Assessment of Sustainable Construction Processes
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Brief Project Overview:

Improvements in the environmental performance of construction operations are high on the agenda of many national and global organizations. This project will contribute toward a fundamental understanding of just how our efforts to build the things we build affect the environment in which we live. This project will provide a base upon which sustainable construction operations can be built, measured, weighed, and improved. The long-term goal is to provide the construction industry with a standard protocol that will enable measurement and improvement of the environmental performance of onsite construction processes.

Program Activities:

• Conduct onsite observations and case study reviews to define the resources utilized in onsite construction practices.
• Develop sustainability metrics to measure the environmental performance of onsite contractors.
• Implement and revise metrics with industry partners.
• Develop and disseminate educational materials for use at all educational levels.

Partners:

University Partners
Arizona State University
San Diego State University
Cleveland State University

Industry Partners
DR Wastchak LLC
Pulte Building Systems
SCP Concrete
Baker Concrete

Professional & Trade Organization Partners
American Concrete Institute
American Coal Ash Association
American Concrete Institute Research Council
American Concrete Pavement Association
American Society of Concrete Contractors
Strategic Development Council
National Concrete Pavement Technology Center
National Ready Mix Concrete Association

Top Contributions:

1. Unifying the construction industry through developing standard protocols for sustainability metrics.
2. Articulation of the business case for sustainable construction operations.
3. A secondary education curriculum to engage students in sustainability in the built environment.
4. Webinars, podcasts, and other educational materials for industry distributed through partner professional and trade publications.

Top Challenges:

1. The construction industry is very fragmented: more than 350,000 companies, many being very small firms, with no clearly identified industry leader.
2. The construction industry is highly regulated through every layer of government with little consistency across or through the layers of regulation.
3. The construction industry is slow to adopt new innovations, and individual companies generally operate through loosely defined “best practices” developed by numerous organizations.

Key Attributes of our Innovation Ecosystem:

Questioning & Curiosity:

• What will motivate the construction industry to move from sustainable projects to sustainable business operations?
• How is “green washing” overcome to make real progress in the movement towards sustainability?
• What are the barriers imposed by the current economy?
• What are the real economics of sustainable construction?
• Are incentives necessary to achieve sustainability?

Risk Taking:

• Working with an industry that has not historically embraced innovation
• Fragmentation within the industry / numerous small companies / no dominate organizations
• Ambiguity of the definition of sustainability
• Lack of accurate and/or easily implemented assessment tools

Openness:

• Professional and trade organizations expending resources developing sustainability best practices to be shared throughout the industry
• Industry interest in new project delivery systems/ integrated project design
• Growing awareness of the need to make changes to achieve sustainability

Collaboration Across Fields:

• Sustainability by definition requires collaboration between stakeholders to best balance three competing needs: social, economic and environmental
• Stakeholders include: owners, vendors, designers, occupants, public agencies, general contractors, sub contractors, suppliers, and silent stakeholders such as the poor and the natural environment

Placing Partners in “New Environments” & “Playgrounds”:

• Contractors as stewards of the environment
• Close coordination between construction and environmental groups
• Consideration of social impacts of construction

Leading/Inspiring for Surprising or Unexpected Results:

• Significant interest within the industry to become sustainable
• Innovative materials and new design techniques
• The role of contractors has traditionally been to deliver projects on time, on budget, at an acceptable level of quality. How can this role be expanded to include the three pillars of sustainability?