



Workshop

International Perspectives on the Role of Building Regulation in Responding to the Challenges of Climate Change

**Boston Public Library
McKim Room, Lower Level
Boston, MA, USA
20 October 2010
9:00AM – 4:30PM**

Workshop Overview

It has been well documented that buildings are a significant contributor to greenhouse gas emissions through energy used in buildings and embodied in building products, and steps are needed to reduce the contributions climate change from the built environment. In addition, buildings will need to adapt to changes in climatic conditions, including new weather patterns, rising sea levels, and increased storm frequency and severity. These challenges are not new, and in many countries plans have been or are being implemented towards 'zero net energy' buildings, to take advantage of new technologies to reduce dependency on fossil fuels, and to develop more resilient building solutions.

However, from a building regulatory perspective, most of these measures are targeted at new construction, and existing building stock presents a far bigger impact and challenge. In addition, there are different approaches being pursued in various countries, each with challenges associated with performance metrics, mandatory versus voluntary requirements, and enforcement. New building systems, components and types of construction also pose challenges, particularly for prescriptive regulation.

The aim of this workshop therefore is to discuss appropriate roles for building regulation in responding to the diverse challenges of climate change. In the workshop we look to address questions such as:

- Is the current focus on regulation new construction sufficient?
- Can challenges be resolved with prescriptive regulation or is performance regulation required?
- Should there be new performance targets, or new types of performance criteria, and if so, how should they be reflected in the regulations?
- Should building regulation better address existing buildings, and if so, how?
- Is better coordination needed between energy / resource policies and building policies for more holistic solutions?

To help us explore these and related topics, we have assembled a program of leading national and international experts and policy officials to provide their perspectives and to help identify roles for building regulation in the complex area.

About the IRCC

The Inter-jurisdictional Regulatory Collaboration Committee (IRCC) includes fourteen of the lead building regulatory agencies and organizations of thirteen countries. Created as a means to facilitate international discussion on issues related to the development and promulgation of functional, objective-based and performance-based building regulation, a principal aim of the IRCC is to foster a common understanding of the international building regulatory environment, while also promoting the global exchange of information, and a more open environment of inter-jurisdictional commerce in building design and construction. IRCC meets twice a year to discuss these and other emerging issues, and to share experiences between members. In recent years, the IRCC has held a workshop in conjunction with some of their meetings to facilitate discussion and solutions on topics of interest to the global building regulatory community. For more information about the IRCC, its members, workshops and other activities, see www.IRCCbuildingregulations.org.



Workshop Agenda

8:45-9:00	Registration
9:00-9:15	Welcome, Introductions and Workshop Overview
9:15-9:45	Mr. David Eisenberg , Executive Director, Design Center for Appropriate Technology, Tucson, AZ, USA, “ Emerging Climate and Energy Realities Require Evolutionary Regulatory Change “
9:45-10:30	Mr. Nils Larsson , Executive Director, international initiative for a Sustainable Built Environment (iiSBE), “ Assessment, Labeling and Certification Systems: Where We Have Been and Where We Might be Going ”
10:30-10:40	Break
10:40-11:00	Ms Cindy Jacobs , Senior Advisor, Commercial and Industrial Buildings Branch, Climate Protection Partnerships Division, US EPA Office of Air and Radiation, “ Evolving Energy Codes from Prescription to Real Performance: The Need for Whole Building Target-Based Codes ”
11:00-11:20	Prof. Dr. Jean Carassus, Ph.D. , Professor at Ecole des Ponts ParisTech, Paris, France, “ The 2010 European Energy Performance of Buildings Directive (EPBD) and its Implementation in France ”
11:20-12:00	Panel Discussion and Q&A – Brian Meacham, Moderator
12:00-13:00	Lunch
13:00-13:20	Mr. Javier Serra , Deputy Director General for Innovation and Quality in Building, Ministry of Housing, Spain, Dr. Jose A. Tenorio , Senior Engineer, Torroja Institute, Spain, “ Educational and Regulatory Approaches in Buildings to Meet the Climate Change Challenge in Spain: Solar Decathlon Europe 2010 and 2012 and Steps to a Tighter Energy Code by 2011 ”
13:20-13:40	Mr. See Ho Ong , Deputy CEO, Building Construction Authority, Singapore, “ Development Policy, Building Regulation and a Sustainable Built Environment – A Singapore Perspective ”
13:40-14:00	Massachusetts Official (tentative)
14:00-14:20	Break
14:20-14:40	Dr. IJsbrand van Straalen , TNO Built Environment and Geosciences, The Netherlands, “ Adaptation of the Dutch Building Sector to Climate Change ”
14:40-15:00	Dr. Ulrich Forster , Rhomberg Bau GmbH, Austria, “ Energy and Resource Efficient Prefabricated Multi-storey Timber Houses ”
15:00-15:20	Mr. Darren B. Meyers , PE, CEM, GBE, Technical Director, Energy Programs, International Code Council, Architectural & Engineering Services, USA, “ Codifying the Minimum Tenets of Sustainability Is Harder Than You Might Think! ”
15:20-16:00	Panel discussion and Q&A – Jon Traw, Moderator
16:00-16:15	Summary and close



Speaker Biographical Summaries and Abstracts

Mr. David Eisenberg

Executive Director
Center for Appropriate Technology (DCAT)
Tucson, AZ USA

David Eisenberg co-founded and has led the non-profit Development Center for Appropriate Technology (DCAT) in Tucson, Arizona since 1992. His three decades of building experience range from troubleshooting construction of the steel and glass cover of Biosphere2, to building a \$2 million structural concrete house, a hypoallergenic structural steel house, and masonry, wood, adobe, rammed earth, and straw bale structures. Since 1995 David has led the effort to create a sustainable context for building codes. A former two-term member of the U.S. Green Building Council Board of Directors, he founded and chairs the USGBC Code Committee. He recently served on the International Code Council Sustainable Building Technology Committee creating the first draft of the International Green Construction Code (IgCC), which will be part of the family of 2012 I-Codes. David previously presented at IRCC events in 2003, 2005 and 2008 and has given workshops, seminars, keynote addresses and lectures at dozens of conferences and universities in the U.S. and abroad. He was Vice-Chair of the ASTM E6.71 Subcommittee on sustainability for buildings for five years where he initiated the creation of a new standard for earthen wall systems, approved this year. He was principal investigator and author for the 2009 report, "Code, Regulatory and Systemic Barriers Affecting Living Building Projects" for the Cascadia Green Building Council. He has written for Building Safety Journal (magazine of the International Code Council), co-authored The Straw Bale House book, and has written dozens of published articles, forewords, book chapters and papers. David and DCAT received the 2007 International Code Council (ICC) Affiliate of the Year Award and a 2007 USGBC Leadership Award.

Emerging Climate and Energy Realities Require Evolutionary Regulatory Change

The approaching "perfect storm" of climate change coupled with peak energy (and other resource and ecological and human health concerns) presents enormous challenges and similarly large opportunities. The need to address buildings' impacts on the environment and to explicitly include the protection of future generations in building regulations has never been clearer. Past assumptions about appropriate categories and understanding of risk, climate stability, the availability of adequate and affordable supplies of energy, water and other critical resources, and about the ability of current regulations, regulatory thinking and structures to cope with emerging realities all need careful reconsideration. The emerging carbon and energy constrained future demands a new regulatory mindset — one that is anticipatory, whole-systems-based, and able to balance risks in different spheres of activity, timeframes, locations and types. The building regulatory realm must retool in order to facilitate continuous change rather than its historic tendency to preserve the status quo, enabling innovation based on more comprehensive understanding of risks and more integrated approaches to addressing and balancing them. This will require new and more cooperative relationships between innovators and regulators, management of risks inherent in change, and development of protocol for real-time learning from iterative innovative projects. It will also mean more support for local and regional resource utilization and research support for lower-tech, low-impact technologies and approaches.

Mr. Nils Larsson, FRAIC

Executive Director,
International Initiative for a Sustainable Built Environment (iiSBE)
Ottawa, Canada

Nils Larsson is an architect and is Executive Director of the *International Initiative for a Sustainable Built Environment* (iiSBE), an international non-profit organization. As part of his work with the Government of Canada during the 1990's, he developed and managed a demonstration program for high-performance buildings. He is the main organizer of the SB-series of international conferences and of *Sustainable Building Challenge* (SBC), an international project to develop and test new methods of assessing the sustainability performance of buildings. He is also a principal developer of the SBTool, a system for assessing the sustainability performance of buildings that is adaptable to many different regions. Finally, on behalf of iiSBE, he supports the work of several technical working groups. Mr. Larsson is a frequently



invited keynote speaker at conferences related to sustainable building and he is a Fellow of the Royal Architectural Institute of Canada.

Assessment, Labeling and Certification Systems: Where We Have Been and Where We Might be Going

Ms Cindy Jacobs

Senior Advisor
Commercial and Industrial Buildings Branch
Climate Protection Partnerships Division
US EPA Office of Air and Radiation
Washington, DC, USA

Cindy has over 20 years of experience developing and implementing policies and programs to protect the environment. Since 1992, Cindy has taken on many roles in her work for the US Environmental Protection Agency's Office of Air and Radiation, all in support of voluntary programs to reduce greenhouse gas emissions. Her experience includes development of methane reduction actions for the 1992 Climate Change Action Plan, analysis of options for reducing greenhouse gas emissions from vehicles, creation and leadership of the EPA Landfill Methane Outreach Program and the Voluntary Aluminum Industrial Partnership, and management of ENERGY STAR's commercial and government outreach efforts, among many others. In her work for ENERGY STAR, Cindy has overseen efforts to increase energy efficiency opportunities in many sectors. For example, Cindy has played a key role in the expansion of EPA's ENERGY STAR energy performance scale, including the addition of new features and greater usability as well as more widespread use in the commercial real estate, grocery, hospitality, retail, and municipal sectors. Cindy received a Masters of Public Policy from Harvard's Kennedy School of Government in 1991.

Evolving Energy Codes from Prescription to Real Performance: The Need for Whole Building Target-Based Codes

Commercial buildings account for about 20% of U.S. energy use and greenhouse gas emissions, which are projected to grow at about 1.8 percent per year over the next 25 years, more than in any other sector. The average energy intensity (energy per square foot) of existing buildings has not improved in recent years even as codes have tightened substantially. After a decline from 1979 to 1986, the average energy intensity of commercial buildings remained roughly the same through 2003, the most current year that nationally representative data were collected. One reason for this disconnect is likely the current structure of energy codes, which focuses on tightening prescriptive standards for building components, rather than on reducing whole building energy use. Existing codes do not allow building designers to establish a whole building energy target that can be tracked from design through operation, providing both a goal for those involved in design as well as a feedback mechanism. The gap between energy requirements at design and once a building is operating is growing as more local governments and states require whole building energy benchmarking of existing buildings. What is needed is a new approach to energy codes, one that sets whole building energy use targets at design, and requires that buildings demonstrate they are meeting the targets once in operation. Coming up with the right targets is not a simple task, but a far more productive use of code designers' effort than ratcheting up prescriptive standards for only part of the building, for diminishing – or no – returns.

Prof. Dr. Jean Carassus, Ph.D.

Professor at Ecole des Ponts
Paris Institute of Technology
Paris, France
Coordinator CIB TG66 – Energy and the Built Environment

Jean Carassus, graduate of [HEC Paris School of Management](#), first entered the French Housing Ministry. Then he joined the housing company Logement Français, a subsidiary of the French insurance group AXA. After he joined the R&D sector, by becoming the Director of the Economics and Human Sciences Department of the [Scientific and Technical Building research Centre \(CSTB\)](#). He worked on the Property and Construction Sector, coordinating an [International Building Council \(CIB\)](#)



[report](#). Then he monitored, for the French government, an international benchmark on energy and construction. He published three books on the Construction Sector. He is now a consultant, specialized in energy and environment efficient buildings, and professor at [Ecole des Ponts Paris Institute of Technology](#). He is [CIB "Energy and the Built Environment" Task Group n°66](#) coordinator. He created a bilingual blog dedicated to Sustainable Real Estate Economics: www.immobilierdurable.eu (jean.carassus@immobilierdurable.eu)

The 2010 European Energy Performance of Buildings Directive (EPBD) and its Implementation in France

The European Energy Performance of Buildings Directive (EPBD) N°2010/31/UE of 19 May 2010 updates, for the 27 Member States of the European Union, the Action Plan which was established eight years ago by Directive N°2002/91/EC of 16 December 2002. New French policy implementing European Directive has been formalized through the “Grenelle” laws of 3 August 2009 and 12 July 2010, stemming from the “Grenelle of Environment” process. This process was, after 2007 Presidential elections, an original national negotiation about climate change, biodiversity and environmental risks, between five bodies: government, local authorities, employers, unions and environment organizations. Three main lessons can be defined from this case analysis. Firstly driver of energy efficiency of buildings is political; energy efficiency is for the moment a market failure. Secondly contents of laws and political decisions depend on mobilization of public and social bodies in society. Thirdly implementation of laws and public decisions is hard to control, especially for renovation of existing building stock.

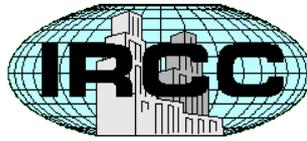
Mr. See Ho Ong

Deputy CEO (Building Control)
Building Construction Authority
Singapore

Ong See Ho is currently the Deputy CEO (Building Control) of the Building and Construction Authority, Singapore. The Authority’s mission is to shape a safe, high quality, sustainable, and friendly built environment. He is also the Commissioner of Building Control, an appointment he has held since 2006. In this capacity, his role is to administer the Building Control Act which is an Act to regulate building works in Singapore. Ong See Ho started his career as a civil/structural engineer with the Changi Airport Development Division of the Public Works Department, where he acquired 14 years of experience in structural design and supervision of building works for Phase 1 and 2 development of Changi Airport. Subsequently, he spent 18 years administering the building control framework at the Building Control Division and the Building and Construction Authority. Ong See Ho is a Board Member of the Professional Engineers Board as well as the Board of Architects. Ong See Ho graduated with a BEng degree in Civil Engineering from the National University of Singapore in 1977. He obtained an MSc degree in Concrete Structures from the Imperial College, UK in 1983, and an MBA degree from the National University of Singapore in 1992. He is a registered professional engineer in Singapore.

Development Policy, Building Regulation and a Sustainable Built Environment – A Singapore Perspective

Although Singapore is a small and densely populated city-state, with a land area of about 700 square kilometers and accommodating nearly 5 million people, it has been consistently rated by international organizations as one of the most liveable cities in the world with a strong economy. In order to sustain economic growth and our quality of life in a highly built-up city-state, the key challenge we face is to ensure that development continues to go hand-in-hand with our efforts to preserve our environment. An Inter-Ministerial Committee on Sustainable Development (IMCSD), which consists of government leaders from key sectors, is leading the national effort on developing holistic strategies towards sustainable development for Singapore. As part of this effort, the Building and Construction Authority of Singapore (BCA) has formulated sustainable strategies for the building and construction industry. They include a combination of initiatives involving changes to building regulations, incentives and awards, R&D, training, promotion and educating the industry to look not just at business case to green our buildings but also corporate social responsibility towards sustainable development. This presentation aims to share the challenges facing the Singapore building and construction industry, and the key initiatives and challenges in implementing them, with emphasis on the role of building regulations.



Dr.ir. IJsbrand J. van Straalen

TNO Built Environment and Geosciences
Delft, The Netherlands

IJsbrand van Straalen is from the Netherlands. He is a senior researcher at the Netherlands Organization for Applied Scientific Research TNO. His background is civil engineering and he got his Ph.D. on the subject "Development of design rules for structural adhesive bonded joints." Nowadays he is responsible for all activities within TNO related to building regulations. He represents TNO in various national and international groups.

Adaptation of the Dutch Building Sector to Climate Change

Climate change is hot news. There is great concern about the origin of the change in global temperature, and policy makers are developing plans to reduce CO₂ emissions worldwide. Recently, there is much attention for adapting ourselves to the consequences of climate change. The predicted increase in sea level and extremes in precipitation justify the need for research in The Netherlands. Less attention is paid to the consequences that climate change may have on our buildings. In design, climate effects are taken into account by applying building regulations and design codes. These codes are based on analysis of past observations and do not include trends in climate influences. This presentation based on recent research of TNO, considers this omission. A first attempt to understand the extent of the problem is made. In addition, research directions are proposed in order to quantify the problem and to develop new solutions. Attention is paid towards the durability of building materials especially for monuments, the effect on the indoor climate and the possible effects on structural loads

Mr. Javier Serra

Deputy Director General for Innovation and Quality in Building
Directorate General for Architecture and Housing Policy
Ministry of Housing
Spain



Mr. Serra holds a degree in Architecture and Urban Planning from the Polytechnic University of Madrid. He has been involved in activities related with public policies on quality in building, such as the creation of a National Public Network of Building Control Laboratories, preparation of several kinds of building regulations, and establishment of voluntary Quality labelling schemes for construction products. He has been involved in the European construction matters (Standing Committee of Construction, European Construction Network) and in the international arena of building codes he is an active member of the IRCC since 2000. He has also contributed in the preparation of the new Building Act 1999, and in response to the mandate given to the Government in the Building Act he leads the transformation of the old building regulatory system into the new performance-based system. As part of the new system, a new performance-based Building Code was approved in March 2006, where issues of energy efficiency and the compulsory use renewable energies have a relevant role. He is member of several national and international Association and Committees, such as the Spanish Acoustic Society, GBC Spain, council of the WGBC. Currently he acts as Deputy Director General for Building Quality and Innovation in the Directorate General for Architecture and Housing Policy at the Spanish Ministry of Housing and as such he has directed the Solar Decathlon Europe team.

Educational Tools to Succeed in the Climate Change Challenge: Solar Decathlon Initiative in the USA and Europe

The Solar Decathlon was created by the US Department of Energy in 2000. Solar Decathlon challenges 20 collegiate teams to design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive. The winner of the competition is the team that best blends affordability, consumer appeal, and design excellence with optimal energy production and maximum efficiency. Since then four editions, in 2002, 2005, 2007 and 2009 happened with increasing impact and success in both national and international scenes. The idea of having a Solar Decathlon in Europe emerged while the Technical University of Madrid (UPM) Team was in Washington preparing its participation in the 2007 Solar Decathlon American competition. Then, a "Memorandum of Understanding" was signed between the US



Government and Spanish Government which commits the Spanish Ministry of Housing to organize, together with the support of the US Department of Energy, a Solar Decathlon Europe Competition, in years 2010 and 2012, alternating with the American competitions foreseen in 2009, 2011 and 2013. The first SDE edition started with a RFP in September 2008 and has had its competition final phase in Madrid the 18th to 29th June, 2010 with a big success. 17 University teams from three continents have competed to try to be the best in ten contests. The presentation will provide with some more information on this SDE edition which has proven as a wonderful Educational tool in making students, industry and society aware on the need to improve the buildings energy efficiency and the use of renewable energy.

Mr. Jose Antonio Tenorio Rios

Senior Engineer, Technical Building Code Coordinator
Eduardo Torroja Institute for Construction Sciences
Spain



Mr. Tenorio holds a M.Sc. in Civil Engineering from the Polytechnic University of Madrid. He has a strong history in building construction quality, serving as Laboratory Director, Technical Assistance and Quality Control, and Managing Director, of the company Carrington, S.A. Engineering (1995-1998), engineer in the Department of Contracting and Studies in Altec, S.A. (1998-1999), and since 1999, Technical Building Code Coordinator, Department of Quality in Construction, Eduardo Torroja Institute for Construction Sciences (CSIS).

Steps to a Tighter Energy Code by 2011

The Technical Building Code was published in 2006 as the regulation that buildings must satisfy. In 2007, Energy Certification became mandatory of new buildings in Spain in conformity with Directive 2002/91/EU of the European Parliament, 16 December, 2002, on the energy performance of buildings. In the year 2010, a review of the Directive (2010/31/EU), named RECAST, has been published, with the aim to promote the improvement of the energy performance of buildings within the European Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements with cost-effectiveness criteria. The main objective is that in December 2020, all new buildings are nearly zero-energy buildings. The review of Technical Building Code then becomes necessary to achieve the new objectives. In this presentation we will show the advances and the plan for 2011, 2015 and 2020.

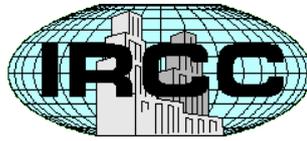
Mr. Ulrich Forster

Civil Engineer
Rhomberg Bau GmbH
Austria

As Head of the Technology Dept. of Rhomberg Bau GmbH, Ulrich Forster is responsible for the product development of the LifeCycle Tower – a timber based energy and resource efficient high rise building system. He coordinates a team of designers, suppliers and manufacturers who develop this project since 2008. Ulrich collected international experience in turnkey building and precast fabrication of complex buildings since 1997 at *HOCHTIEF* and *Max Bögl*. The introduction of the LifeCycle Tower system to the int. markets and product optimization are now his major tasks.

Energy and Resource Efficient Prefabricated Multi-Storey Timber Houses

The aim of LifeCycle Tower is to obtain maximum economic efficiency, at the same time develop a standardized system for prefabricated buildings. All targets set for this project are highly ambitious. A multi storey complex incorporating up to 30 floors with a timber based structure is meant to be erected. Additionally the timber building will profit from the energy and resource efficient way of building and the unique facade system of high comfort and energy performance. The building is mainly developed in a building-block type of system to secure clear cost structures, resulting in a future oriented product incorporating all aspects for a sustainable town development. This will be extremely interesting for investors as well as for city/town planners. The entire complete system which will be brought to market on an international level consists of three closely linked components; facility management, facade and construction. By introducing an integral planning process both economical and ecological factors have similar impact on the product; whereby the environmental



impact of the product is measured by CO₂ quantifications followed by certifications. Timber will be an extremely attractive material for the construction industry, due to current and future rising energy and raw material costs. But limitations in building codes and different regional restrictions complicate the utilization of this sustainable system in supra-regional project developments. A high rise building which is defined by energy and resource saving concepts and simple timber building-block systems follow the philosophy of sustainability, which is the future.

Mr. Darren B. Meyers, PE, CEM, GBE

Technical Director, Energy Programs
Architectural & Engineering Services
International Code Council
Chicago, IL, USA



Darren Meyers has more than 17 years of experience working in the fields of applied building systems research and the development of building safety, mechanical systems, fire prevention, energy conservation and sustainable construction practices in the built environment. With degrees in Mechanical Engineering from Purdue University and Architectural Engineering from North Carolina A&T State, Darren has undertaken a variety of roles in his tenure with the Code Council, most in capacity building, technical assistance, and global development, but all in support of the engineering and code enforcement professions. For ten years, Darren represented the ICC as Secretariat to the CABO *Model Energy Code*[®], its successor document, ICC's *International Energy Conservation Code*[®], and ICC's newest I-Code[™], the *International Green Construction Code*[®]. However, his most recent work is focused on translating the comparative efficiency targets of various global climate and energy efficiency policy initiatives into desired outcomes that build and maintain recognition of building energy and sustainable construction codes as 'the' single most effective hedge against GHG emissions attributed to building energy use. Outside of energy and sustainability topics, Mr. Meyers has administered capacity-building programs in Afghanistan—developing a complete building regulatory solution to strengthen the reconstruction effort there—and ICC's hydrogen infrastructure project with the U.S. Department of Energy's Office of Hydrogen Infrastructure Technology to develop fire and life safety requirements in the I-Codes for the use of hydrogen as an energy carrier in road and rail networks. Darren received MBA's from the Krannert School of Management at Purdue University in the U.S. and TIAS-Nimbas Business School, the Netherlands in 2009. He is a voting Member of ASHRAE SSPC 62.1, a licensed Professional Engineer in the States of Illinois and North Carolina and maintains his status as a Certified Energy Manager and Green Building Engineer with the Association of Energy Engineers. Darren lectures for the Code Council internationally on building energy systems, climate and sustainability topics.

Codifying the Minimum Tenets of Sustainability Is Harder Than You Might Think!

A cacophony of multinational macroeconomic shocks, energy-insecurity, and irrational exuberance in global financial markets have slowed the pace of life for the American consumer, and in turn, contributed to a growing consciousness, a groundswell on Main Street, that some minimum level of environmental stewardship must find its way into the way we plan our communities and design our buildings. In a way, the misfortunes of the global financial crisis have driven the once, disaffected American consumer to the point where their perspective reflects that of being a citizen of the world. Accordingly, the outlook of the American consumer, and thereby the American developer/owner, trends toward taking a more active role in demanding environmental stewardship in the development of their communities and the design and construction of energy efficient, green buildings, just as much as consumers demand of the products they buy. Turning to green buildings, one might abide the position that energy efficient, green buildings renew a commitment to the environment that has become a necessity in this era of climate change and energy-insecurity. And, with little added effort, one might also subscribe to the thought that by conserving the energy embodied and consumed in the planning, construction, operation, adaptation, re-use and deconstruction of buildings, communities might thereby directly conserve (reduce) the GHG emissions created in combusting the fuels that power the machines that condition, ventilate, illuminate and provide potable hot water to buildings, and power the appliances and office machines that advance worker productivity in those buildings. Bottom line, emissions from energy consumption affect the health of citizens locally—public health being a fundamental tenet of model building codes. Until recently there was no minimum code for the construction of energy efficient, green buildings. Why, because codes, by their very nature have been/are minimum standards of construction practice. Model building codes aren't



designed to go “above and beyond” the very modest, yet minimum tenets of preserving public safety, health and welfare. While by their very nature, energy efficient, green buildings set the bar higher. This disconnection, of sorts, was turned on its ear in 2009; but for the brief span of 14 months of work punctuated by meetings in five American cities, some 200 conference calls spanning four time zones, and thousands of hours of effort delivered by both volunteer working groups and representatives from a wide variety of industry and special interests, the International Code Council developed a new *International Green Construction Code* (IGCC) establishing a minimum standard for energy-efficiency and sustainability in construction that remains “sustainable.” The finished version of the proposed I-Code is scheduled to be released and available for adoption in the first quarter of 2012. Along the way, it wasn’t the technical content that was ever in doubt, but whether the IGCC Sustainable Building Technology Committee (SBTC) had the audacity to strike at the very core of Architectural Governance—the joint agreements between development partners and sponsors on the deliverables, quality, and fitness-for-purpose of architecture. In certain instances the true-process of building commissioning required the SBTC to reconsider whether the Statement of Architecture Work and the Owner’s Project Requirements were acceptable standards and policy expressions of the technologies, products and systems to be included in the operational aspects of a Commissioning Agent or in effect, extensions of the practice of architecture. Increasingly the development of architecture’s domain within the function providing oversight of the overall enterprise architecture, and co-ordination and control of the overall effort came into question with respect to the post-certificate of compliance, building commissioning process. In turn, questions such as, to what extent do architects have the capacity to audit buildings for energy use/performance; does a true third-party relationship exist between Commissioning Agents, if they were assigned the traditional role of a special inspector (engineers); and whether code enforcement officers have the jurisdiction to issue “certificates of compliance” (opposed to certificates of occupancy) tied to municipal, performance-based surety bonds. Last, but not least, not whether outcome-based codes could be developed, but when they eventually are developed, can they be effectively enforced given the current state of U.S. building regulatory community, or something entirely different?
