



2008 NCBC TOWN HALL WHITE PAPER



2008 NCBC Town Hall White Paper Table of Contents

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1.0 Where Did We Come From?

1.1 Introduction

Over the last decade, the commissioning (Cx) community in the US has grown from a disparate group of researchers and engineers into an established industry of professionals from architecture, construction, test and balance, and engineering firms, as well as representatives from government agencies, facilities management, and utilities. Though they represent a broad cross-section of the bigger building industry, commissioning stakeholders are united by groups such as the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Building Commissioning Association (BCA), Associated Air Balance Council Commissioning Group (ACG), National Environmental Balancing Bureau (NEBB), and the National Conference on Building Commissioning (NCBC).

It was at the 6th NCBC (hosted by Florida Design Initiative in 1998) that attendees began a brainstorming and planning process regarding the current state and future potential of the industry. The US Department of Energy later funded the development of a National Strategy for Building Commissioning [[link to 1998 document](#)] that would identify opportunities for business growth and development, and help overcome the obstacles that had prevented commissioning from becoming “business as usual.”

At the 16th NCBC (hosted by Southern California Edison in 2008), the California Commissioning Collaborative sponsored “Envisioning the Future of the Cx Industry: An Interactive Discussion” in order to determine a fresh vision for the commissioning industry based on the developments and advancements of the intervening 10 years. The three-hour session was presented in a “Town Hall” format. John Suzukida

of Lanex Consulting facilitated an open dialogue among stakeholders in the field, challenging the group to brainstorm issues and opportunities facing the commissioning industry, and to collaborate in small groups to develop vision statements to create a picture of the future of the practice.

This white paper summarizes the state of the industry as revealed in the Town Hall, and offers a collective vision for the future of commissioning. This is intended to be the first step in developing a plan of action for the next 10 years.

1.2 Pre-Conference Survey

In March 2008, PEI sent a survey to 5,910 commissioning industry contacts; 149 responses were received, for a 2.5% response rate. Respondents were asked about the biggest opportunities and challenges both facing them in their individual roles, and also facing the industry as a whole. The most common problems identified by respondents were as follows:

- Lack of trained professionals and standardized training
 - Hard to find qualified staff to hire
 - Unqualified firms doing poor quality work
- Low awareness among owners
- Lack of industry standards (tools, process, quality)
- Communication issues within Cx team

Key opportunities included the following:

- Increased visibility of green building / LEED®
- Sharing best practices to improve quality of Cx work
 - Formulation of industry standards
- Necessity of documenting Cx costs and savings

1.3 Town Hall

The Town Hall session was held on April 24, 2008, on the third day of the National Conference on Building Commissioning. Approximately 70 industry leaders and stakeholders took part in the session, including commissioning providers, building owners, researchers, and representatives of state agencies and utilities.

Moderator John Suzukida hosted an hour-long interactive discussion on the challenges and opportunities facing the industry. Audio highlights of the discussion are included

as part 2 of the NCBC podcast, "Cx360," available here: <http://www.peci.org/nbc/Podcast/Cx360.mp3>.

After the discussion, participants split into 13 smaller groups of 4-6 people to discuss specific issues and develop vision statements for the industry. The groups had one hour to develop up to three vision statements each. Each group then shared its vision statements with the larger group to close the meeting. The results of both the discussion and the vision statements are detailed below.

2.0 Where Are We?

Discussion topics ranged from broad macro-level issues to specific practice-related challenges. While many issues overlap or appear to be symptoms of common root causes, we note that several key themes emerge:

- Standardization
- Persistence
- Training for Commissioning Providers
- Market Outreach
- Leadership & Recognition
- Communication

It is important to note that across all of these themes, one of the most commonly used words was “quality.” Participants discussed standardizing tools and processes to ensure high quality work, making sure that quality and benefits of commissioning persist over time, and training of both commissioning providers and owner/operators to promote quality in commissioning work and ongoing building operations. While quality is not an explicit theme here, it is clearly integral to each of the items listed above, and is also an important component in any potential evolution of the industry.

The bullet lists under each theme below reflect comments expressed by participants during the discussion period, as captured by a note taker. The notes were projected for all to see and review. The quoted sections are taken from the written vision statements and notes recorded at each table during the break-out session.

A note on syntax: whenever possible, we have tried to capture the comments and visions in the exact words of the participant(s). For this reason, readers will notice that bullet lists and quotations are not constructed in parallel

and do not necessarily include complete sentences or thoughts. This is intentional, if not grammatically correct, as it best recreates the thoughts and concepts expressed at the meeting.

2.1 Standardization

As discussed by Town Hall participants, the need for standardization shows up in many ways:

- Without standards, the commissioning “product” is not consistent and owners don’t know what they are getting.
- Cx providers have no standard training or licensing, but they are responsible for quality process and oversight of licensed professionals and contractors.
- Cx process should be integrated into the construction process through codes and standards.
- Industry needs standardized metrics and terminology to ensure consistent definitions and uses, i.e., verification means and methods.
- ASHRAE Guideline 0 is the beginning but not the end.
- How to involve Cx providers earlier in process to impact engineering.

A significant achievement in the past 10 years has been the development of various tools and resources including EPA’s ENERGY STAR® Portfolio Manager; industry standards and guidelines set by ASHRAE, ACG, NEBB, National Institute of Building Sciences (NIBS), US Federal Energy Management Program (FEMP), and others; and tools like the California Commissioning Collaborative’s RCx Toolkit, Pacific Gas & Electric Company’s Universal Translator, Energy Design Resources’ Commissioning Assistant, and others. Structure has also been provided by the

retrocommissioning programs offered by nine major utilities around the country. However, no single offering is robust or inclusive enough to serve as a comprehensive standard for the commissioning process. As a result, there is no single definition of what is and is not commissioning.

A discussion arose around the risk that too much standardization in the commissioning process could lead to commissioning becoming a commodity. If the whole process is scripted, then the provider would not need advanced training and would not be called on to exercise judgment or discretion. Further, a standard process may not address the unique needs of a given building; a “one size fits all” approach would not be robust enough to bring significant benefit to a majority of buildings, and may actually apply to only a small number of “average” buildings.

The challenge is to create clarity and consistency without “watering down” the industry and bringing other drawbacks of commoditization. It was pointed out that some level of commoditization is not necessarily a bad thing. An analogy was drawn to the dental industry: everyone has a dentist who is generally pretty good; patients know what they are getting even though specific procedures differ; and perhaps most importantly, the industry has maintained a level of prestige and distinction despite being very standardized and regulated. In this way, commoditization can lead to demystification, identification and clarity around the commissioning process while also increasing access and awareness.

Standards were also discussed in the context of building codes. Participants suggested that codification may lead to more consistency

in the commissioning process. However, it was not clear whether codification would be viewed positively by the industry in general.

A sample of the relevant vision statements:

“Commissioning is positioned as a quality process so it stands as a benefit that addresses current and future challenges to the buildings industry. The process could be ‘standardized’ into a recognizable process but not commoditized as an oversimplified process.”

“There will be a building industry where clarity about the specific services required for specific buildings that will deliver owner operating requirements is common and expected in the marketplace.”

2.2 Persistence

The following comments are related to persistence of benefits:

- O&M staff training is key to continued performance.
- Owners need skills on staff to maintain performance; professionalization of building operator.
- Recognize need to keep operators up to speed and deal with turnover while we raise the profession to higher pay and respectability.
- Ongoing statistical sampling and monitoring to assist in reducing measurement and verification overhead.
- Include O&M staff involvement as business as usual; leverage technology in the process.

Ensuring the persistence of commissioning benefits is a significant hurdle in making commissioning common practice. Many

operational measures implemented in the commissioning process can be defeated intentionally or unintentionally by building operators; other measures can degrade over time due to equipment maintenance, calibration, etc. As a result, ensuring persistence of savings is key to creating a compelling value proposition for commissioning; therefore, persistence tools and strategies are in high demand.

The key to making benefits last is to ensure that the facilities staff are adequately trained in proper building operations and have clear documentation regarding the necessary practices and settings. In order to be successful, this training and documentation must be accepted by everyone involved with the building, from owner to manager to technician/operator. It is often difficult to engage all parties in the commissioning process and get their commitment to maintain the necessary operations.

Recent years have seen an increase in interest and demand for more automated systems for ensuring persistence of savings. The Monitoring-Based Commissioning (MBCx) Program, a partnership among University of California, California State University, and California's investor-owned utilities, is one example of a program employing monitoring equipment to help diagnose building problems, track improved performance over time, and facilitate ongoing recommissioning. Additional research and testing is needed in this area to determine how monitoring-based commissioning can be more automated and to identify other strategies to achieve persistence.

Vision statements include the following:

“Maintaining performance of buildings

as standard practice: Ongoing process for life of building to maintain performance using mandates and incentives to drive market. Training O&M staff to maintain performance; professionalize building operations industry.”

“Expand the perception of the Cx provider/process to provide

- a) a working building that meets the owner's requirements,
- b) the building staffs are trained and empowered to operate the building and training/retraining resources are in place, and
- c) ongoing Cx resources are in place and activated.”

2.3 Training for Commissioning Providers

The topic of training plays a role in the discussion of both persistence and standardization, with needs identified for owners, operators and commissioning providers. The following topics are related to training commissioning providers, as discussed by Town Hall participants:

- Reach people earlier in their career decisions.
- Need new generation of Cx providers to keep vision of Cx alive.
- Develop training/retraining resources.
- Are we feeding commoditization by having competing certifications?

While many people would like to see a standard training regimen for commissioning providers, others are worried that competing programs are already causing confusion in the market. In the last 10 years, groups such as Associated Air Balance Council, Association of Energy Engineers, Building Commissioning Association, National Environmental Balancing Bureau, and University of Wisconsin have

all developed certification programs for commissioning providers. However, no one certification has emerged as a clear leader. The assortment of training and certification has not resulted in sufficient capacity to meet the demand for qualified providers. Some have noted that the existence of five similar yet competing certifications contributes to confusion in the market, both for building owners trying to select qualified providers and for providers selecting the “best” certification.

A related discussion arose around the topic of professionalizing the role of commissioning provider. It was pointed out that a Commissioning Provider has no state license or standard training, but is responsible for the quality process including overseeing the work of licensed professionals and contractors. Some attendees suggested that, in order to be seen as the equivalent of architects, engineers, and other professionals involved in the building industry, commissioning providers need similar criteria around licensing and peer review as professional engineers.

Vision statements include the following:

“How will the industry develop a strategic plan for professional credibility, recognition and certification?”

“Create an aspiration for the next generation of Cx Providers.”

“Strategic plan to prepare the next generation of Cx Providers.”

2.4 Market Outreach / Communication

Market outreach is a broad theme that involves the marketing and branding of commissioning

as its own industry (not just an element of building engineering) and educating building owners on both the process and value of commissioning. The following comments are related to market outreach:

- We’re currently in a perfect storm of energy, environmental, and financial factors; we need bold messaging to address the current climate and to broaden and develop the Cx brand.
- Role of BCA in setting high standards and best practices, to build the brand and value proposition.
- Project-by-project education of owners and others would not be necessary if broader awareness existed in the market.
- Many owners see the value of commissioning but lack incentive because tenants get the benefits and energy savings.
- There’s a supply-side bias regarding energy conservation; need clarification around energy efficiency and to promote saving energy as more valuable than finding new sources.
- Leverage ENERGY STAR metrics and benchmarking (Portfolio Manager) to build public awareness
- Cx industry pigeonholes itself by piggybacking on other industries and issues.
- Cx as management process to drive value and industry development rather than relying on other forces or industries.
- Lack of understanding of process means that decisions are often based on cost, not value.
- Difference between commissioning and retrocommissioning make a single identity difficult.

Market awareness has long been a challenge for the commissioning industry. The development and wide-spread adoption of USGBC's Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ has helped increase the visibility of energy efficiency in general, though commissioning is not always seen as an integral component. The past 10 years has also seen the emergence of several professional and stakeholder organizations, including the Building Commissioning Association, National Environmental Balancing Bureau, the AABC Commissioning Group, and the California Commissioning Collaborative. However, none of these organizations has secured the resources to devote to a large-scale, long-term owner awareness campaign. As a result, many attendees expressed frustration at the lack of awareness among building owners, and the amount of effort it takes to educate owners on a case-by-case basis.

While many mentioned the increase in awareness resulting from the popularity of LEED, others expressed the opinion that the commissioning industry needs to create its own stand-alone position in the market rather than simply aligning itself with related industries or trends. While ENERGY STAR and LEED may play a role in building awareness of commissioning, the industry must carve out its own identity separate from these other factors. Similarly, that identity must be one that appeals to owners with a range of interests that can be served through commissioning. By focusing only on environmental benefits and resource conservation, the industry overlooks the owners who might be reached through a different value proposition.

The issue of industry leadership also emerged here as a major theme. Individuals discussed

which group, if any, is best positioned to become the "voice" of the industry. There is a clear need for a leadership group to step forward to build consensus on best practices and training standards, and to establish the credibility of the commissioning provider as a profession. A unified voice and clear value proposition are needed to ensure that commissioning is business as usual.

Vision statements include the following:

"Promote the commissioning process as one that values energy savings and facility operational improvements on equal footing."

"Develop an external awareness program to sustain the market."

"Communication and education (owners, architects, designers): market Cx so key players know what it is."

"Integrate and interface with other quality activities. This includes architectural and construction quality implementation processes and activities, including other related activities like LEED, ADA, energy review activities. Integrate to reduce duplication of quality effort."

"Challenge for BCA is to step up as a recognized leader for commissioning policies and communication, externally and internally, including training."

"Create a 'spokesgroup' to speak for commissioning and represent commissioning in development of policies at city, state, and federal levels."

2.5 Summary

Throughout the discussion, participants articulated the interconnectedness of the various issues facing the industry. For example, when training and standardization meet, qualified providers and a consistent product will be available in the market. When persistence strategies and technologies are developed and deployed successfully, a clear and compelling long-term value proposition can be communicated to building owners. Understanding the issues and how they connect allows for integrated and holistic actions that make cross-cutting impact in the market. The specific connections can help identify actionable, tangible steps that can be

taken to change the market and create real value for building owners and occupants.

Town Hall participants also pointed to quality as the fundamental concept underlying the visions that were created. Improving the level and consistency of quality in commissioning practice will lead to an industry that is recognized as an integral piece of the design, construction, and operation of buildings. By ensuring that a consistently high-quality process is performed by well-trained professionals, the commissioning industry will gain credibility in the market, transforming the way buildings are designed, built, and operated.

3.0 Where Are We Going?

As a starting point in charting the course of the commissioning industry over the next 10 years, the Town Hall was a great success. The session brought together individuals from the far corners of the industry and identified issues that affect them all in various ways. This dialogue and increased awareness will allow individuals in the field to work toward solutions. However, individual efforts will not achieve the visions that the industry has identified for itself. In order to overcome the challenges and maximize the opportunities facing the industry, we need clear goals, actionable steps, and measurable and relevant means of evaluating progress. We must intentionally create the commissioning industry of the future.

What do we want that industry to look like?

This question cannot be answered in a three-hour session. Much work is required to transform these vision statements into a roadmap for the industry for the next 10 years. Research and project opportunities exist under each of the four themes identified in the Town Hall. With funding, each of these topics can be explored as follows:

- Standardization
 - Universal understanding of scope, roles, and responsibilities.
 - Research is required to determine how much standardizing is enough; whether codification and/or licensure would be desirable and effective; and how to pursue the necessary support at the policy level.
 - An industry group would then need to step forward as the voice of the industry in recommending and endorsing those standard practices.
- Persistence
 - Ongoing process to ensure high

performance for the life of a building.

- Research and development is required to prepare a standard practice manual for owners and provide guidance on proper building operations to ensure long-term savings; and to promote strategies and technologies that help achieve persistence.
- Outreach campaign would then educate owners on importance of transferring knowledge to operations staff.
- Training for Commissioning Providers
 - Professional credibility, recognition and certification.
 - Research is required to determine specific training needs and how to position a training program (new or existing) to become industry standard.
- Market Outreach / Communication
 - External awareness program to sustain the market.
 - Research is needed to identify true drivers of building owners in pursuing high-performance buildings; outreach should appeal to those concerned with maximizing financial investment as well as those focused on environmental benefits.

This “commissioning industry of the future” is one with a universal understanding of scopes, roles, and responsibilities; where optimization is an ongoing process for the life of every building; professional credibility, recognition and certification are available for Cx providers; and a coherent and comprehensive external awareness program sustains a growing market of building owners seeking commissioning services. The next step in realizing this vision is to channel the energy and passion of the Town Hall into a clear and intentional plan of action for the next 10 years. [NCBC](#)