

# GOALI: Conference on Architecture and Construction Research Initiatives for 2020- An Engagement of Academia, Industry, and Organizations

Progress Report

A+CA Meeting at ASC National Conference



# Agenda

- Team
- Timeline
- Progress
- Next steps
- Discussion

# Team

- **Clemson:**
  - *David Allison, FAIA, FACHA*
  - *Shima Clarke, PhD, P.E., AIC*
  - *Byron M. Edwards, AIA, ACHA*
  - *James Packer Smith, Ph.D.*
- **Georgia Tech**
  - *John Riker Haymaker, AIA, PhD, LEED AP*
  - *Pardis Pishdad-Bozorgi, Ph.D.*
  - *Javier Irizarry, Ph.D., P.E., CGP*
- **Virginia Tech**
  - *Jesus M. de la Garza, Ph.D.*

# Timeline (up to today)

- 1) Received ACA GOALI Pre-Proposal Call
- 2) Clemson-Georgia Tech Team formed to respond to the Call
- 3) Researched NSF GOALI program and A+CA Research Initiatives to develop the A+CA Pre-Proposal
- 4) Submitted proposal to A+CA and received notice of GOALI Award on 11/14/2014 identifying three gaps in the proposal:
  1. The initiative should more directly address linkage to industry
  2. The initiative should engage more A+CA schools
  3. The team or representatives should meet with NSF program managers as part of the GOALI proposal preparation

# Progress to date

- To address Gap #2 with regard to the Organizing Committee, Dr. Jesus M. de la Garza of Virginia Tech was added. Dr. de la Garza is a former program director at NSF
- To address Gap#3, based on correspondence with Dr. Martin Gold, a Research Summary was developed to present to NSF
  - Four Organizing Committee members traveled to Washington DC to meet with NSF directors on 2/5/15-2/6/15.

# Visit to NSF



The mandatory NSF "Selfie"

# Overview of idea discussed

- **GOAL: Integrated Design and Construction: Setting a Strategic Industry-Academic Collaborative Research Agenda**
  - 2.5 days event (1.5-day conference, 0.5-day research workshop, and 0.5-day for closing out and defining the next steps)
  - Target four key research initiatives:
    - (1) trust and collaboration in the AEC industry as an overall objective,
    - (2) through an integrated project delivery process,
    - (3) employing building information modeling as a collaborative tool, and
    - (4) healthcare facility design and construction as an ideal market sector that can both benefit and inform integrated solutions.

# Overview of idea discussed

- **Intellectual Merit**

- overarching goal of bringing together design and construction disciplines through industry and academic collaborative efforts in order to thereby collectively defining the research priorities and opportunities for integrated design and construction.

- **Broader Impacts**

- define strategic research and specific curricular proposals that will make the construction industry more efficient and less wasteful, thus indirectly improve the national economy.



# Findings from NSF visit

Met with Dr. Donald Senich-Director of GOALI Program

- Grant Opportunities for Academic Liaison with Industry (GOALI) is:
  - Mix of Industry-University Partnerships
  - High-risk/High Gain research
  - Focus on Fundamental Research
  - Transfer of New Knowledge
  - Research Beyond that which Industry Funds
- GOALI program support of a GOALI proposal:
  - A GOALI proposal is typically funded by both the GOALI program and one of NSF's other programs in a proportion of (15-20%) and (80-85%), respectively.
  - A GOALI proposal is submitted to one of NSF's other programs. That program could choose to fund the project 100% or ask the GOALI program for help with funding.
  - A GOALI proposal must satisfy the funding criteria of the program that it is being submitted to .
- Recommendation for a NSF Program
  - Dr. Senich informed us that we would have to find a NSF program that would accept our GOALI proposal

# Findings from NSF visit

Met with Dr. Kishor Mehta-Director of Structural & Architectural Engineering Program

- He was not very interested but said feel free to contact him if we can not find another program

Met with Dr. Elise Miller-Hooks-Director of Civil Infrastructure Systems (CIS) Program

- She informed us that her Program funded a similar workshop in 2014
- She would consider supporting another workshop if:
  - It has not already been done
  - It relates to basic science
  - It focuses on a big idea, upon first hearing it makes one laugh and then immediately makes one think
- She suggested that we look at the report for the 2014 workshop and come up with a workshop that will be different

# Findings from NSF visit

Met with Dr. Gunnar Lucko, Catholic University of America, Organizer and PI of the 2014 workshop

- He informed us that it took almost a year to develop the proposal for the 2014 workshop
  - Funding for the project was less than \$50,000
  - Project title was “Construction Engineering Conference and Workshop 2014: Setting an Industry-Academic Collaborative Research Agenda”
  - The goal of the project was to “revitalize construction engineering as a scientific discipline by assembling experts in the field in the setting of a research workshop within the construction engineering conference and jointly explore the following interrelated questions:
    - ❖ What is basic construction research?
    - ❖ Why is this type of research important?
    - ❖ What are the barriers and enablers for performing basic construction research?
    - ❖ Where are the major basic research needs?”
- His recommendation to us was to include industry participation both in the conference/workshop and in the development of the proposal.

# Findings from NSF visit

- The specific research objectives were:
  - ❖ “Overcome the stagnation of construction engineering due to insufficient collaboration of industry and academia on research and education innovations as compared to other disciplines, for competitiveness of the industry as a whole and safer, faster, cheaper, and better quality of its built products;
  - ❖ Synthesize an actionable interdisciplinary research agenda to investigate important basic questions in construction engineering: moving it from being a passive late-adopter of solutions that emerge in other areas to being at the forefront of innovation by actively engaging in basic research;
  - ❖ Build a cohort of future leaders in construction engineering research and education among junior and future faculty by facilitating collaboration with practitioners and non-construction NSF researchers, exposing them to critical issues in practice, as well as rigorous scientific approaches of other fields.”

# Next steps

- ✓ Meet with A+CA in Texas to discuss:
  - The development of the proposal to NSF:
    - ❖ Focus/goal(s) of the workshop/conference
      - Any big idea(s) related to basic science/fundamental research and A+CA research initiatives that hasn't been done?
      - Any research ideas that go beyond that which industry funds?
      - Curriculum change? Requires the Deans and Department Chairs/Head/Directors to convince University administration to make the change
    - ❖ Industry partners
      - Any suggestions for Industry co-PIs?
      - What should be Industry's involvement in the proposal development stage, during the workshop/conference (including financial or in kind), and beyond?
    - ❖ A+CA schools' engagement
      - How many and to what extent during the proposal development stage, during the workshop/conference, and beyond?
    - ❖ A+CA Board involvement
      - To what extent during the proposal development stage, during the workshop/conference (including financial or in kind), and beyond?

# Next Steps

- The time table going forward:
  - For the NSF proposal submission **(tentative)**
    - 1) Develop the proposal in Summer 2015
    - 2) Submit the proposal to A+CA Board in September 2015 for discussion and approval
    - 3) Receive comments from A+CA by end of October 2015
    - 4) Make changes to proposal and resubmit to A+CA for final approval by end of November 2015
    - 5) Submit Proposal to NSF in December 2015
  - For the conference/workshop: Fall 2016 **(depending on NSF review process)**

# Expectations

- 1) Guidance and ideas
- 2) Review NSF proposal
- 3) Recruitment of Industry Co-PI(s) and participation
- 4) Participation during the conference/workshop
- 5) Implementation of outcomes (expectations from A+CA)

# Feedback, Discussion.

