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[Image of exhibitors]
Tackling Productivity in the Building Industry

The Institute at Work

Federal agencies and policy makers are becoming increasingly interested in the performance of public buildings. Whether these be sustainability, efficiency concerns or the desire to product lower operational costs, many are looking to current building practices and trying to find ways to improve them. The building sector is currently in a period of changing paradigms where old practices are being challenged while new efficiency gains are being sought. While sustainability and energy efficiency are top priorities for the building industry, there is a need for more focused research and education on productivity. In this context, the National Institute of Building Sciences is working on various projects and initiatives to promote more efficient and sustainable building practices.

Recommendations from a Representative Hearing on Productivity and the Workforce

While sustainability has become a significant priority within the U.S. building industry, the focus has largely been on design and construction, with less emphasis on the operations and maintenance of the resulting buildings. The AIA’s Sustainability Leadership Forum (SLF) has identified the need for more efficient and sustainable building operations to be a part of the sustainability agenda.

Financing Energy Efficiency and Renewable Energy Projects

Public Equity Instruments: An Analysis of REITs, MLPs and Yieldcos

An authoritative source of innovative solutions for the built environment.

Moving Forward: Findings and Recommendations from the Consultative Council

A comprehensive source of innovative solutions for the built environment.
Welcome to the new National Clearinghouse for Educational Facilities

In 1998, the National Institute of Building Sciences (the Institute) created the National Clearinghouse for Educational Facilities (NCEF) to provide timely, comprehensive information on designing, building, and maintaining safe, healthy, high-performing schools. In its 17 years of existence, NCEF grew to be a collection of more than 20,000 resources on facilities supporting early childhood and K-12 to higher education, and at its peak was used by 5.5 million visitors a year.

Despite its “fallow” years of 2012-2015 due to funding, NCEF’s popularity has continued among its users. This popularity, coupled with increasingly urgent concerns that directly affect the educational built environment—energy use, safety, and security, health in public buildings, climate change, and more—prompted the Institute to revitalize
Institute & Industry Goals

- Zero-energy buildings, communities, campuses and portfolios;
- Incident-free job sites;
- Buildings that meet the health, functional and accessible needs of their occupants;
- Codes and standards that are developed based on the best possible science and then adopted and enforced in every jurisdiction;
- Aligning current and future policies and programs to advance resilience, sustainability and productivity; and
- A life-cycle approach to design, construction, operations and regulation that delivers high-performance buildings.
Sharing our Knowledge with the World
Developing Pre-Disaster Resilience Based on Public and Private Incentivization
We research materials, design techniques, construction procedures, and other methods to improve the standard of practice.

We educate our profession through continuous learning. Through coordinated and continuous learning, design, construction and operations professionals can provide their clients with proven best practices and utilize the latest systems and materials to create more resilient communities.

We advocate at all levels of government for effective land use policies, modern building codes, and smarter investment in the construction and maintenance of our nation’s buildings and infrastructure.

We respond alongside professional emergency managers when disasters do occur. Industry experts routinely work in partnership with government officials to survey damage, coordinate recovery efforts, and help communities rebuild better and stronger than before.

We plan for the future, proactively envisioning and pursuing a more sustainable built environment.
National BIM Guideline for Owners

A building information modeling (BIM) guideline for building owners is currently in development under the auspices of the National Institute of Building Sciences (NIBS). The National BIM Guideline for Owners is a new guideline that building owners can adopt to provide a documented process and procedure for their design team to follow in order to produce a standard set of BIM documents during the design and construction of the facility, and for maintenance and operations of the facility upon handoff. The National BIM Guideline for Owners will be based on the foreign, federal, state and local BIM guides that currently exist, but geared to a generic facility with uniform requirements for use by a variety of government, institutional and commercial building owners. It will reference a range of documents and practices, including those contained within the National BIM Standard—United States® developed by one of NIBS’ own councils, the buildingSMART alliance®.

The Committee membership represents major sectors of the building industry, including owners, architecture, engineering, construction, facility management and academia. Among the members are representatives from the organizations supporting the development of the guideline, including NIBS, the Building Owners and Managers Association, American Institute of Architects, ASHRAE and International Facility Management Association.

Committee Members

Don Chancey, Committee Chair  
Vice President, Senior Asset Manager  
Commercial Advisors Asset Services

Johnny Fortune  
BIM/IT Director  
Bullock Tice Associates

John Messner, PhD  
Professor of Architectural Engineering  
Penn State University

Dennis Potnode  
National BIM Director  
HDR Architecture

Carrie Dossick, PhD, PE  
Associate Professor of Construction Management  
University of Washington

Ernie Conrad, PE  
Principal  
Conrad Engineers
FED iFM vs. Typical Software

Open Connections

App A App B App C App D

Data Service

Data

No Open Connections

Application

Data

(No Clear Data Dictionary or Open Structure)

"Black Box" Application with Application Locked to the Data
Table of Contents

Introduction
1. Whole Building Performance
2. Site
3. Structural Engineering
4. Enclosure
5. Interior Systems
6. Mechanical Engineering
7. Lighting Design
8. Electrical Engineering

Go to http://npbdg.wbdg.org for latest version
Common Definition for ZEB

• Zero Energy Building (ZEB):
  – An energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.

• The designation Zero Energy Building (ZEB) should be used only for buildings that have demonstrated through actual annual measurements that the delivered energy is less than or equal to the on-site renewable exported energy.

• http://energy.gov/eere/buildings/downloads/common-definition-zero-energy-buildings
Getting to Outcome-Based Performance

Outcome-Focused Goals
- Greenhouse Gas Emission Reductions
  - Zero Energy Buildings
  - Energy Use Reductions
  - 111(d) Plans
- Codes
  - Metering
  - Reducing Uncovered Loads
- Building Industry
  - Contracting
  - Operations and Maintenance Training
  - Licensure/Professional Ethics
- Regulation
  - Taxes
  - Audit and Retrofit
- Policies
  - Benchmarking and Reporting
  - Target Setting
  - Compliance
- Incentives
  - Utility
  - Tax
  - Permitting
Mars City Facility Ops Challenge

Model by KieranTimberlake, Gilbane, Alderson

www.nibs.org/STEM