Hot Topics in Higher Ed
Did he get upset, or did he laugh?

One of his students did this...
And the rest of the story is...
Enhancing the Quality of Life and Place in the Natural, Built, and Virtual Environments
HOWDY!
Today, I would like to share 5 things...
Let me start by sharing the diversity of the College of Architecture (CARC) at Texas A&M University (TAMU)
3 Questions
1. What can we say to truly describe in 5 minutes the diversity, breadth, and depth of what we do in our College?
We were challenged by the Provost to do so last Spring...
This is what we said...
The College of Architecture at Texas A&M University... one of the premier design research institutions in the world.
The college's architecture and landscape architecture programs are consistently ranked among the best in the U.S.
Five college faculty have been listed among the 25 most admired educators in the nation.

Most recently:

Rodney Hill & Jon Rodiek
Three areas of excellence through which the college enhances the quality of life in society...
Design-for-Health
Sustainability
Visualization
Integrating excellence throughout the college:

- creativity
- innovation
- design
advancing health & wellness

Architect magazine lauds college’s health care architecture program.
advancing health & wellness

Four architecture professors cited among 25 most influential people in healthcare design.

George Mann
Kirk Hamilton
Roger Ulrich
Mardelle Shepley
advancing health & wellness

Grad student wins national AIA design competition
advancing health & wellness

Engineering and architecture students collaborate to improve incubator design
advancing health & wellness

Student designs hospital & clinic for Tanzanian village
Working with Borlaug Institute, students design South Sudanese health & agriculture facility
advancing health & wellness

Prof honored for developing matrix to measure quality of children’s lives with chronic illness
advancing health & wellness

Active Living grants fund studies examining how built environments can impede the physical activity of kids and obese adults.
advancing sustainability

Solar light pipe design wins EPA sustainability competition
advancing sustainability

Research eyes role of BIM, simulation and integrated project delivery in creation of sustainable buildings
Students investigate social and economic effects of pumping water for Houston from Lake Conroe.
advancing sustainability

HRRC, top disaster researchers creating NSF-funded hazard research network
advancing sustainability

New census center to provide researchers access to valuable nonpublic federal data
advancing sustainability

Planning students earn award for post-Ike Galveston population research
advancing sustainability

Research team advancing solar building design with BIM
advancing sustainability

Profs patent method to measure building energy consumption
advancing sustainability

Students’ garden design and ‘green’ campus master plan earn kudos
advancing sustainability

Prof leads atomic committee drafting natural disaster report
advancing sustainability

Study: Durable building materials lessen long-term carbon footprint
advancing sustainability

Ph.D. student eyes how modified HVAC could lower electric bills
advancing sustainability

Study seeks ways to mitigate stormwater runoff pollution caused by road construction
advancing sustainability

Architecture Ph.D. student visits Antarctica to study building comfort, energy efficiency in extremely cold climate
advancing visualization

Visualization department offers Texas A&M's first MFA degree.
advancing visualization

Viz prof heads national NSF network initiative aimed at bridging gaps between science & art
advancing visualization

Gaze manipulation technique could transform gaming, education and advertising practices
advancing visualization

Study eyes role of perception in computer graphics, virtual environments, visualization and 3-D displays
Visualization freshman roster was university’s first to fill for 2012
Viz students creating music video for British metal band Tesseract
advancing visualization

Vizzers work with Disney, DreamWorks professionals in summer industry course
advancing visualization

Vizzer helps establish ‘look’ of Academy Award winning ‘Rango’
Construction science department unveils new immersive visualization facility — BIM CAVE
creativity • innovation • design
The College of Architecture is a haven for experimentation, discovering one’s strengths and unleashing the hidden capabilities of the human mind.
creativity • innovation • design

Here, students embark on a journey of self-discovery. They learn how to unlock their creative potential, become lifelong learners, intellectual leaders and knowledge creators.
creativity • innovation • design

- Solar-powered umbrellas,
- Office desk exercise wheels,
- Folding bicycles,
- Tax kiosks …

Design Process students have dominated both local and national idea challenges and entrepreneurship competitions.
Student-designed
digital fabrication
wins international
design competition
Working with an artist-in-residence, students fabricated an architectural installation for the college coffee shop.
creativity • innovation • design

Classic architectural drawing text features architecture & visualization student work
Students create designs for Houston art, architecture museum
creativity • innovation • design

Students’ wall

design leads

suckerPUNCH

national design

competition
Student team’s gallery design for famous Italian kitchenware company featured on suckerPUNCH
Students fabricate architectural installation for upscale Bryan restaurant
The 13th annual college symposium spotlights faculty research in built, natural & virtual environments
Colonias Program marks 20 years of service to borderland
outreach

CNN spotlights
College of Architecture
border initiatives
Border studio initiative engages students, Los Lomas residents in community improvement projects
outreach

**CE3SAR:**
The college has partnered with a new multi-institutional research network providing sustainability science to South Texas policymakers and communities.
Urban planning and landscape architecture students help small Texas towns with downtown revitalization and master planning projects.
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Urban planning and landscape architecture students help small Texas towns with downtown revitalization and master planning projects.
2. But, how can we really highlight the wide range of accomplishments of our faculty, students, staff, and former students...
... In research, creative work, and scholarship?
… In learning and teaching?
... In engagement through practice, outreach, and service?
This is how we do it...
Spring 2012 (1)

http://archone.tamu.edu/archcom/archoneUpdate/02-17-12.html
Spring 2012 (2)

http://archone.tamu.edu/archoneUpdate/05-01-12.html
Summer 2012

http://archone.tamu.edu/archcom/archoneUpdate/08-16-12.html
Fall 2012c(1)

http://archone.tamu.edu/archcom/archoneUpdate/10-29-12.html
Fall 2012 (2)

http://archone.tamu.edu/archcom/archoneUpdate/12-14-12.html
Spring 2013

3. And finally, how does the College of Architecture at Texas A&M University do all this?
As Dean of the College, this is the answer I give to anyone who asks…
Talent + Infrastructure = Capacity for Response, Impact, and Transformation
Talent

CARC is focused and committed to attracting, recruiting, retaining, developing, and inspiring the best students, the best faculty, and the best staff to accomplish its academic mission.
CARC is focused and committed to the establishment, maintenance, and continuous improvement of the processes, the mechanisms, the tools, and the resource base for learning/teaching, research/creative work/scholarship, and engagement…
Capacity CARC is focused and committed to positively responding to complex challenges and harsh realities of the 21st Century, transforming and positively impacting individuals, families, communities, organizations in the public and private sectors, society, and the world, by accomplishing our vision and our academic mission...
Now, let’s take a quick look at the College of Architecture (CARC) at Texas A&M University (TAMU)
People
faculty & staff
Faculty and Staff

- The college has (as of Fall 2012):
  - **126 faculty** (83 tenured / tenure track, 43 non tenure)
  - **55 staff members** (not counting Colonias Program project field staff)
# Faculty Breakdown
(As of Fall 2012)

<table>
<thead>
<tr>
<th>Department</th>
<th>Tenured / Tenured Track</th>
<th>Non Tenure</th>
<th>Administrators</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH</td>
<td>29</td>
<td>12</td>
<td>3</td>
<td>41</td>
</tr>
<tr>
<td>COSC</td>
<td>18</td>
<td>10</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>LAUP</td>
<td>25</td>
<td>12</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>VIZA</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>126</strong></td>
</tr>
</tbody>
</table>
students
Students

• Total College Enrollment – 1,932 students (as of Fall 2012)
  – Undergraduate Level
    • 1,440 undergraduate students
  – Graduate Level (Masters)
    • 375 graduate students
  – Graduate Level (Ph.D.)
    • 117 doctoral students
Undergraduate Enrollments
(As of Fall 2012)

<table>
<thead>
<tr>
<th>Major</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Science</td>
<td>609</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>363</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>107</td>
</tr>
<tr>
<td>Urban and Regional Planning</td>
<td>77</td>
</tr>
<tr>
<td>Visualization</td>
<td>231</td>
</tr>
<tr>
<td>Other Undergraduates</td>
<td>51</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,438</strong></td>
</tr>
</tbody>
</table>
## Graduate Enrollments – Master Level
(As of Fall 2012)

<table>
<thead>
<tr>
<th>Major</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>102</td>
</tr>
<tr>
<td>Construction Science</td>
<td>62</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>40</td>
</tr>
<tr>
<td>Urban Planning</td>
<td>54</td>
</tr>
<tr>
<td>Land and Property Development</td>
<td>33</td>
</tr>
<tr>
<td>Visualization</td>
<td>68</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>16</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>375</strong></td>
</tr>
</tbody>
</table>
Graduate Enrollments – Doctoral Level
(As of Fall 2012)

<table>
<thead>
<tr>
<th>Major</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>61</td>
</tr>
<tr>
<td>Urban and Regional Planning</td>
<td>56</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>117</strong></td>
</tr>
</tbody>
</table>
# Total Enrollments
(As of Fall 2012)

<table>
<thead>
<tr>
<th>Major</th>
<th>Student Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Science</td>
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<td>231</td>
</tr>
<tr>
<td>Other Undergraduates</td>
<td>51</td>
</tr>
<tr>
<td><strong>Total Undergraduates</strong></td>
<td><strong>1,438</strong></td>
</tr>
<tr>
<td><strong>Total Graduates</strong></td>
<td><strong>492</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,930</strong></td>
</tr>
</tbody>
</table>
Academic Structure of CARC
departments
Disciplines and Departments

• Seven primary *disciplinary domains*
  – Regional & Urban Planning
  – Land & Property Development
  – Landscape Architecture
  – Architecture
  – Construction Science
  – Facility Management
  – Visualization

• Four *departments*
  – Department of Architecture (ARCH)
  – Department of Construction Science (COSC)
  – Department of Landscape Architecture and Urban Planning (LAUP)
  – Department of Visualization (VIZA)
research units
Research Units

- **Five research centers**
  - Center for Heritage Conservation (CHC)
  - Center for Health Systems and Design (CHSD)
  - Center for Housing and Urban Development (CHUD)
  - CRS Center for Leadership and Management in the Design and Construction Industry (CRS)
  - Hazard Reduction and Recovery Center (HRRC)

- **Two institutes**
  - Institute for Applied Creativity (IAC)
  - Institute for Sustainable Coastal Communities (ISCC)

- **Three laboratories**
  - Visualization Lab (VIZ Lab)
  - Daylighting Lab (DLL)
  - Environmental Psychophysiology Lab (EPL)

- **One Legislative Mandate:**
  - The Colonias Program

- **Partnerships with:**
  - Energy Systems Lab (ESL)
  - Interface Ecology Lab (IEL)

- **Average yearly research expenditures:**
  - $4–5 Million
And within Research Centers...

- **Faculty Fellows, Professional Fellows, and/or Corresponding Fellows**

- **Graduate Certificates** in their respective knowledge domain areas:
  - Certificate in **Historic Preservation (CHC)**
  - Certificate in **Health Systems and Design (CHSD)**
  - Certificate in **Sustainable Urbanism (CHUD)**
  - Certificate in **Facility Management (CRS)**
  - Certificate in **Environmental Hazard Management (HRRC)**
  - Certificate in **Transportation Planning (HRRC)**
degree
programs
Degree Programs

• **ARCH**
  - Bachelor of Environmental Design (**BED-ENDS**)
  - Master of Architecture (**M-ARCH**)
  - Master of Science in Architecture (**MS-ARCH**)
  - Doctor of Philosophy in Architecture (**PhD-ARCH**)

• **COSC**
  - Bachelor of Science in Construction Science (**BS-COSC**)
  - Master of Science in Construction Management (**MS-COMG**)
Degree Programs (cont.)

**LAUP**
- Bachelor of Landscape Architecture (**BLA-LAND**)
- Bachelor of Science in Urban and Regional Planning (**BS-URPN**)
- Master of Landscape Architecture (**MLA-LAND**)
- Master of Science in Land and Property Development (**MLPD**)
- Master of Urban Planning (**MUP-URPL**)
- Doctor of Philosophy in Urban and Regional Science (**PhD-URSC**)

**VIZA**
- Bachelor of Science in Visualization (**BS-VIZA**)
- Master of Science in Visualization (**MS-VIZA**)
- Master of Fine Arts in Visualization (**MFA-VIZA**)
Degree Programs (cont.)

• **CARC (College of Architecture)**
  
  – Bachelor of Science in University Studies – Architecture (**BS-USAR**)

  – **Minors:**
    
    • Art & Architectural History
    • Art
    • Urban Planning
    • Facility Management
    • Global Arts, Design, Planning & Construction
Undergraduate Degrees

BS - Construction Science
BED - Environmental Design
BLA - Landscape Architecture (5 year)
BS - Urban and Regional Planning
BS – Visualization
BS – University Studies
Master Degrees

MARCH – Architecture
MS – Architecture
MS – Construction Management
MS – Land and Property Development
MLA – Landscape Architecture
MUP – Urban Planning
MFA – Fine Arts
MS – Visualization
Doctorate Degrees

PhD – Architecture
PhD – Urban and Regional Sciences
governance
College Executive Leadership Team (CELT)

• Dean
  – Jorge Vanegas

• + Executive Leadership Team
  – Lou Tassinary, Executive Associate Dean
  – Leslie Feigenbaum, Assistant Dean Academic Affairs
  – Elton Abbott, Assistant Dean for International Programs and Initiatives
  – Chris Novosad, Assistant Dean Finance and Administration
  – Cecilia Giusti, Associate Dean for Diversity and Outreach
College Leadership Team (CLT)

- CELT
- Department Heads (or their designees)
  - Ward Wells, Department of Architecture
  - Joe Horlen, Department of Construction Science
  - Forster Ndubisi, Department of Landscape Architecture and Urban Planning
  - Tim McLaughlin, Department of Visualization
CLT

CELT

College Leadership Team (CLT)

Department Head of Visualization
Department Head of Architecture
Department Head of Landscape Architecture & Urban Planning
Department Head of Construction Science
College Council (CC)

- CELT + CLT
- + Center and Institute Directors (or their designees):
  - Robert Warden, Center for Heritage Conservation
  - Mardelle Shepley, Center for Health Systems and Design
  - Shannon Van Zandt, Center for Housing and Urban Development
  - Valerian Miranda, CRS Center for Leadership and Management in the Design and Construction Industry
  - Walter Peacock, Hazard Reduction and Recovery Center
  - Carol LaFayette, Institute for Applied Creativity
  - Sam Brody, Institute for Sustainable Coastal Communities
  - Oscar Muñoz, Colonias Program
College Council (CC)
(cont.)

• + Representatives from other College Units:
  – The Chair and two (2) elected Representatives from the Administrative Staff Council
  – The four (4) College Senators
  – The College Representative to the Council of Principal Investigators (CPI)
  – One (1) elected Undergraduate Student Representative
  – One (1) elected Graduate Student Representative
College Council (CC)

Dean

CELT

CLT

Center & Institute Directors

Four College Senators

Chair & Two Elected Representatives from the College Administrative Staff Council

College Representative to the Council of Principal Investigators (CPI)

One Elected Undergraduate Student Representative

One Elected Graduate Student Representative

CC
CARC Councils & Committees (CCC)

• Under the oversight of the Dean:
  – College Executive Leadership Team (CELT)
  – College Leadership Team (CLT)
  – College Council (CC)
  – College of Architecture Development Advisory Council (CADAC)
  – Public Relations Council (PRC)

• Under the oversight of the Executive Associate Dean:
  – College Tenure & Promotion Committee (CT&PC)
  – College Research & Interdisciplinary Council (CRIC)
  – Fabrication Facilities Council (FFC)
  – Information Technology Council (ITC)
CARC Councils & Committees (CCC) – cont.

• Under the oversight of the Assistant Dean for Academic Affairs:
  – Academic Affairs Council (AAC)
  – Student Advisory Council (SAC)

• Under the oversight of the Assistant Dean for International Programs and Initiatives:
  – International Affairs Council (IAC)

• Under the oversight of the Assistant Dean for Finance and Administration:
  – Administrative Staff Council (ASC)
  – Staff Development Committee (SDC)
  – Instructional Enhancement/Equipment Access Fee Committee (IEEAFC)
CARC Councils & Committees (CCC) – cont.

• Under the Associate Dean for Diversity and Outreach
  – Diversity Council (DC)

• Under the joint oversight of the Dean and the Executive Associate Dean:
  – Faculty Senate Caucus (FSC)
  – College Endowed Lecture Series Committee (CELSC)
  – Grievance Committees (As needed)
institutional drivers
TAMU is renewing its commitment to the imperatives, precepts, and pathways of “Vision 2020”...
1. Elevate Our Faculty and Their Teaching, Research, and Scholarship
2. Strengthen Our Graduate Programs
3. Enhance the Undergraduate Academic Experience
4. Build the Letters, Arts, and Sciences Core
5. Build on the Tradition of Professional Education
6. Diversify and Globalize the A&M Community
7. Increase Access to Knowledge Resources
8. Enrich Our Campus
9. Build Community and Metropolitan Connections
10. Demand Enlightened Governance and Leadership
11. Attain Resource Parity with the Best Public Universities
12. Meet Our Commitment to Texas

TAMU
... To the three fundamental pillars of its “Academic Mission”
... To the precepts and goals of its “2015 Education First Strategic Plan”
Precept 1 – Fulfill Texas A&M’s flagship mission

Goal 1 – Maintain the current on-campus enrollment and increase the number of students who graduate annually, ensuring that Texas A&M’s learning environment prepares students for a highly competitive and rapidly changing world and professional workforce, and for responsible civic engagement in a diverse society.

Goal 2 – Elevate the impact of our scholarship to effectively advance the state, the nation and the world in meeting societal challenges and opportunities.

Goal 3 – Diversify the resource base of Texas A&M University by expanding external funding from public and private sources through competitive, philanthropic and commercialization activities.

Precept 2 – Practice intelligent stewardship of resources entrusted to Texas A&M

Goal 4 – Recognize and strengthen the contributions and value of a diverse community of faculty, staff and administrators who serve Texas A&M and the State of Texas.

Goal 5 – Create clear processes and effective resource utilization to maintain health, safety and sound infrastructure throughout Texas A&M University.

Goal 6 – Ensure public trust in Texas A&M through open accountability mechanisms that demonstrate efficient resource utilization and effective programmatic outcomes.
... To the learning outcomes and high impact educational practices of “Aggies Commit”
Learning Outcomes:
Bachelor Level

✓ Master the depth of knowledge required for a degree
✓ Demonstrate critical thinking
✓ Communicate effectively
✓ Practice personal and social responsibility
✓ Demonstrate social, cultural, and global competence
✓ Prepare to engage in lifelong learning
✓ Work collaboratively
Learning Outcomes: Master Level

- Master the degree program requirements
- Apply subject matter knowledge in a range of contexts to solve problems and make decisions
- Use a variety of sources and evaluate multiple points of view
- Communicate effectively
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems
Learning Outcomes: Master Level (cont.)

✓ Develop clear research plans and conduct valid, data-supported, theoretically consistent, and institutionally appropriate research

✓ Choose ethical courses of action in research and practice
Learning Outcomes: 
Doctoral Level

✓ Master the degree program requirements
✓ Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view
✓ Communicate effectively
✓ Develop clear research plans, conduct valid, data-supported, theoretically consistent, and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.
Learning Outcomes:  
Doctoral Level (cont.)

✓ Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.

✓ Teach and explain the subject matter in their discipline

✓ Choose ethical courses of action in research and practice
Liberal Education and America's Promise (LEAP) Outcomes of the AAC&U

✓ Knowledge of human cultures and the physical and natural world
✓ Intellectual and practical skills
✓ Personal and social responsibility
✓ Integrative and applied learning
High-Impact Educational Practices

✓ First-Year Seminars and Experiences
✓ Common Intellectual Experiences
✓ Learning Communities
✓ Writing-Intensive Courses
✓ Collaborative Assignments and Projects
✓ Undergraduate Research
✓ Diversity / Global Learning
✓ Service Learning / Community-Based Learning
✓ Internships
✓ Capstone Courses and Projects
... And to the “Aggie Core Values”
✓ Excellence
✓ Leadership
✓ Loyalty
✓ Integrity
✓ Respect
✓ Selfless Service
Physical Infrastructure and Assets of CARC
buildings
CARC is currently spread on-campus across eight buildings...
Langford Architecture Center Building C
(Full Occupancy)
Scoates Hall (Partial Occupancy)
Emerging Technology and Economic Development Building (Partial Occupancy)
... and two at the Riverside Campus
Digital Fabrication Facility at Riverside
Digital Fabrication Facility at Riverside
Fabrication Facilities

- **Woodshop** at the College Station Campus
- **Digital Fabrication Facility** at the Riverside Campus (*ARCH Ranch*)

They enable hands-on, small to full scale prototyping, fabrication, demonstration, and evaluation of integrated design/build solutions developed:

- Within undergraduate and graduate design studios, or
- As part of research and creative work activities in any of the disciplinary and interdisciplinary domains addressed in the departments and research centers in the college
international programs
International Programs

• **Study abroad programs:**
  – Italy (Castiglion Fiorentino, in the Santa Chiara Center.)
  – Spain (Barcelona)
  – Germany (Bonn)
  – UK (London)

• **International exchange programs** throughout the world:
  – Costa Rica
  – Australia
  – New Zealand
  – Guatemala
  – China
  – India
  – Mexico
  – Others
endowments & agreements
Endowments

- **Endowments** and other **annual contributions** at college, department, and research center levels. Total endowment value of approximately **$20 Million** (As of Summer 2011)

- Includes:
  - Endowed Chairs (4): $5,444,472.75
  - Endowed Professorships (15): $3,874,108.23
  - Endowed Scholarships and Fellowships (138): $6,950,870.43
  - Other (Discretionary, Lectures): $3,592,579.19
  - Endowed and Annual Student Support Awarded This Year: $550,666.00
Endowments (cont.)

The Mitchell Initiative

- Sandy and Bryan Mitchell Master Builder Chair $1,000,000
- History Maker Homes Endowed Scholarships $200,000
- Virgie D. and O.N. Mitchell Sr. Endowed Scholarships $50,000

- Nicole and Kevin Youngblood Professorship in Residential Land Development $300,000
- Liz and Nelson Mitchell Professorship in Residential Design $300,000
- History Maker Homes Professorship in Construction Science $75,000
- Helen and O.N. Mitchell Jr. Faculty Fellowship in Real Estate $300,000

History Maker Homes Residential Studio $80,000
Cooperative Agreements

• CARC has *cooperative agreements with other academic and research units* within TAMU, within the Texas A&M University System (TAMUS), and at other academic institutions in the U.S. and international, for example:
  – Health Sciences Center (HSC)
  – Texas Transportation Institute (TTI)
  – Texas Center for Applied Technology (TCAT)
  – The Sea Grant Program, Galveston
  – The Institute for Neuroscience
  – The Institute for Digital Humanities
  – Others
Cooperative Agreements (cont.)

- **Membership and cooperative agreements with organizations** in the public and private sectors

- Multiple **industry advisory councils and boards** at college, department, and research center levels
The Internal Institutional Context of CARC
First, everything we do in CARC is framed within its fundamental academic mission...
Second, in fulfilling its fundamental academic mission, CARC is currently...
✓ Evidence – Based
✓ Data – Driven
✓ Outcome – Pulled
Baselines, Responsibilities, & Points of Departure

Visions, Outcomes, and Destination

Delta, Impact, Transformation, & Accountability

Pathways

Metrics, Indicators, and Benchmarks of Performance, Excellence, and Success
Driven by:
✓ Student Success
and
✓ Faculty Excellence,
within our
✓ Fiscal Reality,
never forgetting our
✓ SwORT
Third, and as we proceed to move from baselines to visions, CARC is also...
Striving to break the chains that shackle us to the status quo and to several sacred cows...
Status Quo

Pronunciation: \ˈstā-təs\ \-\ˈkwō\ \\
\ˈsta-təs\ \-\ˈkwō\ \\

: the existing state of affair
Sacred Cow
Pronunciation: \ˈsā-kred\ \ˈkau\:
one that is often unreasonably immune from criticism or opposition

http://www.merriam-webster.com/
Who can teach (credentials, knowledge, experience, and rank)

What we teach (curriculum)

Where & When we teach (context, space, and time)

How we teach (pedagogy)

With What we teach (human, technological, and other resources)

The Sacred Cows
And...

Sacred Cows make the best hamburgers...
But, how is CARC building the best hamburger out of these cows...?
It starts with the creation of a **Solid Foundation**...

A culture, climate, and infrastructure of **Creativity, Innovation, Design**, and **Entrepreneurship** fueled by **Imagination**, within an environment of **Transdisciplinarity**
It continues with establishing goals for delivering *Lasting Value*...

*Bachelors, Masters, Ph.D. Degree Graduates, and Continuing Education/Training Participants*
It ends with the design, implementation, and delivery of high impact **Learning Experiences** and **Teaching Practices**...

Active, Inductive, & Cooperative Learning; Case Based, Problem Based, Project Based Learning; Seminars, Courses, Design Studios, & Laboratories; Internships, Service Learning, Programs Abroad, & Distance Learning
... Enhanced with a desired set of specific guiding Principles...

- Leadership, Management, Communication, Interpersonal, Life Long Learning Skills and Abilities
- Ethics, Sustainability, Diversity, Curiosity, Knowledge Creation, Creative Works, and a Global Perspective
- Creative, Innovative, Design, & Entrepreneurial Spirit; Systems, Critical, & Visual Thinking; and Technology Proficiency
... Strengthened and enhanced with a selected set of **Strategic Alliances**...
Thus, providing a way to satisfy the hunger and thirst for scholarship of students, faculty, staff, former students, practitioners, and friends in any of the knowledge domains within CARC...
But, we also must not forget current Given Constraints...

Budget Cuts and Fiscal Realities
... And

Unreasonable Expectations

Visions & Strategic Plans
And finally, how do you know you have the best **Hamburger**?

Thus, we need to define shared Metrics, Indicators, and Benchmarks of **Performance**, **Excellence**, and **Success**...
And building upon this quest, we have identified two areas of strategic focus: Potential Improvement and Potential Optimization...
Who can teach and research (credentials, knowledge, experience, and rank)

What/Why we teach and research (curriculum and research agendas)

Where & When we teach and research (context, space, and time)

How we teach and research (pedagogy and research methodologies)

With What we teach and research (human, technological, and other resources)

Areas of Potential Improvement

can teach and research (credentials, knowledge, experience, and rank)
Areas of Potential Optimization

**Academic Programs**
(at bachelors, masters, and doctoral levels)

**Other Assets**
(fabrication facilities, programs abroad, cooperative agreements, and endowments)

**Research Units**
(laboratories, centers, and institutes)

**People**
(number of students, faculty, and staff within the college and departments)

**Space**
(allocation and utilization within the college, departments, and research units)
Fourth, and in doing so, CARC has...
... The aspirational goals of...
Does what we are doing have relevance...?

Pronunciation: \( 're-lə-vən(t)s' \)

1 a : relation to the matter at hand
   b : practical, and especially social. applicability : pertinence

2 : the ability to retrieve material that satisfies the needs of the user
Does what we are doing have significance...?

Pronunciation: /sɪg-ˈni-fi-kən(t)əs/

1 a : something that is conveyed as a meaning often obscurely or indirectly
   b : the quality of conveying or implying

2 a : the quality of being important : moment
   b : the quality of being statistically significant
Is what we are doing helping make us pre·em·i·nent...?

Pronunciation: \( \text{prē- 'e-mə-nənt} \)

: having paramount rank, dignity, or importance
: outstanding, supreme
Is the nature of what we are doing seminal...?

Pronunciation: \ˈse-mə-nəl\

1 : of, relating to, or consisting of seed

2 : containing or contributing the seeds of later development : creative, original
Is what we are doing having an impact...?

Pronunciation: \'im-,pakt\n
: the force of impression of one thing on another
: a significant or major effect
Is what we are doing transcendental...?

Pronunciation: \(\text{tran-}\ '\text{sen-dənt}\)

1 a : exceeding usual limits : surpassing
b : extending or lying beyond the limits of ordinary experience
c in Kantian philosophy : being beyond the limits of all possible experience and knowledge

2 : being beyond comprehension

3 : transcending the universe or material existence

4 : universally applicable or significant
In what we are doing, are we having fun...?

1 : what provides amusement or enjoyment; specifically : playful often boisterous action or speech

2 : a mood for finding or making amusement
CARC is currently in a quest for creative scholarship...
First, everything we do in CARC is currently driven by a fundamental formula...
Talent

+ Infrastructure

= Capacity for Response, Impact, and Transformation
Unleashed in the pursuit of...
✔ **Answering questions** through research,
✔ **Solving problems** through its expertise in planning, land and property development, landscape architecture, architecture, construction, facility management, visualization, and/or other associated relevant knowledge domains,
✔ **Satisfying needs** through services,
✔ **Realizing opportunities** through entrepreneurship, and
✔ **Fulfilling aspirations** through empowerment, facilitation, coaching, and training…
As the fuel for Imagination...
✓ Questions
✓ Problems
✓ Needs
✓ Opportunities
✓ Aspirations

Imagination
At the core of four ways of thinking...
In any combination...
(individually)

✔ Creativity
✔ Innovation
✔ Design
✔ Entrepreneurship
In any combination...
(in duos)

✓ Creativity <-> Innovation
✓ Creativity <-> Design
✓ Innovation <-> Design
✓ Creativity <-> Entrepreneurship
✓ Innovation <-> Entrepreneurship
✓ Design <-> Entrepreneurship
In any combination...
(in trios)
In any combination...
(in a quartet)
And at the intersection of three primary target focus areas...
ENgagement MISSION

People

Place

What People do in a Place
... Within three Environments...
ENGAGEMENT MISSION

People

Place

What People do in a Place

LEARNING & TEACHING MISSION

RESEARCH, CREATIVE WORK, AND SCHOLARSHIP MISSION
ENGAGEMENT MISSION

Visualization

Virtual Environment

Natural Environment

Built Environment

Sustainability

Health

RESEARCH, CREATIVE WORK, AND SCHOLARSHIP MISSION

LEARNING & TEACHING MISSION
Second, CARC has defined three strategic primary research focus areas...
Sustainability

*Develop robust tools to assess the efficiency, resiliency and vulnerability of real-world ecosystems across spatial and temporal scales.*
Sustainability Themes

**Environmental Sustainability and Planning** focuses on interaction between physical development and maintaining the integrity of ecological systems over the long term.

**Sustainable Housing** addresses new solutions for shelter and protection, bringing together the values of resilience and equity.
Sustainability Themes

**Sustainable Transportation** synthesizes ongoing advancements in architecture, urban design, design engineering, and traffic psychology to develop a holistic, comprehensive approach to the reduction of traffic-related deaths and injuries.
Sustainability Themes (cont.)

**Natural Hazard Mitigation Planning and Recovery** focuses on preparing for, responding to, and recovering from acute natural hazards events, such as hurricanes, earthquakes, and tsunamis.
Disaster Planning for Health and Human Services has the dual focus of disaster needs for health and human services, as well as planning for health disasters.

Others...
Health

Develop evidence-based design guidelines to ameliorate the negative impact of the physical environment on health and safety.
Health Themes

**Active Living Environments** focuses on developing communities that support an active lifestyle are critical to health maintenance and reduction in obesity.

**Evidence-Based Design** can be defined as the process, which utilizes research evidence to inform the design of buildings.
Health Themes

**Practice-Based Research** refers to conducting research as part of professional practice.

**Life-Span Design Research** serves as the organizational theme for generating health design research that addresses the needs of all individuals from infants to seniors.
International/Developing Country Health Environment Needs uses healthcare design research and education as a critical means to the development of an agenda, which addresses global healthcare environment needs.

Others...
Visualization

Create a commorancy where art and science enable visually-mediated understanding.
Visualization Themes

**Collaborative Visualization**
encourages and facilitates interdisciplinary scholarship through the discovery of tools, processes, and techniques that promote creative productivity.

**Ubiquitous Physical Computing**
refers to the use of digital technologies applied to physical spaces, objects, and structures.
Visualization Themes

**Evidence-Based Serious Game Design** involves the use of electronic interactive computer graphics for learning and training.

**4D Photography** uses imagery to capture, analyze, and synthesize how people, animals, and objects move both as individuals and in groups.
Visualization Themes (cont.)

**Computer-aided design and construction** involves a variety of concepts and systems to make design and construction of everything adaptable and economical, from bike helmets to multi-million dollar hospitals.
Visualization Themes (cont.)

*Building information modelling (BIM)* is the process of generating and managing building data in three-dimensional real-time representation.

*Others...*
Third, CARC has also defined three strategic catalytic focus areas...
Virtual Environment

Natural Environment

Built Environment

Paradigm Shifts Toward Transdisciplinarity

Technology

Integration
Integration

Integration in **Theory** and in **Practice**...
Theory

Integrated Regional Planning
Theory

Integrated Urban Planning and Design
Integrated Land and Property Development

Theory
Integrated Facility Delivery

*(Planning, Design, and Construction)*
Theory

Integrated Facility Management
Theory

Integrated Technologies
Practice

Integrated Business Practice
Practice

Integrated Project Delivery
Practice

Integrated High Performance Team
Practice

Integrated Design Process
Practice

Integrated Procurement/Construction Process
Practice

Integrated Technologies
Technology

Support the development of technologies that support integration in Theory and in Practice, and also, the implementation of interoperability within them.
Theory

Practice

Technology
BIM is ...

Downstream of Design: Life Span Costs and Benefits of Building Information Modeling
Dr. Mark Clayton
BIM -
Accelerates the drawing production processes for
Project Transformation

Downstream of Design: Life Span Costs and Benefits of Building Information Modeling
Dr. Mark Clayton
BIM - Exchanges data with partners for Business Transformation

Downstream of Design: Life Span Costs and Benefits of Building Information Modeling
Dr. Mark Clayton
BIM-

Smoothes supply chains for

Industry-wide Transformation

Downstream of Design: Life Span Costs and Benefits of Building Information Modeling
Dr. Mark Clayton
Paradigm Shifts Toward Transdisciplinarity

Implement four paradigm shifts that will move the college toward a realization of *Unity of Knowledge* and *Alignment of Action*. 
Integrated Academic Missions & Learning Environments

Pluridisciplinarity

Expanded Scholarship

Discovery Knowledge Creation
First:

CARC initiatives follow a paradigm of pluridisciplinarity...
Disciplinarity is concerned with the study of a topic within only one discipline.
Disciplinarity (cont.)

- Question
- Problem
- Need
- Opportunity
- Aspiration (in any knowledge domain)

- Discipline Boundary
- Discipline Depth
- Solid Theoretical Foundation
Pluridisciplinarity is concerned with the study of a topic, not in only one discipline, but in several at the same time.
Multidisciplinarity is with the study of a topic within one discipline, with support from other disciplines, bringing together multiple dimensions, but always in the service of the driving discipline.
Multidisciplinarity (cont.)

Discipline A

Discipline B

Discipline C

Discipline D

Discipline E

Question
Problem
Need
Opportunity
Aspiration
(in any knowledge domain)
Interdisciplinarity is concerned with the study of a topic within multiple disciplines, and with the transfer of methods from one discipline to another.
Interdisciplinarity (cont.)

Question
Problem
Need
Opportunity
Aspiration
(in any knowledge domain)
Crossdisciplinarity is concerned with the study of a topic at the intersection of multiple disciplines, and with the commonalities among the disciplines involved.
Crossdisciplinarity (cont.)

Question
Problem
Need
Opportunity
Aspiration (in any knowledge domain)
Transdisciplinarity is concerned, at once, with what is:

✔ Within the disciplines
✔ Between the disciplines
✔ Across the different disciplines
✔ Beyond all disciplines.

Its goal is the understanding of the present world under an imperative of unity of knowledge.
Transdisciplinarity (cont.)

✔ Within the disciplines
✔ Between the disciplines
✔ Across the different disciplines
✔ Beyond all disciplines.
Transdisciplinarity (cont.)

...an imperative of unity of knowledge...
Second:

**CARC initiatives follow a paradigm of integrated academic missions and learning environments...**
Transdisciplinarity

Learning/Teaching

Teaching what is researched

Research/Researching what is taught and how

Creative Work/Scholarship

Taking to Practice what is taught

Teaching what is being practiced

Researching what is being practiced

Engagement (Practice, Outreach, and Service)
Integrated Academic Mission

Learning/Teaching

Research/Creative Work/Scholarship

Engagement (Practice, Outreach, and Service)

Transdisciplinarity
Transdisciplinarity

Enhanced Learning Experiences (1)
Through Integrated Learning/Teaching & Research/Creative Work/Scholarship

Learning/Teaching
Research/Creative Work/Scholarship

Enhanced Learning Experiences (2)
Enhanced Learning Experiences (3)

Engagement (Practice, Outreach, and Service)

Through Integrated Learning/Teaching & Engagement
Through Integrated Research/Creative Work/Scholarship & Engagement
Integrated Learning Experiences

Integrated Learning Experience

Enhanced Learning Experiences (1)

Enhanced Learning Experiences (2)

Enhanced Learning Experiences (3)

Transdisciplinarity
Service Learning
CARC Students
Other TAMU Students
Other U.S. Students
International Students

Continuing Education
AEC Professionals
Other Professionals
Government Officials
The Community

K-12 Education

Traditional Formal University Education
Disciplinary and Interdisciplinary Bachelor, Master, and Doctoral Levels

Vocational and Community College Education
The **Pre-K through Grey life-long learning education pipeline**: Multiple Learner Constituencies

- **Pre-K**
  - High School Non-graduates
  - College Non-graduates
  - University Non-graduates
  - Graduate Studies Non-graduates
  - Doctoral Studies Non-graduates
  - Post-Doctoral Work

- **Grey**
  - Doctoral Degree
  - Graduate Degree (Masters)
  - 4 Yr. University Degree (Bachelors)
  - 2 Yr. College Degree
  - Teaching what is taught and how
  - Researching what is being practiced

- **Workforce Learners**
  - (without a formal degree at any level)
  - (with a high school degree or higher)
Third:

CARC initiatives follow a paradigm of discovery and knowledge creation to move from the Baseline of what is, to a Vision of what can be...
From what is...

Current State (Status Quo)

External Context

DRIVERS

Questions,

Problems,

Needs,

Opportunities,

Aspirations...

Transdisciplinarity
To what can be...

Answers,

Solutions,

Satisfaction,

Realization,

Fulfillment...

Transdisciplinarity
Through...

**DRIVERS**

External Context

Current State (Status Quo)

Internal Context

**OUTCOMES**

External Context

Future State (Vision)

Internal Context

**RD^4E**

Transdisciplinarity
Transdisciplinarity

Current State (Status Quo)

Future State (Vision)

Partners

Dissemination

Deployment

Demonstration

Research

Development

Evaluation

CARC Initiatives

Partners
Fourth:

CARC initiatives follow a paradigm of expanded scholarship...
Sources of Scholarship outside CARC

Multiple Engagement Constituencies

Associated Academic Units in the Texas A&M System

College of Agriculture and Life Sciences

Dwight Look College of Engineering

Associated Research Units in the Texas A&M System

College of Education and Human Development

College of Veterinary Medicine & Biomedical Sciences

College of Geosciences

College of Liberal Arts

College of Engineering

College of Liberal Arts

Texas A&M Libraries

Mays Business School

Center for Heritage Conservation

Center for Housing & Urban Development

Center for Leadership & Management in the Design and Construction Industries

Center for Healthy Communities

Center for Sustainable Coastal Communities

Institute for Applied Creativity

Institute for Sustainable Coastal Communities

Colonias Program, Other Assets, and Internal Strategic Alliances & Partnerships

Institute for Applied Creativity

Department of Architecture

Department of Construction Science

Department of Landscape Architecture & Urban Planning

Department of Visualization

Transdisciplinarity
Foundation of Scholarship in CARC

Departments, Centers & Institutes, and Other Sources of Scholarship within the College (Well Rouded Foundation)

Transdisciplinarity
Expanded Vision of Scholarship in CARC
Adapted from E. Boyer

Disciplinary Depth
Within the Knowledge Domains in each College Unit

Departments, Centers & Institutes, and Other Sources of Scholarship within the College (Well Rounded Foundation)

Transdisciplinarity
... At a global scale...

Through strategic alliances and partnerships... ... and...
Another way of looking at this...
The question then is:

How do you unlock all this potential?
Finally, CARC is concurrently in the process of developing its unique DNA...
Through its unique DNA of Imagination, Creativity, Innovation, Design, and Entrepreneurship within a Transdisciplinary Environment, CARC will continue to be an asset for TAMU, for the TAMU System, for the State of Texas, the Nation, and beyond, acting as both a Portal providing access, and a Bridge providing connection, to a diverse set of assets for the Built, Natural, and Virtual Environments.
It begins with the four paradigm shifts...

- Integrated Academic Missions & Learning Environments
- Pluridisciplinarity
- Discovery & Knowledge Creation
- Expanded Scholarship
At the core of...

CARC’s Academic Mission:
- Learning/Teaching
- Research, Creative Work, and Scholarship
- Engagement (Practice, Outreach, & Service)
In turn, embedded within...

A Continuum of:

(1) Imagination; (2) Creativity; (3) Innovation; (4) Design; and (5) Entrepreneurship…
An Integrated Discovery & Knowledge Generation Continuum:

(1) Benchmarks & Baselines; (2) Visions & Desired Outcomes; (3) Research; (4) Development; (5) Demonstration; (6) Deployment; (7) Dissemination; and (8) Evaluation…

Which is then embedded within...
In turn, embedded within...

An Engagement Continuum with Relevant Sociotechnical Groups:

1. Building science investigators;
2. Social science investigators;
3. Land & real estate development specialists;
4. Planning & AE design specialists;
5. General contractors & specialty subcontractors specialists;
6. Facility managers specialists;
7. Visualization specialists;
8. Policy/Code-makers;
9. Utilities/Service providers;
10. Technology, equipment, products, and materials manufacturers;
11. Financial institutions;
12. Educational institutions…
Creating over time...
A dynamic continuum over time of transdisciplinary interactions...

...Where any of the sociotechnical groups can engage in any of the discovery and knowledge generation stages, and any dimension of the continuum of creativity, innovation, design, and entrepreneurship, within any of the three pillars of the academic mission of the College, at any time...
Continuously evolving and adapting...
With the intent of delivering...

(1) **Innovative Sustainable Products** for the Natural, Built, and Virtual Environments

(2) **Innovative Sustainable Processes** for the Natural, Built, and Virtual Environments

(3) **Innovative Sustainable Services** for the Delivery of Innovative Products and Processes for the Natural, Built, and Virtual Environments

(4) **Innovative and Sustainable Unique Experiences** within the Natural, Built, and Virtual Environments

(5) **Innovative Sustainable Business Models** for the Delivery of Innovative Products and Processes for the Natural, Built, and Virtual Environments

(6) **Innovative Barrier Breakers, Obstacle Removers, and Enablers** for the Deployment and Implementation of Innovative Sustainable Products, Processes, Services, Experiences, and Business Models for the Natural, Built, and Virtual Environments
As a portfolio that includes...

<table>
<thead>
<tr>
<th>Levels of Innovation</th>
<th>Types of Innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Incremental/Evolutionary Innovations</td>
<td>(1) Products</td>
</tr>
<tr>
<td>(B) Radical/Revolutionary Innovations</td>
<td></td>
</tr>
<tr>
<td>(C) New/Breakthrough Innovations</td>
<td></td>
</tr>
</tbody>
</table>

- Strategies, Processes, Tools, Principles, and Practices
- Needs (Push/Pull Drivers)
- Ingredients (Resources)
- Precedents (Points of Departure)
... To provide a higher quality of life for people (i.e., individuals, families, communities, & organizations)...
... To provide a **higher quality** of place for people (i.e., natural, built, & virtual)...
... To provide a higher quality of living, working, learning, healing, praying, playing, buying, interacting, and any other activity that people need or want to do in a place...
...Imagine the possibilities...

Thank you!
It’s time to unleash your creative potential

The Texas A&M University College of Architecture is a haven for experimentation, discovering one’s strengths and unleashing the hidden capabilities of the human mind. Here, students embark on a journey of self-discovery. They learn how to unlock their creative potential, become lifelong learners, thought leaders and knowledge creators. Because creativity and the production of knowledge are the currencies of the future...

... It’s time for the College of Architecture

www.arch.tamu.edu