up of faculty members review and rank the applications. The award of each individual scholarship is based on the criteria specified by the scholarship donor and the ranking of the student among those that applied.



Departmental Support

The CIAC supplements the public funding provided by the state of Texas by budgeting funds for departmental support that provide for program enrichment and faculty development expenses for administrative supplies, equipment, travel, professional certifications and conference fees. This funding provided by the CIAC has been very important in allowing faculty members to travel for the purpose of participation in professional organizations, presentation of technical papers, and continuing education. The growth in the student enrollment has been aided by the CIAC funds provided for new student recruitment. Summer camps for high school students, and visits to community and junior colleges in the major population centers have been the primary means of attracting students.

CIAC Operations

The budgeted funds for CIAC operations are used for meeting expenses associated with the spring, summer and fall meetings. The spring and fall meetings are held in College Station. Summer informational luncheon meetings are held in Houston, Dallas, San Antonio, Austin and Harlingen. A tailgate event is scheduled each fall. The Annual Scholarship Ceremony and Awards Banquet is funded by the CIAC and held the night prior to the spring CIAC meeting.

The growth in income from membership fees in 2016 and 2017 allowed for the transfer of \$250,000 from the CIAC's Foundation Account to the CIAC



Graduating students get a personalized hard hat at a special ceremony cumulating each semester.

Support Account that was established in 2009. At the end of 2017, the market value of the CIAC Support Fund was \$547,158. The interest accrued from the CIAC Support Account is available income for the council's annual operating budget.

Curriculum Committee

The curriculum committee, chaired by Brent Ballard with Marek Brothers worked with Shelley Smith, Undergraduate Program Coordinator and Dr. Shannon Degenhart, Assessment Program Coordinator, to enhance the department's assessment processes regarding former students and employer surveys and identify key metrics. An assessment of the internship program found the program relevant with strong support by the industry members. The committee developed a list of "best practices" for an internship program that can be shared with those companies seeking to improve an existing or start a new internship

program. The committee also hosted both student and faculty focus group meetings.

Brent Ballard served as the department's industry representative during the department's reaccreditation visit in October 2017, and participated as a member of the American Council for Construction Education (ACCE) team. Other members of CIAC member firms participated in a dinner meeting with the ACCE team.

At the Fall 2017 meeting the committee reviewed and discussed the initial findings of the ACCE reaccreditation visit. The findings clearly showed the CIAC's active involvement in the development and refinement of the curriculum over the years. The curriculum committee identified four areas for further curriculum development and refinement: construction technology, a field lab at the new RELLIS campus, surveying, and soils. Pat Suermann thanked the committee for its work and stated that 2018 would be the "year of curriculum".

CIAC helps fund student-led conversion of shipping containers to health clinics

In 2016 and 2017, the CIAC supported the efforts of COSC students who worked to convert standard shipping containers into mobile medical clinics as part of BUILD, a university wide student organization with more than 1,500 Texas A&M student and community volunteers.

The mobile clinics are now serving patients in remote, impoverished areas in different nations around the world, as well as clinics sent to South Texas in support of Hurricane Harvey relief efforts and as a Colonia's medical facilities.

The BUILD leadership, made up of various command teams, included 34 construction science students with two team leaders for operations and construction, 12 command team members, and 20 student supervisors, as well as additional COSC student volunteer workers that worked on the various clinics.

Matt Doherty, COSC '18, operations team leader, gave a presentation during the fall 2017 meeting of the CIAC that highlighted the history of BUILD, and gave members an appreciation for the future plans of the BUILD organization. In response to BUILD's positive impact on the medical health of improvised countries around the world, as well as the hands-on enhanced learning it provides to COSC students, the CIAC sponsored a complete clinic project for 2018, the second such sponsorship funded by the CIAC.



Development Committee

Chaired by Matt Summerville, Brandt, the Development Committee's efforts were tasked to develop ideas on how the CIAC could best support a fund-raising effort to seek funding commitments for the \$500,000 needed to obtain the available matching funds from the university for an endowed chair.

The committee also reviewed an increase to the current size of CIAC's \$25,000 matching endowed scholarship program. No changes in the size of a matching scholarship were recommended.

In regards to the department's contribution to the university capital campaign "Lead By Example," the committee recommended that contributions to the campaign be directed towards a maintenance fund for Francis Hall.

The committee reviewed the CIAC Endowed Matching Scholarship Program and recommended to increase the number of matching endowed scholarships from 10 to 12 with the first 10 being made available to CIAC member companies, and the last 2 available to individual lifetime members. The committee also hosted both student and faculty focus group meetings.

Graduate Program Curriculum Research and Studies Committee

The committee was chaired by Leland Rocchio, Jordan Foster Construction. The committee reviewed the contract and the results obtained from the

outside consulting contract for reviews of grant submissions, and made a recommendation to fund the contract for an additional year.

In 2016, three research proposals from tenure-track faculty were reviewed with \$12,500 in funding being approved for Professor Kunhee Choi's proposal to develop automated traffic flow and construction zone management on federally funded highway projects.

In 2017, Professor Choi reported the funds were successfully applied in attracting an additional \$150,000 research grant thus advancing the department's goal of increased external research funding.

The committee also discussed a concern regarding the marketability and recruitment of international graduate students in light of changes in the Department of Labor's classification of construction management as a science, technology, engineering or math (STEM) vocation. Efforts are underway to partner with a San Antonio group to develop a series of day long construction refresher courses as continuing education. The committee was also briefed on the May's Business School's Center for Executive Development.

The committee had an increased level of participation by members at the Fall 2017 meeting. The committee will be developing a more formal process for submission, review and approval of research grant proposals.

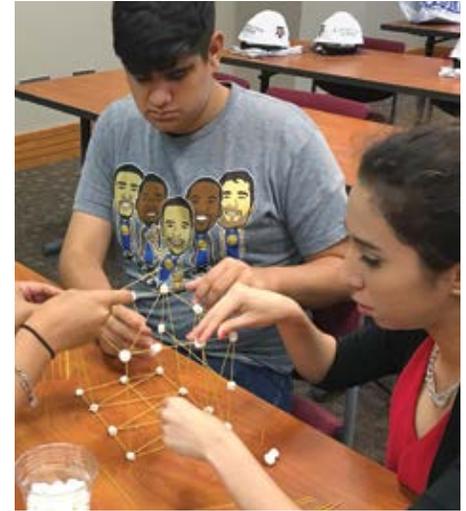
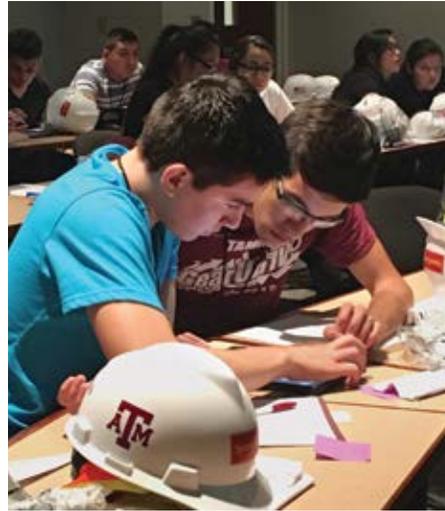
A recommendation was made to award the 2017 research funds to Professor Phil Lewis for a proposal to work with the Texas Transportation Institute

(TTI) and the Environmental Protection Agency (EPA) to study the environmental impact of construction equipment. The committee also brainstormed the idea of creating a task force to develop research areas of most interest to the industry, and creation of a consortium of companies to fund such research.

Membership Committee

The membership committee was chaired by various CIAC members in 2016 upon the appointment of Lauren Rossman with Kiewit at the spring 2017 meeting. The committee reviewed and made recommendations on the approval of associate member applications primarily in the facilities management sector of the industry. The member companies of these professional trade organizations will be an important asset to the department in providing internships and entry level jobs for those students that are pursuing a minor in facilities management.

The committee also provided a slate of candidates for the CIAC's "Constructor Hall of Fame" award that is presented each year. In their review of the continued growth in CIAC membership and participation in the career fairs, the committee recommended that no limit be placed upon the future growth of CIAC membership. Suggested adjustments for accommodating an increased CIAC member participation in the career fairs with the available space were presented for consideration. The committee also hosted both student and faculty focus group meetings.



CIAC supports construction academy for South Texas youth

Through the sponsorships from the department's industry partners Bartlett Cocke General Contractors, Brandt Mechanical, Joeris, Marek Brothers Systems, Inc., Satterfield & Pontikes, SpawGlass and Urban Oaks Builders, more than 200 students from predominantly Hispanic South Texas high schools spent a week learning about possible career paths while attending the summer camps. The Texas A&M Construction Management Academy was designed and led by university construction science professor, Edelmiro Escamilla.

The academy introduced the students to educational opportunities in the construction industry and addressed the lack of diversity among industry managers in Texas where 8.5% of construction managers are Hispanic but make up 60% of the workforce.

At each of the academy's seven

one-week sessions, six at Texas A&M International University in Laredo and one in the border community of La Joya, Texas, Escamilla and Texas A&M construction science students introduced the high schoolers to reading construction plans, scheduling, estimating, job site safety and construction technology while leading activities focused on decision making and people management.

Students in each session visited the headquarters of construction companies in Houston or San Antonio, where company representatives gave them firsthand accounts of what construction managers do.

On the final day, participants toured the Texas A&M's College Station campus and heard presentations by construction science faculty.

The academy's 216 participants were each offered a \$1000 scholarship to attend

Texas A&M as a construction science major if they chose to apply to and are accepted into the construction science program. The funding for these individual scholarships comes from the Texas A&M Construction Industry Advisory Council annual budget.

"It's part of the department's effort to provide a pathway to a career that most of these students didn't know existed before attending the academy," Escamilla said.

The students' parents were invited to an orientation dinner on the first night of each session and had a chance to join their children on chartered bus trips to construction companies and Texas A&M, where they spent a night in a dorm. During the trips, the parents made connections with the industry and Texas A&M, and were encouraged to visit with construction science students to learn about preparing for college and the university experience."

Outstanding Alums help create college leadership minor

Three distinguished leaders from the design and construction industry, all Texas A&M former students, designed a supplemental curriculum to help aspiring College of Architecture students become tomorrow's industry leaders.

The members of the team were: Harold Adams '61, chairman emeritus of RTKL, one of the world's foremost design and construction firms, a 2011 Texas A&M Distinguished Alumnus, and esteemed architect; Jim Thompson '68, a Texas A&M Distinguished Alumnus and president of the Dallas-based general contracting company bearing his name.; and William Peel '74, a College of Architecture Outstanding Alumnus and executive vice president and chief development officer for Tellepsen, a Houston-based construction company with more than 100 years of service.

The new Minor in Leadership in the Design and Construction Professions created by the team is structured around eight leadership elements: character, competence, communication, collaboration, creativity, courage, competition and community. The minor is open to students who have completed at least 30 hours in any of the College of Architecture's undergraduate degree programs and requires 15 credit hours, including three one-hour seminars created exclusively for the minor and four of any three-hour classes incorporating leadership principles and offered in the college.

The curriculum includes lectures



Three College of Architecture Outstanding Alumni, Harold Adams '61, right Jim Thompson '68, top center, and William Peel '74, top right, joined faculty in creating a curriculum for a new Minor in Leadership.



from industry experts with seminar sessions and group activities designed to help students develop a leadership style, inspire leadership in others, and communicate a vision and purpose within an organization.

The minor was developed as a result of a recurring question in advisory meetings engaging the former students with college administrators and faculty to answer the question, "What can we do better?". The response was to provide a learning

opportunity that focused on enhancing attributes and addressing the need of the design and construction industry for employees with excellent communication skills, good personal behavior based on solid principles and values, and the motivation to influence others through positive leadership."

Professors Larry Fickel and Gary Boldt serve as the key faculty for the three COSC courses that are foundational to earning the minor.

Constructor Hall of Fame

The Constructor Hall of Fame Award was established in 2001 to honor non-alumni who made a difference in the industry and helped advance the construction science program at Texas A&M. At the fall 2011 CIAC meeting, the CIAC voted to accept a membership committee's recommendation opening nominations to former students.



John R. Richardson, '68, received the 2015 Constructor Hall of Fame Award from Joe Horlen and Dave Fleming.

2016: John R. Richardson

The 2016 Constructor Hall of Fame Award recipient was John R. Richardson, '68, executive project director with Fluor. Mr. Richardson is a founding member of the CIAC in 1998, with a distinguished career in management of major projects around the world. He has funded two endowed scholarships.



The 2017 Constructor Hall of Fame Award was presented posthumously to Professor James C. Smith, and accepted by his son and wife.

2017: James C. Smith

In 2017, the Constructor Hall of Fame Award went to Professor James C. Smith, who served as head of the Construction Science Department from 1998 to 2004, and founded the CIAC in its current form. During his leadership, the CIAC grew steadily providing internships, professorships, scholarships and jobs for graduating seniors. His vision resulted in an organization of industry partners that has contributed over \$13 million to the department including the major funding of the renovation of Francis Hall.

Student Advocates



2016: Larry Fickel



2017: Gary Boldt

Top Educators



2016: Ben Bigelow



2017: Kim Carlson

Research & Scholarship



2016: Julian Kang



2017: Ben Bigelow

Outstanding Graduate Students



2016 — Aditya Prudhvi Kambhammettu receives the 2016 Outstanding Graduate Student Award from Ben Bigelow.



2017 — Anusree Saseendran receives the 2017 Outstanding Graduate Student Award from Debra Ellis. Min Ma, not pictured, also received the award.

Gene Murphree – AGC Medal



2016 — Ruben Martinez receives the May 2016 Gene Murphree – AGC Award from Shelley Smith. Haley Boyd, not pictured, earned the December 2016 Murphree Award.



2017 — Martin Montgomery receives the May 2016 Gene Murphree – AGC Award from Joe Horlen and Shelley Smith. Savannah Smith, not pictured, earned the December 2017 Award.

Cumberland Craftsman Award



2016 — Clayton Eddy receives the May 2016 Cumberland Craftsman Award from Shelley Smith. Clint Keith, not pictured, earned the December 2016 Cumberland Award.



2017 — Matthew Boyd receives the May 2017 Cumberland Craftsman Award from Joe Horlen and George Eustace. Joseph Vaughn, not pictured earned the December 2017 Cumberland Award.

Internships

The Construction Science Internship Program from its inception in 2003 with 37 interns has grown to 301 in 2017. Each graduate of the construction science program must complete a 15-week semester long professional internship during a fall or spring semester. Many of the students combine a summer work experience to gain further hands on experience. The success of the internship program is due in large part to the support of the CIAC members. During 2016 to 2017 CIAC members hired over 90% of the 659 interns. The internship is a 7-credit hour course and a designated writing-intensive class where the final letter grade earned is based totally on the required weekly reports that are graded for proper grammar and spelling as well as clarity and completeness. During 2016 and 2017, approximately 70% of all interns were given a job offer prior to graduation by their internship provider.

Those COSC students pursuing a minor in facilities management are required to complete a 3-credit hour summer internship to gain an enhanced learning experience in operating, maintaining and repairing existing facilities. The increased diversity in the CIAC membership has been a result of facilities management oriented companies seeking to hire COSC interns and graduates.

Internships were not limited to COSC students, but are encouraged for faculty as well. Professor Eric Du performed a faculty internship with Kiewit in the summer of 2017 as part of their faculty scholar program that promotes



Students applaud as Larry Fickel, right, hands out customized hard hats to graduating seniors.

construction education by bringing real-world lessons to the classroom. After working during the summer on a Kiewit project, Professor Du will develop two course modules based on his internship experience. This was a great learning experience for Professor Du while he applied his academic knowledge to help solve potential problems. Professor Du worked for the project controls department at Kiewit Offshore Services (KOS) in Corpus Christi, TX. During his time, Professor Du helped improve the predictability and traceability of Kiewit's operations while working with the BIM engineers and project engineers to examine how BIM can help streamline the process. One of the proposed course modules that will be developed deals with the use of BIM and virtual reality training in piping construction. He will also be developing a risk analysis tool for the KOS team to perform risk mitigation analysis.

Study Abroad

Since its beginning a decade ago, the COSC study abroad program has provided over 200 students the opportunity to obtain international experience in the construction industry. This includes multiple site visits in the booming construction market in London, visiting open mining operations in Germany, being hosted by construction companies in Austria, trekking into Europe's largest engineering project (Crossrail Underground) in the United Kingdom, and BIM training in Costa Rica. Everywhere COSC students go the Texas A&M University "brand" is recognized. The industry response to the professional demeanor and inquisitive nature of these students was exceptional.

In 2016 the study abroad program became the first university group from the United States to place an entire cohort of students in the "Constructionarium"

projects at Bircham-Newton, England. See: <http://www.constructionarium.co.uk>. At Constructionarium the students were challenged to plan, budget, staff and manage the hands-on construction of a scaled down version of a building, bridge, dam or other structure. In a little over four (4) days, the students completed a three (3) story replica of "The Gherkin", an iconic 41 story building in London. Based upon the success of this enhanced learning opportunity in 2016, two additional groups of students completed the Constructionarium certification program under the guidance of Professors Larry Fickel and Gary Boldt in 2017.

Fifteen students lived in London and completed internships in the construction industry during the spring 2017 semester. During the first 8 weeks, the students took 13 hours of academic work delivered by Professor Steve Rodgers each Wednesday. On Tuesdays and Thursdays the group was typically found in hard hats and steel toed boots walking to new construction sites all over the city of London. The students were invited to attend the final slip form concrete pour at the top of London's newest skyscraper, "The Scalpel". They were hosted for an afternoon at the major new construction project at the All England Lawn Tennis and Croquet Club, (better known as "Wimbledon") where they learned the differences in terminology and techniques being used by construction professionals in Europe for accomplishing the same things they are being taught in the Department of Construction Science on our campus.

For the second 8-weeks, the students were placed as interns with various con-



Students take advantage of four career fairs hosted annually by the construction science department.

struction and construction related companies throughout the U.K. gaining hands-on experience with European construction methods and materials.

In May of 2017 Professor Julian Kang sponsored a group of students for a "mini-semester" of BIM training at the Texas A&M Soltis Center in Costa Rica.

Job Placement

Four career fairs are held each year with two of the events dedicated to members of the Construction Industry Advisory Council. The career fair conducted for CIAC members is the largest department level career fair event at Texas A&M University. A smaller career fair for non-CIAC members is held on campus two weeks following the CIAC member career fair. The number of participating companies in the career fairs increased from 154 in spring 2016 to a steadily increasing

record high of 182 companies in fall 2017. Construction Industry Advisory Council members accounted for 92% of the industry participation in the career fairs.

The job placement rate remained relatively steady during 2016 and 2017 at the 85% to 93% range. The reported starting salaries showed a slight increase from an average of \$59,236 for Fall 2015 graduates to \$ 61,300 for Fall 2017 graduates. There was a significant shift in job placement location with 30% of 2017 graduates working in the Dallas\Fort Worth area compared to 21% in Houston. The 2015 placement percentage were 30% Houston and 19% Dallas\Fort Worth. While a majority of graduates had 3 or more job offer in 2015, the majority of graduates had 3 or less job offers in 2017.

A summary of starting salaries for 2016 and 2017 Bachelor of Science Construction Science graduates is provided in Attachment B, "Hiring Data," on page 38.

Students in UK build Gherkin replica in 4 days

Turning construction theory into practice, Texas A&M construction science students studying abroad in the United Kingdom in summer 2016 built a scaled-down version of The Gherkin, an iconic London skyscraper, in 4 days.

The project's various phases, including planning, budgeting, project management and hands-on construction, were part of Constructionarium, which provides students with a "hands on" construction experience on a 15-acre site in northeast England.

Construction on the 1/10 scale replica of The Gherkin began June 18, 2016, after students received plans, drawings and specifications from Constructionarium staff. The students organized themselves, doled out job assignments and created a building schedule.

On the second day of construction, students completed the structure's foundation during a record-breaking rain, said Steve Rodgers, clinical professor of construction science, who was leading the students.

After the rain cleared, students continued the project with a crane operator they scheduled and managed, who lifted pre-fabricated steel components into place.

Each night, students serving as project manager, safety officer and accounting and scheduling heads informed their tough-nosed owner, a Constructionarium staffer, about their progress.

"Hard questions were asked and appropriate answers had to be provided," said Rodgers.

As the days progressed, said Rodgers, the confidence and competence of the stu-



Students studying abroad in the United Kingdom participate in the Constructionarium program.

dents noticeably increased. The steelwork, he continued, came together more quickly, the steel lifts accomplished more efficiently, safety issues dealt with more seamlessly as project developed a smooth momentum toward an early completion.

"By the fourth daily meeting, the students had honed their communication skills to a point that the owner was growing more satisfied his building would come in on time and on budget."

Site personnel interacting with the students said at the final project meeting that they were a credit to their university and their country.

"Although the structures are typically removed immediately after the students leave, the group's building will stand throughout the remainder of 2016, complete with an Aggie banner and flag, as a tribute to the work performed by the first group from the university to participate in the program," said Rodgers.



As a result of the success of this enhanced learning opportunity, twenty students traveled to the U.K. in March 2017 and built two separate scaled versions of major projects as part of the Constructionarium program.

Faculty Awards

During the 2016 – 2017 time frame, three longstanding members of the COSC faculty were awarded emeritus professor status by the Texas A&M Board of Regents.



Segner

Professor Bob Segner retired in 2016 after a 46 year long teaching career with an immeasurable impact in preparing thousands of students for the construction industry. Segner earned outstanding faculty member recognition in 2012, 2011, 2009, 2007

and 2003 on the department level and the Distinguished Teaching Award in 1997 and 1985 from the Association of Former Students. In 2007, Segner earned a lifetime achievement for consistent excellence in graduate and undergraduate teaching, curriculum development and outstanding faculty performance in research and service by the Dean of the College of Architecture. The auditorium in Francis Hall was named in his honor with support from former students and a major gift from Don I. Weaver '76 and Nancy Weaver..



Bilbo

Dr. David Bilbo served as a member of the Texas A&M faculty from 1979 until 2016 over which time he prepared students for rewarding careers in construction management. He was promoted to associate professor in 1992 and full professor in 2000, Bilbo was the Clark Endowed

Professor of Construction Science from 1998-2012. His area of expertise was in emergency preparation and response, construction project management and administration, and industrial/technical education.



Smith

Dr. James "Jim" C. Smith brought years of construction and engineering experience to Texas A&M University where he served as a professor and department head in the construction science department.

During his 1996 to 2004 tenure as department head, Dr. Smith founded the Construction Industry Advisory Council in its current form and established the lofty goals for increased industry partnership, endowed scholarships and professorships as well as major curriculum changes such as capstone classes and a required semester long internship program. His teaching excellence was recognized at the university and on a national level. He was honored with both an endowed scholarship and professorship by his students and industry supporters. His generous support of the Francis Hall Renovation program created the Sondra L. and James C. Smith '70 Department Head Suite.



Boldt

Professor Gary Boldt, was among six Texas A&M University faculty honored by the University Center for Teaching Excellence for his transformational teaching in 2017. He was selected from a group

of over 60 submissions from individual students across all colleges who wrote heart-felt essays giving evidence of and reflecting upon their professors' impact on their learning and lives as inspirational and transformational mentors. Some factors in Professor Boldt's teaching style were the complex and rigorous content of his classes, use of visual examples, and integrating real-world challenges that required the students to problem solve and find alternative methods to complete assignments. Professor Boldt, TAMU Class of '83, joined the Construction Science Department faculty in September 2015, and teaches estimating, scheduling, and leadership classes, and coaches the commercial building competition team.



Bigelow

The Texas A&M Association of Former Students awarded **Professor Ben Bigelow** its Distinguished Achievement Award for Teaching after a rigorous selection and review process from among a group of faculty nominated from across the campus. Professor Bigelow joined the faculty in 2011, and served as the Graduate Program Coordinator, and was a Center for Housing and Urban Development fellow. He also served as the faculty advisor to the NAHB student chapter and coach of the residential construction competition team. Based upon his outstanding contributions to teaching, research and service, Professor Bigelow was hired as the Director for the

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Haskell & Irene Lemon Construction Science Division at the University of Oklahoma and started his new role in July 2017.



Eustace
New Faculty

Professor George N. Eustace, PE received a Regional Teaching Award for 2017 from the Associated Schools of Construction in recognition of his contributions to excellence in teaching.

The goals of the faculty searches in 2016 and 2017 were to strengthen the non-tenure ranks with highly experienced industry professionals, and to increase the department's research capacity with accomplished tenure and tenure-track professors with funded research projects. Together, the faculty additions have advanced the department's application of technology in the classrooms.

Over 90 years of combined industry experience was added to the non-tenure track faculty with the hiring of Tony Marraro, Mike Jordan, and Richard Palmer as senior lecturers, Ben Ashburn as an instructional assistant professor, and Mark Whitman as a visiting lecturer.

Tony Marraro, PMP, DBIA, earned a Bachelor of Science, Marine Biology and a Master of Science, Construction Management from Texas A&M University entering the construction industry in 1985,



Marraro

He worked domestically and internationally on major projects while employed with Hill International, and HNTB Infrastructure rising to senior executive positions with regional responsibilities for project management and cost controls. He joined the faculty in September 2016 and has been instrumental in improving the project management class and aligning it with the state of practice in the industry.



Jordan

Mike Jordan earned a Bachelor of Science, Construction Science from Texas A&M University followed by a Masters of Construction Management from the University of Houston. He was a senior estimator with The Hanover Company and worked on multi-family projects in Texas, California, Arizona and Colorado consisting of high-density low-rise and high-rise construction, managing the budget, pre-construction and design, and negotiating and awarding subcontracts for over 1 billion in financed projects. He brought experience from the field and in the design aspects of the industry. He joined the faculty in August 2016 and brings his expertise in the application of technology to the construction estimating process as an instructor for the construction estimating classes.



Palmer

Richard Palmer earned a Bachelor of Science, Building Construction from Texas A&M University and began his construction career in 1996 advancing in his professional status to the role of chief estimator with Satterfield & Pontikes Construction. He served as the president of the Construction Industry Advisory Council from 2012 to 2013, after participation as a committee chair. He remained active in the CIAC as a past president on the CIAC executive committee. Mr. Palmer teaches



Ashburn

construction estimating. **Ben Ashburn** earned a Bachelor of Science, Construction Management from the University of Central Missouri, and later a Master's of Business Administration from Webster University in St. Louis, MO. Working his way through schools in various estimating roles while earning his degrees, Professor Ashburn began his academic career in 2011 and came to the COSC department in June 2016 after four years on the faculty of Murray State University in Murray, KY. He is teaching computer graphics, methods and materials, estimating and residential capstone. He also serves as the faculty advisor to the NAHB student chapter.

Mark Whitman earned a Bachelor of Science, Construction Science from



Whitman

Texas A&M University and accumulated 26 years of professional experience focused on the construction industry in the industrial, commercial and government sectors before joining the faculty as a visiting lecturer in August 2016. His dominate career role has been in estimating focused on projects for petrochemical plants, government projects, off-shore platforms, power plants, paper mills, pipelines, and commercial buildings. He is teaching classes on industrial construction.

A major achievement in the 2017 faculty search was success in attracting two senior research faculty with outstanding teaching and research as tenured associate professors, and two junior research faculty as tenure-track assistant professors.



Lewis

Dr. Phil Lewis, PE earned a Bachelor of Science, Civil Engineering, a Master's of Science, Management, and a PhD, Civil Engineering from North Carolina State University. After gaining 14 years of experience in the construction and engineering industries, he started his teaching career at North Carolina State University before moving on to Oklahoma State University in 2010 in the School of Civil and Environmental Engineering. He is a licensed professional engineer in North Carolina and brings his expertise in air

pollutant emissions from construction equipment, equipment management, project management, estimating, contracts and specifications, environmental impacts of construction.



Ham

Dr. Youngjib Ham earned a Bachelor and Masters in Architectural Engineering – Construction Engineering & Management from Seoul National University before acquiring a Masters, Computer Science and PhD, Civil Engineering – Construction Engineering & Management from the University of Illinois at Urbana-Champaign. He began his teaching and research career at Florida International University with a focus on transformative innovations for uncovering the fundamentals of autonomous ubiquitous multi-modal 3-D visual sensing and analytics of construction and building environments. The goal of his research is to better understand the variation in the performance of buildings over their life cycles in order to reduce the costs and improve the performance of a broad range of physical infrastructure systems.



Behzadan

Dr. Amir Behzadan earned a Bachelor of Civil Engineering from Sharif University of Technology before acquiring a Masters of Engineering, Construction Engineering and Management, and a

PhD, Civil Engineering from the University of Michigan. Dr. Behzadan brings 9 years of academic and research experience from faculty assignments at the City University of New York, University of Central Florida, and Missouri State University. His areas of research include construction data analytics and knowledge modeling, technology-mediated engineering education, and simulation and visualization of engineering operations. He has taught classes on surveying and structural statics.



Ahn

Dr. Changbum Ryan Ahn earned a Master's in Environmental Engineering from Columbia University – Fu Foundation School of Engineering and Applied Science and received his Ph.D. in Civil Engineering from the University of Illinois at Urbana-Champaign. After serving as an Assistant Professor at the University of Nebraska-Lincoln since 2012, Dr. Ahn joined the Department of Construction Science at Texas A&M University as an Associate Professor in the fall of 2017. Dr. Ahn has taught graduate and undergraduate courses in construction equipment, estimating, building information modelling, and sustainable development—the latter two he created for undergraduates and senior undergraduates/graduates, respectively. Dr. Ahn's research focuses on data sensing and analysis for construction safety and intelligent buildings.

Event eyes tech's impact on construction industry

Technology's transformative impact on the building industry was showcased February 2016 during the Texas A&M Department of Construction Science's Tech Demo Day at Francis Hall on the Texas A&M campus.

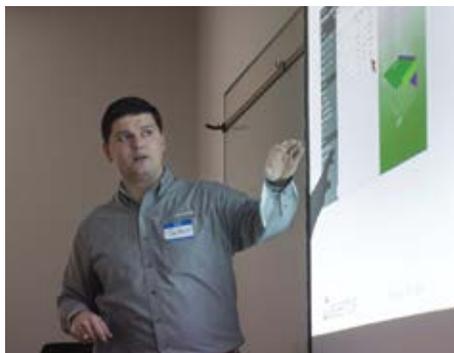
"The event was a hands-on, educational opportunity for students to learn about the latest in building technology from the most innovative companies in the industry," said Liz Welsh, marketing director at JBKnowledge, one of several companies making presentations and demonstrating products at the event.

Kicking off the day's festivities was a keynote address by Nick Chim, CEO of Flux, a company that develops software to help contractors, architects and engineers exchange project data and streamline design work flows. Flux is the only startup company to emerge, so far, from Google X, an initiative to research and develop "moonshot" projects like driverless cars or high-altitude balloon networks that provide Internet access to remote areas.

Chim spoke in Francis Hall's Segner Auditorium, but to accommodate the large audience, his presentation was simulcast at two locations in the Langford Architecture Center: the Preston Geren Auditorium, located in Building B, and C105, in Building C.

After the keynote, representatives from construction technology companies JBKnowledge, Rollout and Assemble showcased their products in 50-minute sessions in Francis Hall classrooms.

The featured companies are transform-



ing the construction industry with innovative technologies and software applications aimed at enhancing collaboration and job site productivity while lowering project costs. Among the technologies showcased at the event were applications that turn 2-D construction plans into 3-D models; that facilitate project management by enabling designers, engineers and construction managers to share project markups,

revisions, comments and drawings across multiple platforms and devices; and that help constructors pinpoint the location of building materials on jobsites.

Throughout the day, the Department of Construction Science demonstrated its new Building Information Modeling Computer-Aided Virtual Environment, or BIM CAVE, one of the nation's premier facilities for viewing BIM models.

2016 – 2017

Business Entity Members

A.L. Helmcamp, Inc.	Britt Rice Electric, LP	Diffco	H&G Systems, L.P.
Adolfson & Peterson Construction	Brookstone, L.P.	DN Tanks	H&S Constructors, Inc.
AECOM (URS Corporation and Hunt)	Burns & McDonnell	DPR Construction	Harvey Builders
Alpha Building Corporation	Burrow Global Services	DR Horton Homes	Haskell
ALPHA Facilities Solutions, LLC	Byrne Construction Services	Drees Custom Homes L.P.	H-E-B Grocery
American Constructors	C&W Services	Drymalla Construction Company	Hensel Phelps Construction Co.
Andres Construction Services	C1S Group, Inc.	Duke Realty	Herman & Kittle
Anslow Bryant	CA Partners	Durotech, Inc.	Highland Homes
Arch-Con Corporation	Cadence McShane Construction Company	Dynamic Systems, Inc	Hill & Wilkinson General Contractors
Arco Design/Build Southwest	Cajun Industrial Design & Construction, LLC.	DynaTen Corporation	Hillwood Construction Services
Ashton Woods Homes	CalAtlantic Homes	EE Reed Construction	History Maker Homes
Austin Bridge & Road	Camden Development	Embree Group	HITT Contracting Inc.
Austin Commercial, LP	Cash Construction Company	EMJ Construction	Hoar Construction, LLC
B.L. Harbert International	CBG Building Company	Endurance Builders	Holder Construction
Baker Triangle	CDM Constructors, Inc.	Enterprise Commercial Paving	Howard Hughes Corp
Balfour Beatty	CenterPoint Energy	Enterprise Precast Concrete, LLC	Hunt Construction Group
Bartlett Cocke, LLC	Central Building Company	F.L. Crane & Sons	Imperial Construction, Inc.
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Beard Companies	Clark Construction	Fluor	Integrity Group
Bechtel	Computer Environmental Solutions, Inc.	Flynn Southwest, LP	ISEC
BMWC Constructors	CORE Construction	Forney Construction, LLC.	J.D. Abrams
Bowen Engineering Corp	Crain Group	Galaxy Builders	Jacobs
Brasfield & Gorrie	Crossland Construction	GAMMA Construction	James Construction Group
BRI Commercial Roofing	Cummings Electrical	Gilbane	JBKnowledge, Inc.
	Curran Contracting	Gracepoint Homes	JE Dunn Construction
	David Weekley Homes	Grand Homes	Joeris General Contractors
		Gray Mechanical	

CIAC Members

2016 – 2017

Business Entity Members

continued

John W. McDougall Company Inc.	Meritage Homes	Raba Kistner	Slate Construction
Jordan Foster Construction	Mortenson Construction	Rampart Construction Company	Southwestern Services
Joslin Construction	MSC Earthwork, LLC.		SpawGlass
JRT Construction	MW Builders	Ranger Specialized Glass	Spring Valley Construction Company
K. Hovnanian Homes - DFW Region	MYCON General Contractors	Renewable Energy Systems Americas, Inc.	SteelFab Texas, Inc
Karsten Interior Services	NCI Group	Ridgemont Commercial Construction	Street Lights Residential
KBR	NDS Construction	RMC Group, LLC.	Structura
KHS&S Contractors	Northgate Construction	Robins & Morton	Structure Tone Southwest, Inc.
Kiewit	Northstar Builders Group, LLC	Rogers O'Brien	Summit Doors & Hardware, Inc.
Kitchell Contractors	O'Donnell Snider	Rosenberger Construction	Summit Industrial Construction, LLC
Landmark Construction	Old Castle Materials - Wheeler	Rosendin Electric	SUNDT Construction, Inc.
Ledcor	Orion Marine Group, Inc.	RSI Communities	Sunland Construction
Lendlease	PBK	Ruppert Landscape	Swinerton Builders
Lennar Homes	Pepper Lawson Construction	Ryan Companies	TDIndustries
Linbeck Group, LLC	Performance Contracting Group	Saratoga Homes	Teal Construction
Lyness Construction	Performance Contractors	Satterfield & Pontikes Construction, Inc.	Tellepsen
M/I Homes	Perry Homes	Scott & Reid General Contractors	Texas Shafts, Inc.
Manhattan Construction Co.	Phillips and Jordan	Sebastian Construction Group	The Beck Group
Marek Brothers	Phillips May Corporation	Sevan Multi-Site Solutions, LLC	The Brandt Companies
Martin Marietta	Pinnacle Construction Group	Shell Oil	The Burt Group, Inc.
McCarthy	Pogue Construction	Shreve Land Construction	The Hanover Company
MCM - US	Polk Mechanical Company	Sims Builders	The NRP Group
MEDCO Construction, LLC	Powerhouse Retail	Skanska USA Building, Inc.	The Weitz Company
	Prim		The Williams Companies
	Pulice Construction		Toll Brothers, Inc
	PulteGroup		

Total Facility Solutions
 Trammell Crow Residential
 Trio Electric
 Turner Construction
 Company
 TX-Morrow
 UDR
 UEB Builders, Inc.
 US Trinity Energy Services
 Vaughn Construction
 VCC, LLC
 W.S. Bellows Construction
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 Gordon Stewart
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 Robert Van Cleave
 Don Weaver
 Matthew Williamson
 Larry Zuber

2016-17 Annual Members

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 James Davis
 John Deithloff
 Eric Diaz
 Richard Palmer
 Chance Pearson
 Joshua Reich
 Cary Seabolt
 Steven Solka

Overview:

Dr. Jim Smith and a group of industry advisors started the CIAC in 1999 because they were compelled to “give back” in some way to Texas A&M and the Department of Construction Science. The development of the organization started with goals to achieve in the execution of a work plan that assisted the Department, its Department Head and Professors in providing the best industry support to a college program. Under former Department Head Joe Horlen from 2007 until 2017, this program flourished and became a model which many University programs, both within Texas A&M and within the Universities who support higher education construction programs. Many feel we are the “Gold Standard” for Industry support.

We achieved the original goals. To continue the tradition, the CIAC and its future leaders needs new goals.

The short and long term goals set by the CIAC for next twelve years will guide the current and future CIAC and the Department of Construction Science leadership in the continuation of the vision that the CIAC founders, Department leadership and CIAC membership established in 1999 in support of the construction education program at Texas A&M University:

1. **SUSTAIN:** Ensure the sustainability of the experience and process for students and industry to interact and educate all students for future careers within the industry by maintaining agreement on annual budgets for the Department Head and CIAC to fund the priorities of worthy programs. Retain a prudent reserve of \$250,000 in liquid assets, and move the excess into an interest bearing account, or buy out scholarships or the Francis Hall maintenance endowment.
2. **ENDOW:** Provide matching funds annually for twice as many Endowed Scholarships as in 2015. For the last two years, the CIAC funded 10 endowed scholarships each year, an increase from the 6 endowed scholarships in 2015. The CIAC will commit to fund a total of 12 annual Endowed Scholarship matches per year for next 12 years with 10 of scholarships being available to CIAC member firms and 2

“Excellence stems from a great sense of pride in who we are and what we believe in.”

— DR. ROBERT GATES

Former Texas A&M President

being available for individual lifetime members. The CIAC would match \$10,000 per each endowed scholarship or \$120,000 per year. Each of the 12 endowed scholarship donors \$15,000 gift would contribute \$180,000 per year. The combined contributions would increase the value of the Department’s endowed scholarships by \$300,000 annually, quite an impressive sum. For the next 12 years, this goal would add \$3,600,000; doubling the current scholarship endowment value.

3. **INCLUDE:** Work to maintain the current levels of Company support within the CIAC at a 5:1 ratio for students to firms and continue working to diversify the membership as that will help with downturns.
4. **PERPETUATE:** The 2016 Minor in Leadership approved for the college that began in the Fall of 2016. The CIAC would commit to funding a goal of \$250,000 over five years starting in 2016 in support of a matching grant from Texas A&M University for an Endowed Professorship to provide funding for development of the Minor. A \$210,000 professorship, the Donna Beth and Jim Thompson Endowed Leadership Professorship, has been funded and one \$25,000 endowed scholarship.
5. **ASSIST:** The Department will improve the Master of Construction Science Program Curriculum to assume roles within the construction industry in such potential areas as Facility Management, Safety, Quality Control, Business Development or Marketing. To accomplish this goal the CIAC and Faculty will need to determine the industry demand for the graduates and tailor the program to meet those needs, in alignment with the goals of the College of Architecture.



Student demonstrates the expanded virtual reality capability of the Department of Construction Science's recently upgraded BIM CAVE in Francis Hall.

- 6. DEVELOP:** The program requires a sustainable PhD program for serving industry and all universities for future educators. This assistance would focus on providing assistance to those A&M educators (COSC and others) who provide their support and leadership indicative for Goals 4 and 5 above. A PhD program and a core research group of faculty, maybe 6 or 8 total, would help the CIAC in moving the industry forward as well as document to the university the need for a construction focused PhD program.
- 7. LEAD:** The CIAC will help and consult with the Department for organizational success.
- 8. COLLABORATE:** Increase COSC collaboration with the three other Departments within the College of Architecture by extending funding of CIAC Endowed Professorships to all College of Architecture professors who provide collaboration between departments that benefits COSC students. The CIAC would assist the other departments to source comparable funding.
- 9. INSURE:** Continue the funding of the "Rainy Day Fund" Support Endowment in the Texas A&M Foundation to achieve a goal of \$750,000 in endowed funds to provide future income to support the CIAC during periods of economic downturns within the industry.
- 10. MAINTAIN:** Develop an endowment or funding for upkeep and maintain Francis Hall in good condition, and continue support matching of a 1:3 ratio.
- 11. REACH:** Continue an outreach effort to high schools students within Texas that achieves a goal of 25% of first generation college students and expands on the University targets for 33% minority and 20% female students. Seek industry support for a \$1,000 scholarship to each student who matriculates into COSC from the Construction Academies, up to \$25,000 annually.
- 12. COMPETE:** Seek measures or key performance indicators (KPIs) to show that the COSC Program is not only the biggest, but the best in the nation and therefore, the world. Develop the best metric and leverage it for strategic messaging with potential focus on demand for graduates, hiring rates, job placement, salary, research funds secured, and other such metrics as deemed appropriate.

Summary of employment for 2016–17 Bachelor of Science in Construction Science graduates

	SPRING 2016	SUMMER 2016	FALL 2016	TOTAL
NUMBER OF GRADUATES	117	36	108	261
NUMBER OF GRADUATES PROVIDING DATA	87	32	78	197
STARTING BASE SALARY *				
Maximum	\$ 84,000.	\$ 68,000.	\$ 69,500.	\$ 73,833.
Average	\$ 60,170.	\$ 59,997.	\$ 59,614.	\$ 59,927.
Minimum	\$ 40,000.	\$ 40,000.	\$ 50,000.	\$ 43,333.

	SPRING 2017	SUMMER 2017	FALL 2017	TOTAL
NUMBER OF GRADUATES	161	72	109	342
NUMBER OF GRADUATES PROVIDING DATA	116	61	102	279
STARTING BASE SALARY**				
Maximum	\$ 80,000.	\$ 84,000.	\$ 85,000.	\$ 86,029.
Average	\$ 60,705.	\$ 60,665.	\$ 60,300.	\$ 60,548.
Minimum	\$ 40,000.	\$ 45,000.	\$ 41,093.	\$ 44,333.

* Information on starting salaries for all majors within the College of Architecture at Texas A&M University is available at: careercenter.tamu.edu/guides/reports/WhoHiresMyMajor/ArchitectureIndex.cfm



TAMU Foundation Construction Industry Advisory Council 2016 Budget

January 1, 2016 – December 31, 2016

Retained Earnings (01/01/16)	\$ 158,801.00
Income	
Corporate Membership Dues	\$ 375,000.00
Individual Membership Dues	\$ 1,000.00
Interest	\$ 2,200.00
Interest Balance in CIAC Support Fund	\$ 10,200.00
Total Income	\$ 388,400.00
Total Available Funds	\$ 573,059.00
Expenses	
Student Competition (three teams)	\$ 8,000.00
Graduation Event	\$ 3,000.00
Annual Banquet	\$ 22,000.00
Research Studies	\$ 25,000.00
Individual Scholarship & Student Recruitment	\$ 20,000.00
Endowed Matching Scholarship	\$ 100,000.00
Program Enhancement	\$ 60,000.00
Endowed Professorship	20,000.00
Matching Endowed Leadership Minor	50,000.00
CIAC Meeting Expense	\$ 20,000.00
CIAC Endowment - CIAC Support Fund	\$ 100,000.00
Former Student Members Promo - Tailgate	\$ 7,500.00
Development Fee & Credit Card Collection Fee	\$ 18,800.00
Audit Fund	\$ 750.00
Aggie BUILD Support	\$ 10,000.00
Total Expenses	\$ 465,050.00
Balance	\$ 108,009.00

Construction Industry Advisory Council — 2017 Budget

TAMU Foundation Construction Industry Advisory Council 2017 Budget

January 1, 2017 – December 31, 2017

Retained Earnings (01/01/17)	\$ 209,231.00
Carry Over from CIAC Support	\$ 14,566.00
Income	
Corporate Membership Dues	\$ 425,000.00
Individual Membership Dues	\$ 2,000.00
Interest	\$ 2,160.00
Interest in CIAC Support Fund	\$ 10,200.00
Total Income	\$ 439,360.00
Total Available Funds	\$ 663,157.00
Expenses	
Student Competition	\$ 3,000.00
Graduation Event	\$ 3,000.00
Annual Banquet	\$ 22,000.00
Research Studies	\$ 25,000.00
Individual Scholarship & Student Recruitment Program	\$ 20,000.00
Endowed Matching Scholarship	\$ 100,000.00
Endowed Professorship	\$ 20,000.00
Endowed Matching Leadership Minor	\$ 50,000.00
Program Enhancement	\$ 60,000.00
CIAC Meeting Expense	\$ 20,000.00
CIAC Endowment - CIAC Support Fund	\$ 150,000.00
Former Student Members Promo - Tailgate	\$ 5,000.00
Aggie BUILD	\$ 25,000.00
Development Fee & Credit Card Collection Fee	\$ 21,350.00
Total Expenses	\$ 524,350.00
Balance	\$ 138,807.00



ATM

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TEXAS A&M UNIVERSITY

Construction Science

Department of Construction Science

College of Architecture • Texas A&M University

3137 TAMU • College Station, Texas 77843-3137

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