

National Construction Forum: Need and Implementation

**National Academy of Construction
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Executive Summary

The National Academy of Construction hosted its inaugural National Construction Forum in Washington, D.C. from November 1-2, 2009. The event brought together representatives from 14 construction industry organizations across the U.S., as well as representatives of four universities, to work together to integrate the efforts of key construction industry organizations and improve the efficiency and effectiveness of the capital project process.

The workshop included sessions on creating synergies and leveraging efforts among the organizations represented, framing the desired state of the industry, identifying issues facing the industry, and Publpriorities for the group: industry image; workforce; development, use and sharing of industry best practices; quality; and metrics. A leadership team of volunteer members from participating organizations will periodically meet to take actions on the priorities and initiatives established during the forum. This publication outlines the details of the event, as well as consensus findings and a path forward.

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1. Introduction

This document describes the National Academy of Construction's (NAC)¹ work to develop a forum for addressing the pressing needs of the construction industry. To that end, it also describes the NAC's first effort toward this goal—the inaugural National Construction Forum (NCF) held in Alexandria, VA on November 1 and 2, 2009. The purpose was to establish the NCF as a significant national voice for identifying and promoting awareness of major industry issues, and for integrating the efforts of key organizations to drive improved efficiency and effectiveness in the capital delivery process. Products of the NCF were envisioned as:

- Inter-organizational alignment
- Description of the actual state of the industry/ideal state of the industry
- Key issues list
- Evergreen process design
- Establishment of leadership team
- Consensus path forward

The vision for the National Construction Forum is that it becomes a significant national voice for identifying and promoting awareness of major industry issues, and for integrating the efforts of key organizations to drive improved efficiency and effectiveness in the capital delivery process.

The NCF's Core Steering Team² sees the NCF mission as convening an annual workshop to identify major issues impeding the development and deployment of work force and capital project best practices, and facilitating the formation and execution of work streams to resolve these issues.

The Purpose of the National Construction Forum is to provide a significant national voice for the engineering, design and construction industry to help drive positive change.

Genesis

The creation of the forum was first discussed within NAC in 2007. A core steering team was formed and met periodically over a two-year period to plan the effort. The consensus on the forum's vision and mission was that it should identify the most important issues facing the national engineering, design, and construction (EDC) industry (owners, contractors, financiers) and leverage the synergy that exists within the industry to tackle these issues. The intent is to do this without asking any single group to change what it does. Rather, the NAC would like to act as a neutral broker to help the industry as a whole leverage what each group does. In this way, the NCF can emerge as an industry voice. The

¹ For more information on NAC, see Appendix A.

² The NCF Core Steering Team is listed in Appendix B.

purpose is to be the national voice (which is currently missing), to integrate efforts, to reduce redundancy, and to drive improved efficiency and effectiveness. During the course of the steering committee meetings, the design for the inaugural NCF workshop was developed, including the meeting process, forum vision and mission, and meeting agenda. The agenda included an alignment discussion of the participating groups' missions/current year thrusts/initiatives, as well as a whole-group discussion of the deliverables produced in the breakout sessions process deliverables.

The 105 members of the NAC met at its annual conference in late October of 2009 and discussed the forum; the membership was enthusiastic about its chance to change the industry. They were honored to be able to facilitate NCF meetings since the forum is comprised of so many remarkable individuals from all parts of the industry. There is no NAC staff to do this work, only volunteers stepping up to make it a reality. The number of people attending makes the inaugural meeting interesting and exciting. Members of National Academy of Construction and others (the "Steering Team") instrumental in developing and organizing the inaugural forum are given in Appendix B.

Workshop Session Products and Structure

The focus of the first NCF meeting was to gain inter-organizational alignment, gain an understanding of current industry state versus an ideal industry state, and identify a short list of top industry issues to focus upon. The agenda for the meeting is given in Appendix C.

Welcome, Safety and Introductions

The Forum began on the evening of the 1st as many of the attendees gathered for a mixer, dinner and brief overview of the meeting. As a start on the morning of the 2nd, the mission and vision of the NCF and NAC were discussed, a short safety topic was given, and then each attendee was asked to introduce themselves, the organization that they are affiliated with, along with a short description of their expectations of the Forum. This exercise served as a basis for the organizational alignment exercise that followed. The 27 participants represented 15 national EDC organizations, and included owners, designers, contractors and academics from 25 employers. NCF participants are given in Appendix D

It was obvious during the initial introductions and purpose discussion that the participant's consensus was that NCF was a good idea and that NAC was a good organization to be a neutral broker of this effort.

2. Organizational Alignment Exercise

To determine areas of common concern and compatible effort, participants were divided up into three groups and engaged in the following activities:

- Discussion of possible opportunities and challenges that organizational synergies and leveraging would create
- Report from each group on its top three opportunities and top three challenges
- Whole-group discussion on how best to meet challenges and take advantage of opportunities, including path forward items

After deliberating in breakouts, each group presented its thoughts including opportunities and challenges. As a whole-group forum, these issues were synthesized in a consensus manner.³

Top Opportunities for How the Structure of the Forum Can Add Value for Organizations and the Industry:

1. Create an industry advancement network
2. Share information to have a larger impact
3. Identify and prioritize opportunities for improved collaboration

Top Opportunities for What Can Be Gained in the Industry through these Effort

1. Share information that can benefit across industry
2. Infuse technology into workforce development and develop a roadmap for advancing workforce
3. Create a research network to collaborate on key issues and attract research dollars
4. Map the landscape of value propositions for these opportunities.

The organizational alignment session provided a rich list of opportunities for NCF collaboration, including a prioritized list of critical issues.

Top Challenges Posed by Participation in Forum:

1. Lack of time/capacity for both individuals and constituent organizations
2. Lack of shared vision currently exists – for owners, contractors, financiers, and so on

³ The detailed information developed in the Forum is contained in meeting minutes. Information on how to obtain a copy of these minutes is given in Appendix F.

3. Participating organizations compete for funding and members—sometimes friendly, sometimes this comes ahead of industry benefit
4. Intellectual property— Who owns products and services? Who is the broker of this information?
5. Cost? How much will this effort cost? Where will these resources come from?

It is clear from the session that there are structural and resource barriers to this effort that will have to be worked vigorously in order to succeed.

The main concerns about how NCF will address these opportunities and challenges involve the question of how the effort will be structured, at what level of detail NCF will address issues, where NCF and participating organizations will be able to contribute, how information will be handled, and how value will be created. The industry has a collection of robust organizations that have been highly effective over time. How can NCF make this spectrum even more effective and efficient, first individually and then collectively? The simpler NCF can keep this effort the more chance of success. The industry could really benefit from the NCF with its long-term best interests in mind. NCF could perhaps “get 80 percent of horses pulling in same direction.” Just addressing how participating NCF organizations can work collaboratively gives 50percent of the benefit of the NCF.

A model for this effort could be to become an organization like the economic Group of Eight (G8). The NCF should check signals and industry specific issues, align members, compare approaches, but not try to be another organization in and unto itself. The NCF itself and any committees and teams would be used to coordinate efforts by the independent organizations and entities rather than drawing from the same pool of resources for which all are already competing.

One method of organizing the effort would be to develop a trend matrix for planning and prioritization. This kind of chart shows which organization/entity is working on the different issues and gives an idea of who to call to find out what the most up-to-date work is. The beauty of this approach is that the NAC and NCF could play role of neutral broker and facilitate common effort in areas of mutual concern. This entire endeavor would need to be “evergreen” and take advantage of information technology for wide dissemination. Having a matrix or work product such as this will engage people in dialog and hopefully spur efforts. For more information on an example of this trend chart, please see the minutes from this meeting. Information on how to get a copy of these minutes is given in Appendix F.

3. Desired State & Gaps

After the organizational alignment exercise, the three groups met again in breakouts with a specific charter to determine participants' hopes for the industry and their perceptions of its undesirable realities; specific deliverables:

- Discussion of the desired state of the capital project process
- Identification of the major issues impeding the development and deployment of work force and capital project best practices
- Report to whole NCF on top five issues
- Whole-group discussion/creation of prioritized list of the top ten issues

The discussion about the desired state of the capital project process was interesting in the convergence of desires by the individuals and organizations represented in the meeting. These desired states can be segregated into two basic categories, namely project-specific and industry-wide desired states:

Project specific:

- Zero accidents
- Team-focused delivery and systems
- Better alignment among all key parties to the process
- Effective use of front end planning
- No claims or law suits
- Meet or beat appropriate performance measures:
 - Cost
 - Schedule
 - Quality
 - Safety
- Reduce waste and improve sustainable practices
- Shared risks attributed to the appropriate party
- More widespread use of industry-recognized best practices

Industry-wide

- Maximize productivity and efficiency
- Create an attractive industry environment with the implementation of new technologies:
 - Introduction of new materials
 - Information technologies
 - New equipment and automation
 - Building Information Modeling (BIM)

- Stop the erosion of quality management practices
- Improved communication and collaboration among industry trade organizations, research sponsors and companies
- Solid, robust funding for projects and research

The ideal state of the capital project process was viewed at two levels: project specific and cross-industry.

Major issues impeding the ability to reach this desired state include:

- Aging workforce—design, engineering, construction, and owners, white collar and craft, and no strategy for transferring knowledge
- Erosion of craft quality
- Fragmentation across the industry
- Lack of trust among many in the industry
- Un-educated owners (and others) concerning value of lifecycle cost vs. first cost, best practices usage and so on
- Lack of industry knowledge at leadership level of “construction enterprises”
- Risk aversion in the industry—associated with uncertainty
- Need for more widespread adoption of best practices such as zero-injury and safety philosophy and techniques, front end planning and so on
- Need for clear and effective use of appropriate project delivery systems
- Industry’s lack of influence on public policy, legislation, and regulation
- Need for better public awareness of industry’s value, including its image
- Need for a common language and vernacular
- Lack of benchmarking data to understand current state of industry, including metrics for:
 - Productivity
 - Determining best practices
 - Progress of implementation or implementation efforts
- Lack of innovation and use of technology
- Need for a better integrated and reliable logistics and supply chain
- Need for better understanding of holistic uncertainty, including how to recognize early warning signals of economic meltdown

These issues can be summarized into three fundamental areas:

- People—how they communicate, transfer knowledge, and develop trust.
- Process issues—planning, lifecycle thinking, etc.
- Technology/tools—enabling communication, automation, etc.

Major issues impeding improvement in the industry can be summarized into three fundamental areas, people, process issues, and technology/tools.

Whole Group Discussion

Each group was asked to present its discussion and it was interesting to view the similarity of each group's responses. People, technology, and processes all came up consistently in the discussions, with a much discussion around the use of best practices such as front end planning. A recurring concern surfaced that workforce issues—at both the craft and professional levels—will be problematic in future. Another concern was concerning the use of technology and lack of integration and implementation within the construction industry.

Embedded in the discussion was the question of how the NCF will be able to affect, support, and/or improve public awareness and understanding of our industry—the concern is that the public's image of our industry has much to do with its treatment in the past and the regulatory changes we will see in the future.

The biggest issue NCF has in this context is in identifying out the one or two issues that should be addressed for best effect given scarce resources. As the discussion proceeded, a consensus of the top issues emerged as follows:

1. Industry image – educating the public on key issues
 - a. Value added to society and the economy
 - b. Lifecycle implications of facilities development
 - c. Environmental concerns vs. construction concerns
2. Workforce
 - a. Craft and professional
 - b. Leadership
 - c. Attracting/maintaining
3. Development, use, and sharing of industry best practices
 - a. Quality (tied to best practices) including erosion of quality practices along the supply chain
4. Metrics to drive improvement

Public policy/public awareness affects the entire industry, perhaps even more so in the future. Society as a whole that is now more sensitive to environmental and energy issues, reliability issues, and “not in my back yard” (NIMBY) concerns. Having a coordinated and collaborative effort to educate the public will be important in the future. NCF has an opportunity here to collaborate between constituencies. Sending the right message at the right time in unison would be good for the entire industry.

A concern over workforce issues was expressed by all three breakout groups. Even with 16% unemployment, the construction industry is facing a coming crisis and shortage. There is a gap between

the young people we need to hire and the economic crisis that should be making them more available. One workforce issue brought up went beyond the problems of the aging workforce and of the lack of young people to hire. There is also a lack of knowledgeable leadership; the people in charge often have backgrounds in finance and think of construction as a commodity and not as a value-added service.

The idea of developing, using, and sharing best practices—front end planning, schedule development, supply chain management, and so on--would be an excellent response to industry fragmentation and lack of understanding and education.

From the perspective of planning, design and construction, and across the entire supply chain, quality management has been lacking. The industry has become complacent in the past few years since the quality revolution of the 1980s. Quality management is a different issue than productivity; it is not about speed, but about doing things right.

Finally, in order to continuously improve, the industry must know where we are and be able to measure status through effective use of metrics.

4. Path Forward

At the end of the session, a discussion of the processes, actions, assignments, and timing of the National Construction Forum as it moves forward took place. This discussion included an evergreen process that was proposed by the NAC sponsors of the forum. Details included:

- Annual workshop identifies issues/opportunities
- Leadership team processes workshop results into action items and
- Leadership team facilitates action items into work streams in and/or among the participants' groups⁴
- Leadership team meets quarterly:
 - Work stream status
 - Workshop design
 - Publication plans
- Results published annually

The leadership team will act as a neutral broker to tie everyone together. This effort will continue over several years. As it progresses, workshops like this one will help us identify issues and opportunities. At the workshop each year, we can gauge our progress. Our leadership team can translate our concerns into action items and put them into work streams in/among groups.

The leadership team will meet quarterly—set up sub-teams to design our workshops, publish our products, and provide publicity. The results of our process will be published annually. The workshops will be held annually. We will keep it going as long as it is providing value.

The intention is to hold a NCF event each year and focus on the major issues have been worked on in the interim, present the results of past work, engage in interactive exercises, and refine the list of concerns/initiatives. The progress on these issues depends on the leadership team.

How the initiatives are funded is also up to the team. To date, this entire undertaking is funded by voluntary contributions from some members. Future funding may come from grants or constituent funding.

The NAC is very interested in moving this forward and has the backing and involvement of many influential individuals and organizations. One of the potential barriers is the time/money/resources issue. Leveraging the abilities/leadership of people and organizations involved is a key success factor.

⁴ Leadership Team member assigned as work stream sponsor

NCF also should guard against the “alka seltzer syndrome”, which sees the initial fizz and then a subsequent fizzle, especially with a lack of resources. Participants are encouraged to share the results of this meeting with others.

Next steps are to hold teleconferences which will serve to clearly set a focus for action. The leadership team will come up with a plan and form sub-committees. The intent is that the leadership team will provide the general direction for the forum and then work closely with other organizations to get the work done. It will bring people together those who are working in these areas and coordinate the efforts of different groups.

Fundamental to the NAC forum idea is that we do not want to take anything away from the organizations participating in NCF. The desire is to coordinate work on key issues which will be of value to this effort.

The general consensus among participants is that the NCF needs to keep its focus at a fairly high level. There is an opportunity to get key people and organizations together to collectively work on a few select issues, using the resources they bring. This could be very powerful. The effort must not start “drilling too far down.” Over time, the forum can become a respected and powerful advocate. The members of the NAC can provide substantive assistance to the industry through this endeavor and offer sage advice to keep this effort on course.

It was noted that there was a lot of emphasis on the engineering and industrial side of the industry, and not as much on the architectural side during this forum. NCF also seemed to address the southern geographic part of the country and not the northern, along with open shop and not the union shop. The general consensus was that the effort needs to be broadened. It was noted that some invitees from these other areas and regions could not attend. NCF plans to make this representative of the entire industry nationwide as NAC does cover all regions and all kinds of companies.

Leadership Team Formation

The NAC sponsors had asked Jim Porter, in advance of the forum, to head up the leadership team; volunteers were solicited at the conclusion of the NCF and members of the leadership team are given in Appendix E.

Workshop evaluation

When asked for their views on the strengths of this meeting, participants responded with the following comments:

- Right location for meetings, with good logistics
- Layout of breakouts/large session was a good format
- Participation was good

When asked for their view on what needs improvement for the next meeting, participants responded with the following suggestions:

- Needs broader participation
- Starting dinner earlier on Sunday night maybe.

Appendix A: National Academy of Construction

National Academy of Construction Mission

The mission of the National Academy of Construction is to recognize and honor distinguished achievement in the American construction industry and to make that reservoir of experience available for service to the nation.

National Academy of Construction Purpose

1. Provide recognition to past and present industry leaders for their personal contribution to the engineering and construction industry.
2. Establish a body of engineering and construction industry leaders who are available for advice and service.
3. Establish and administer an awards program to provide recognition to individuals who have made notable contributions to the industry.
4. Provide for a linkage among active industry participants and persons who have left active employment.

For more information, see <http://www.naocon.org/>

Appendix B: NCF Core Steering Team

Wayne Crew, Construction Industry Institute

John Dalton, Engineering & Construction Contracting Association/Construction Industry Institute

G. Edward (Edd) Gibson, Arizona State University

James Porter, National Academy of Construction/Business Round Table, Chairman

John Mihm, At Large

J. Doug Pruitt and Liz Elvin, Associated General Contractors of America

James Slaughter, National Academy of Construction

J.J. Suarez, Construction Industry Round Table

Hans Van Winkle, National Academy of Construction

Linda Stanley, Board on Infrastructure and the Constructed Environment

Appendix C: First NCF Agenda

November 1 – Dinner

Welcome and Safety Contact	7:30 pm
NAC Introduction	7:35 pm
Forum Vision and Mission	7:50 pm
Dinner	8:00 pm

November 2 – Workshop

Welcome and Safety Contact	7:30 am
Purpose and Products + Upgrades	7:45 am
Introductions	8:00 am
Break	9:30 am
Organizational alignment	9:45 pm
Table top exercise w/ report outs	
Lunch	11:45 pm
Desired state and gaps	12:45 pm
Breakouts w/ report outs	
Evergreen process proposal and upgrade	2:15 pm
Leadership team formation via volunteers	2:45 pm
Path forward	3:15 pm
Reflections	3:45 pm
Adjourn	4:00 pm

Appendix D. NCF Attendees November 1-2, 2010

Associations

Associated Builders & Constructors (ABC)

Kirk Pickerel
President & CEO
Associated Builders & Constructors

Associated General Contractors of America (AGC)

Liz Elvin
Director of Workforce Development
Associated General Contractors of America

American Society of Civil Engineers (ASCE)

Patrick J. Natale
Executive Director, Chief Staff Officer & Secretary
American Society of Civil Engineers

Marvin Oey
Director
Construction Institute
American Society of Civil Engineers

Board on Infrastructure and the Constructed Environment (BICE)

Lynda Stanley
Study Director
The National Academies

Construction Industry Institute (CII)

Wayne A. Crew
Director
Construction Industry Institute

John W. Dalton, Sr. (2009 Chairman)
Executive Vice President
Mustang

Jacqueline K. Thomas
Technical Writer/Editor
Construction Industry Institute

Construction Industry Round Table (CIRT)

J. J. Suarez (Chairman) *(NAC Member)*
President & Chief Executive Officer
CSA Group

Construction Management Association of America (CMAA)

Bruce D'Agostino
Executive Director
Construction Management Association of America (CMAA)

Construction Users Round Table (CURT)

Michael G. Conley (Vice President)
DuPont

Egon J. Larsen (President)
Global Manager / Construction Engineering
Air Products and Chemicals, Inc.

Gregory L. Sizemore
Executive Vice President
The Construction Users Roundtable

Design-Build Institute of America (DBIA)

Tom Porter (Chairman)
Executive Vice President
Barton Malow

Engineering & Construction Contracting Association (ECC)

Don Ruble (Vice Chairman)
Engineering & Construction Contracting Association
Director-Sales & Marketing
BE&K, Inc.

Donald C. Runalduie
Projects Executive
ExxonMobil Research & Engineering Company

Fully Integrated and Automated Project Processes (FIATECH)

Tom Hannigan (Chair)
President - Plant Services
Zachry Construction Corporation

Ric Jackson
Director
FIATECH

National Academy of Construction (NAC)

G. Edward Gibson, Jr., Ph.D., P.E.
Professor and Programs Chairman, Del E. Webb School of Construction
Arizona State University

James G. Slaughter, Jr.
President
S&B Engineers and Constructors, Ltd.

National Center for Construction Education and Research (NCCER)

Don Whyte
President
National Center for Construction Education and Research

National Institute of Standards & Technology (NIST)

Mr. Mark E. Palmer
Leader Computer Integrated Bldg. Processes Group
U.S. Department of Commerce NIST BFRL

Society of American Military Engineers (SAME)

Robert D. Wolff
Executive Director
Society of American Military Engineers

Universities:

Neil Eldin
Dept Head, Construction Management
University of Houston

Dr. Jesus M. de la Garza
Vecellio Professor Department of Civil Engineering
Virginia Tech

William Fitzgibbon III
Dean, College of Technology
University of Houston

Jorge A. Vanegas
Dean, College of Architecture
Texas A&M University

Appendix E: Leadership Committee Established at First NCF

The following people volunteered for the leadership team:

- Tom Hannigan— Zachry/Fully Integrated and Automated Project Processes (FIATECH)
- Wayne Crew, Construction Industry Institute
- Greg Sizemore—Construction Users Round Table
- Don Whyte—National Center for Construction Education and Research
- Marvin Oey—American Society of Civil Engineers/Construction Industry Institute
- Jorge Vanegas— American Institute of Architecture
- JJ. Suarez—Construction Industry Round Table
- Doug Pruitt—Associated General Contractors of America
- Representative from Associated Builders & Constructors
- Representative from Construction Management Association of America
- Representative from Design-Build Institute of America

Appendix F: Information on Gaining a Copy of the Meeting Minutes

Minutes from the meeting held on 1-2 November 2009 can be obtained by contacting any of the following individuals:

*G. Edward Gibson, Jr., Arizona State University; edd.gibson@asu.edu

James Porter, Consultant, DuPont, Retired; porterjb@comcast.net

*Jacqueline K. Thomas, CI; jktthomas@cii.utexas.edu

*Principle authors of this publication