

Helen Mason

**THE INTERNATIONAL GREEN CONSTRUCTION CODE-  
“Safe and Sustainable: By the Book**

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## **THE INTERNATIONAL GREEN CONSTRUCTION CODE- “Safe and Sustainable: By the Book”**

### **I. INTRODUCTION**

In March 2012, the International Code Council (ICC) plans to issue the International Green Construction Code (IGCC) as a “model code” to address green building design, construction and performance in new and existing buildings.<sup>1</sup> Many believe that the IGCC holds the potential to fundamentally change the focus of sustainability in the United States.<sup>2</sup> This is because it contains requirements for *all* occupancies- new construction and existing structures, commercial, mixed-use and residential (other than low-rise residential occupancies).<sup>3</sup> Notably, if there is a *sale* or an addition, alteration, change of occupancy, movement, replacement or repair of buildings or the site on which the building is located, then the IGCC is triggered, requiring compliance with provisions to improve its sustainability.<sup>4</sup> In addition, the IGCC tackles the fundamental issue of calculating building performance, including energy efficiency, during the design phase and more importantly, measuring that performance after construction.<sup>5</sup> The IGCC is unique in these respects, and its adoption could impact a multitude of parties.

### **II. IS THERE A NEED FOR ANOTHER GREEN BUILDING GUIDELINE?**

As concern about the environment continues to be high on the public’s agenda, an increasing number of state and local governments have enacted legislation to combat the environmental impact of building construction and operation.<sup>6</sup> Each program differs in terms of scope and implementation; some apply through a local building code, while others have been implemented through various types of zoning ordinances or incentives. Some may mandate compliance with third-party certification regimes, such as the U.S. Green Building Council’s LEED green building standards, or the Green Building Initiative’s Green Globes system.<sup>7</sup> In the

Helen Mason

rush to respond to the environmental problems, much of this legislation was quickly passed without full consideration of the legal ramifications. This has resulted in an increasingly fragmented code environment creating the perfect recipe for potential legal exposure of unwary participants.

**A. Growing consensus that an enforceable model code is needed.**

According to the Environmental Protection Agency (EPA), the buildings of the United States utilize approximately 40% of the total yearly energy expenditure of the nation, and account for 13 % of total water consumption, 72 % of total electricity consumption and 39% of total carbon dioxide emissions into our atmosphere.<sup>8</sup> In response to this information, Congress directed the EPA and the National Institute of Building Sciences (NIBS) to establish a program of technical assistance and grants to accelerate the development of consensus-based standards for producing more energy-efficient, less resource-intensive, high-performance buildings for both new construction and renovation.<sup>9</sup> In response to this directive, NIBS reported to Congress:

In the United States, codes and standards usually set minimum prescriptive and performance requirements that can be met by a substantial portion of the design, construction and manufacturing community. Codes and standards provide a degree of standardization or uniformity to a complex and sometimes fragmented industry. The authority they enjoy is derived from their adoption by reference or reference by text in model codes as minimum requirements. When these model codes are adopted by local jurisdictions, they become enforceable regulations providing for the public safety, health and welfare. When referenced in master or guide specifications (private or public) they impact the complete design of the building including the levels of quality and performance for the selection and procurement of building materials, products and systems under contractual agreements....<sup>10</sup>

In most building projects, either public or private, the financing of the initial capital expenditure is often derived from a radically different source than the post-construction maintenance and operating budgets. Making the full life-cycle costs of a project part of the cost/benefit analysis will provide a major step towards a unified approach for the construction of high-performance buildings....<sup>11</sup>

In particular, tremendous opportunity exists to achieve higher performance in existing buildings by discouraging the practice of deferred maintenance and by vigorously encouraging practical service strategies for the building mechanical system. Reduced energy expenditure and increased energy and water efficiency are commonly recognized as crucial to delivering more sustainable buildings.<sup>12</sup>

Consistent with the findings of the NIBS report, both industry and government concur that there is a need for an enforceable code that can be adopted and administered by local governments which minimizes conflicts with other state and federal laws, covers new and existing buildings, building performance and post-construction operation & maintenance.<sup>13</sup> As a result, the IGCC is the product of a collaborative effort of hundreds of green building experts whose intent was to create a usable, enforceable document addressing every type of building in a manner that is flexible enough to meet the needs of diverse jurisdictions.<sup>14</sup> In developing the IGCC, the ICC had the cooperation and expertise of ASTM International (ASTM), the American Institute of Architects (AIA), the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the Illuminating Engineering Society, the U.S. Green Building Council (USGBC), producers of the LEED green building rating systems, and the Green Building Initiative (The GBI), producers of the Green Globes green building rating system. In addition, the IGCC has the public support of more than two thousand organizations and individuals.<sup>15</sup>

While the IGCC itself is a “model” code, its provisions are intended to be mandatory when adopted.<sup>16</sup> Code officials and politicians are generally comfortable adopting and utilizing ICC Codes as the basis for building regulations. Each of the fifty states has adopted at least one of ICC’s international codes, as have many federal agencies.<sup>17</sup> With the adoption of IGCC, state and local jurisdictions would not have to reinvent the code wheel when they want to implement green building practices.

Helen Mason

As further incentive, on February 3, 2011, the Obama administration unveiled a new program, the “Race to Green,” as part of a larger White House plan called the Better Building Initiative.<sup>18</sup> “Recognizing that much of the authority to alter codes, regulations, and performance standards relating to energy efficiency lies in the jurisdiction of states and municipal governments; the President’s Budget will propose new competitive grants to states and/or local governments that streamline standards that impact energy efficiency, encourage upgrades and attract private sector partnerships.”<sup>19</sup>

Considering these factors, there is the clear potential for the IGCC to be incorporated into state or local government codes in the near future. Already, the Building Officials Association of Florida has recommended that the IGCC be included in the appendix to the Florida Building Code,<sup>20</sup> and the Miami-Dade County Building Code Compliance Office, the cities of Orlando, Kissimmee, Destin, Boynton Beach, the Florida Natural Gas Association, and the U.S. General Services Administration are included among those identified as supporters of the IGCC on ICC’s website.<sup>21</sup> The U.S. Conference of Mayors has called on local governments to adopt the IGCC.<sup>22</sup> Maryland has already passed legislation to adopt it before it is even finalized.<sup>23</sup> As a result, it will be important for attorneys to keep an eye on the IGCC as it is revised and finalized, and to watch where it is incorporated into state and/or local building codes because it has the potential to affect almost any client, not just the designers, contractors, and owners of green buildings.

### **III. OVERVIEW OF THE IGCC**

The IGCC is being developed by the International Code Council (ICC), a non-profit organization that has created model building codes used around the world and whose members include state, county and municipal code officials and fire officials, architects, engineers, builders, contractors, elected officials, manufacturers and others in the construction industry.<sup>24</sup>

Overall, the IGCC is a comprehensive set of regulations intended to reduce the negative impact of buildings and systems on the environment.<sup>25</sup> It sets minimum mandatory requirements and performance thresholds in many specific areas, some of which are determined by the jurisdiction. The current draft, Public Version 2.0, is organized into twelve chapters and four appendices addressing thirty-seven specific areas of sustainability. It provides criteria for site development and land use, material resource and conservation, energy efficiency and air quality, water resource conservation, indoor environmental quality, building operation & maintenance, and provisions for existing buildings.<sup>26</sup>

It is designed to be adopted by governmental units on a mandatory basis and to be administered by local code officials and building departments.<sup>27</sup> This addresses the concerns raised due to an increasing number of laws affecting private sector construction that require projects over a certain size to comply with independent, third-party rating systems over which the local government exercises no control.<sup>28</sup> Such legislation has been criticized as resulting in an unconstitutional delegation of power.<sup>29</sup>

Jurisdictions are not required to accept the entire code and can elect to opt out of certain sections. Additionally, the IGCC was not developed as a stand-alone code, but rather as an overlay code, with the intent that it would be consistent and coordinated with the ICC family of Codes & Standards.<sup>1</sup> This is an important aspect because many jurisdictions have adopted (or modified) the ICC codes as the basis of their building codes. One problem currently faced by contractors and design professionals when building green buildings is that they must adhere to at

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<sup>1</sup> The standards found in Chapter 12 and the following codes are considered as part of the requirements of the IGCC to the extent prescribed in each reference: International Building Code, International Fuel Gas Code, International Mechanical Code, International Plumbing Code, International Property Maintenance Code, International Fire Code, International Energy Conservation Code, International Wildland-Urban Interface Code, International Code Council Performance Code, International Existing Buildings Code, International Zoning Code. See Section 102.

Helen Mason

least two conflicting standards--the conventional ICC-Code based building code, and the applicable green building standard. This has caused many issues, including a waterless urinal fiasco, in which waterless urinals were prohibited under conventional code provisions.<sup>30</sup> By integrating the IGCC building standard with the other ICC building codes, these types of mismatches can be minimized.

The IGCC provides jurisdictions with a method to customize the code to require enhanced building performance in specific areas of local concern, including energy, water, natural resources and material conservation.<sup>31</sup> However, the IGCC is composed primarily of mandatory requirements and contains a number of provisions which the jurisdiction must specifically select before they become mandatory, including a range of requirements in each environmental category.<sup>32</sup> This was done because some provisions may not be appropriate for all jurisdictions. IGCC uses the scheme of project electives to drive the implementation of environmentally beneficial practices which may not be suitable for every project and, therefore, not suitable as mandatory requirements. The IGCC requires that a minimum number of project electives, as determined by the jurisdiction for all projects, be complied with on each project.<sup>33</sup> This allows the owner or design professional to select which specific electives are to be implemented on each specific project. Project electives enable the IGCC to foster the construction of buildings which may far exceed its minimum requirements. As a result of these features, the intent is for the IGCC to produce results which are closely aligned with each jurisdiction's specific environmental goals. Even if a jurisdiction chooses to enforce only the minimum criteria in the IGCC, because the IGCC is intended to be adopted as a mandatory document, it is still likely to significantly reduce the impact of the buildings on the environment.<sup>34</sup>

**A. “Trust, but Verify!”--There is a need for building performance data.**

Many green or sustainable programs instituted by federal, state and municipal governments lack measurement and verification of outcomes to determine the success of implemented strategies.<sup>35</sup> For the last decade, green building rating systems, led by LEED, have been considered the top standard for designing sustainable buildings. As a result, many federal agencies, including General Services Administration, Environmental Protection Agency, and the Department of Defense, have made LEED a policy for their facilities.<sup>36</sup>

However, over the last few years the LEED rating system has faced some criticisms, including that the system does not include a method for measuring the energy performance of new facilities.<sup>37</sup> Critics assert that the LEED program relies on the premise that the ratings structure will produce buildings with better energy performance and life-cycle cost characteristics, but it does not include incentives that make energy performance a priority in accumulating points or requirements to measure the actual performance after construction (LEED 2009 does require sharing of “all available data” with USGBC for a period of five years following certification). Critics say the LEED program provides a design team with a lot of latitude to achieve certification by picking points that are cheaper or easier rather than some that may require larger initial investment but have significant energy savings and payback in a short time.<sup>38</sup> Critics opine that the long-term benefits of sustainable design requirements must to be based on facts, not claims, and that sustainability that does not include outcome-based assessment and metrics for determining success or failure will have limited long-term value.<sup>39</sup>

For example, too much confidence may be given by owners to the “average” energy efficiencies that are being achieved with LEED-certified buildings as reported by the USGBC. In a 2008 study, the New Buildings Institute examined actual energy use data of 121 LEED New

Helen Mason

Construction Certified buildings that had been operational for at least one year. The executive summary of the report states that: “The results show that projects certified by the USGBC LEED program *average* substantial energy performance improvement over non-LEED building stock.” However, the fine-print of the report states: “. . . there is wide scatter among the individual results that make up the *average* savings. Some buildings do much better than anticipated . . . . On the other hand, nearly an equal number are doing worse--sometimes *much worse*. At the extreme, several buildings use more energy than the predicted code baseline modeling . . . .” (emphasis added).<sup>40</sup> Naturally, such outcomes create the potential for claims of breach of contract, misrepresentation and potential harm to the developer or owner’s reputation in the marketplace.<sup>2</sup>

**B. IGCC will require energy performance measurement.**

The IGCC addresses this problem by making energy performance a priority and establishes provisions to *measure* that performance. In order to verify building’s sustainability and energy consumption, the IGCC establishes building commissioning protocols that define how this performance is measured, when it’s measured, who measures it, and who’s responsible for the building’s performance if it does not meet requirements.<sup>41</sup> Chapter 6 of the IGCC regulates the design, construction *and operation* of buildings for the effective use of energy. It establishes a minimum “zero energy performance index” (zEPI) for all building types and sizes and includes options for a jurisdiction to require greater energy efficiency.<sup>42</sup>

Specifically, the code requires submission of a “commissioning plan” which must contain *measurable criteria* to evaluate and report performance of all energy systems and equipment.<sup>43</sup>

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<sup>2</sup> Henry Gifford, et al., filed an amended complaint February 7, 2011, that alleges USGBC falsely led consumers to believe that LEED buildings are more energy efficient, that USGBC’s own data proves that LEED buildings are actually not more energy efficient and that the USGBC does not actually verify that buildings are designed and constructed to save energy. Case# 1:10-cv-07747-LBS, U.S. Dist. Court, Southern District New York. pdf copy available at <http://www.greenbuildinglawupdate.com/uploads/file/gifford%20amended%20complaint.pdf>

Helen Mason

The commissioning process is to verify and document that each building and site system has been designed, installed, and functions according to the owner's project requirements, construction documents, and to minimum code requirements.<sup>44</sup> The IGCC also contains specific mandatory *post-occupancy re-commissioning* and reporting requirements for HVAC systems and lighting and electrical systems.<sup>45</sup> Further, the IGCC contains provisions for the *annual* calculation and reporting of zEPI, energy demand and CO<sub>2</sub>e emissions; however, such reporting would be required only where elected by the jurisdiction as a requirement or project elective.<sup>46</sup> To enforce these requirements, the certificate of occupancy will include a stipulation that post occupancy requirements must be completed in accordance the IGCC.<sup>47</sup>

The code provides four methods to demonstrate energy use compliance: prescriptive-based; performance based; outcome based; and, energy use intensity.<sup>48</sup> The advantage of performance-based measures is that they provide assessments and metrics for determining success or failure which can then be used to construct buildings that perform to a level that matches sustainable design intent. However, prescriptive guidelines that set specific, uniform requirements were included because they are easier to apply and make the code attractive and user friendly for those municipalities who lack the expertise in sustainability or the financial resources to implement.<sup>49</sup> This is consistent with the ICC principle that a model code must be enforceable, useable, and adoptable.

The IGCC requires performance-based compliance for energy use in buildings over 25,000 square feet in total building floor area, and this provision applies to new buildings, existing building additions, and existing building alterations.<sup>50</sup> In addition, it includes provisions that will ensure that all buildings are constructed or altered in a way so that it will have capabilities for energy measuring, monitoring and reporting, or incorporate features that facilitate

Helen Mason

those capabilities in the future.<sup>51</sup> It also requires the development of operations and maintenance manuals and building owner education documents. The intent is to provide building owners, future owners, tenants, and operation and maintenance staff with information which they can use to verify that buildings perform, and continue to perform in accordance with the IGCC.<sup>52</sup> Prior to the development of the IGCC, building codes did not address what happened after a building was completed and essentially stopped their function at the certificate of occupancy.

The drafters of the IGCC have also provided optional provisions that can be adopted by a jurisdiction. For example, “Appendix D” contains enforcement procedures designed to ensure the continued compliance of buildings, structures and building sites constructed under the IGCC. It requires existing buildings, structures and building site improvements that do not comply with the provisions to be altered or repaired to restore compliance with the IGCC.

### **C. IGCC addresses sustainability issues in existing buildings.**

One of the most significant aspects of the IGCC is the provisions that address sustainability issues for existing buildings. Because these provisions are triggered by many events (such as a sale), they have the potential to impact a huge number of people who will be uninformed about their obligations under the IGCC. A recent report prepared by Pike Research, LLC provides compelling information that illustrates why energy efficiency for these existing buildings is critical.<sup>53</sup> The report notes that new buildings are a relatively small portion of the total building stock in the United States. The annual new commercial building construction space in the U.S. is only 1 to 2 billion square feet. Whereas, in 2010 the existing building space in the U.S. was 79 billion square feet, and of that, 65 billion square was over ten years old.<sup>54</sup> Further, it states that commercial buildings use almost 20% of all energy in the United States and that

Helen Mason

Florida is one of the five states whose combined commercial building energy use accounts for 40% of that amount.<sup>55</sup>

Clearly, energy efficiency in existing buildings presents an important area of concern. The report further explains that one-third to one-half of the existing space is due for a major retrofit to address deferred maintenance, while most of the remaining space would benefit from energy efficiency measures integrated into ongoing maintenance and upgrades.<sup>56</sup> For private buildings, their research supports the conclusion that energy cost savings, with quick payback can be achieved for activities, such as lighting retrofits, energy control management systems, and retro-commissioning, especially in regions with high utility prices.<sup>57</sup> Retro-commissioning projects provide savings of 10% to 20% with an average payback slightly over 1 year. The incremental cost of energy efficiency is less than 5% when incorporated into projects occurring anyway, such as tenant improvements, HVAC component replacement at the end of useful life, or market repositioning by new owners.<sup>58</sup> In multi-tenant spaces, the report notes that the single measure of installing an electricity sub-meter for each tenant was shown to cut electricity use by over 20%.<sup>59</sup> The findings of Pike Research are consistent with other published reports.<sup>60</sup>

The Pike Research report suggests that energy policy should establish a predictable progression of incentives, followed by requirements so that business owners can plan with certainty. Specifically, the report suggests that if code policy, regulations and financial incentives focus on energy efficiency at the following intervention points, the incremental cost of efficiency will be very small:

- Building design – schematic design, material and building systems selection;
- Existing building purchases;
- Leasing/tenant improvements;

Helen Mason

- Building renovation cycles;
- Rebuilding (after a natural disaster).<sup>61</sup>

Consistent with the suggestions of the Pike Research report, the IGCC incorporates provisions at each of these points. The provisions for existing buildings in the IGCC require, in essence, that whatever is altered must be brought into conformance with the requirements of the current code, as applicable to that component, assembly or system.<sup>62</sup> While, whatever is not changed or altered is permitted to remain as is. Additions and additions to components of the building are treated much like new construction, and the applicable code requirements must be satisfied.<sup>63</sup>

Moreover, the IGCC takes additional steps. First, the IGCC requires that any existing building that undergoes alterations or additions, even if they are of a minor nature, comply with specified basic minimum energy and HVAC requirements, except where it is determined to be technically infeasible, where systems are concealed, or where a tenant does not have control over complete systems.<sup>64</sup> The IGCC also requires compliance with these provisions for any change of occupancy<sup>65</sup> and, furthermore, requires compliance within 1 year of the sale of a building or portion thereof.<sup>66</sup> In addition to these mandatory requirements, the IGCC requires that 10 percent of the cost of alterations be allocated toward the preparation of an energy audit report and energy and mechanical system improvements. The energy and mechanical system improvements are selected from an extensive list.<sup>67</sup> Also, at least 50 percent of waste materials resulting from the demolition of existing buildings, or portions of existing buildings, must be diverted from landfills.<sup>68</sup>

Additionally, the IGCC has a section that can be adopted by a jurisdiction whereby the jurisdiction agrees to offer the *option* to owners of existing buildings to have their building

Helen Mason

evaluated in accordance with the requirements of the IGCC, to demonstrate compliance, and be certified for doing so.<sup>69</sup> This would be beneficial to owners of existing buildings who wish to use their building's conformance with the sustainable requirements of the IGCC as a marketing tool.

#### **IV. POTENTIAL LEGAL ISSUES**

##### **A. Increased liability exposure for architects.**

Throughout its provisions, the IGCC allocates specific responsibilities to various individuals or entities. They are defined and include the owner, code official, registered design professional, registered design professional in responsible charge, and approved agency. For example, Section 903.1 provides:

Where application is made for construction as described in this section, the *registered design professional in responsible charge* or *approved agency* shall perform commissioning during construction and after occupancy as required by Table 903.1. Where Table 903.1 specifies that commissioning is to be done on a periodic basis, the *registered design professional in responsible charge* shall provide a schedule of periodic commissioning with the submittal documents that shall be reviewed and approved by the *code official*.

This designated accountability for implementing a sustainability design is in contrast to other rating systems. This is significant because the IGCC is written in mandatory terms and will be enforceable; suggesting that code violations could be issued by a governing body for failure to comply. Therefore, if a design doesn't meet the specifications of the state where the IGCC has been adopted, the *registered design professional in responsible charge* (i.e., architect) could be liable for failure to comply. Enforceability will likely mean increased responsibility and risk-management issues for architects, who would have to add energy efficiency to the list of health, safety, and welfare responsibilities.

Another concern is what impact this may have on the architect's professional standard of care, which has established legal parameters that are well understood nationwide. Once the

Helen Mason

IGCC is adopted, there may be new expectations that require an enhanced standard of care, thus increasing potential liability claims against the architect.

Another potential liability issue for architects arising out the adoption of the IGCC may be causes of action asserted as negligence per se. Generally, the doctrine of negligence per se allows a plaintiff to recover in negligence where it can demonstrate that a defendant violated a statute designed to address public safety. It is an easier claim to assert than negligence standing alone because expert testimony is not needed to demonstrate a breach of duty. Consider what happens if a construction project merely fails to reach the required energy efficiency as planned in the design. In a claim against the “*design professional in responsible charge*” the owner may not need to establish the elements of a negligence claim or assert that the standard of care for an architect was breached in order to establish a claim; rather, the simple failure of the project to achieve certain energy efficiencies could be prima facie evidence that the architect had been negligent. The negligence per se claim would be in addition to any other causes of action that the owner might be able to assert against the design professional, such as breach of contract.

**B. There could be unforeseen gaps in insurance coverage.**

Adoption of the IGCC could create uncertainty in other areas as well. For example, in the event of a partial or total loss (e.g., a fire destroys part or all of a building), property insurance policies will typically pay for the cost of rebuilding a building to its pre-loss condition. However, in the absence of a specific endorsement to such a policy, a building owner’s property insurer may deny the owner’s claim for the costs of complying with a newly enacted IGCC. It will be important for counsel to monitor local legislative activity and advise clients of the need to review the terms and conditions of their property insurance to ensure that sufficient coverage will be available.

**C. Obligations imposed on the homeowners in existing high rise condominiums.**

Chapter 10 of the code could be read to impose many obligations on a condominium homeowner which could be triggered by actions they regularly undertake. For example, Section 1006.3 requires that upon the sale of “portions of buildings” that the sold “portion” must comply with Sections 1003.2 and 1003.3 within a year of the sale. This may require HVAC system changes, an energy audit by a qualified person, installation of metering devices, lighting system upgrades to comply with International Energy Conservation Code. Similar obligations are triggered by alterations to “portions” of buildings, including allocating 10% of the cost of the alterations to make other approved changes to improve its sustainability. While the IGCC provides considerable leeway for judgment calls by the code official, the code articles could have sweeping impact upon unwary homeowners. As with any new law, unanticipated consequences are likely to arise. It would be prudent, therefore, for all potential stakeholders to review the IGCC draft, note any potential issues and make appropriate comments to the ICC while the document is still in draft form.

**CONCLUSION**

As currently drafted, the IGCC will help to mainstream a design philosophy that has often been viewed admirably. For the first time, sustainable design will be codified. However, it is likely that many owners, contractors, design professionals and their counsel are not aware that this document exists. With the development of the IGCC near completion, attorneys will need to determine local and state code officials’ views of the code and identify how to educate and protect their clients accordingly.

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ENDNOTES

<sup>1</sup> International Code Council, IGCC Development Schedule, Retrieved March 19, 2011, from: <http://www.iccsafe.org/cs/IGCC/Pages/PublicVersionDevelopment.aspx>

<sup>2</sup> See, e.g., International Code Council, IGCC Quote Sheet, “ Nov. 18, 2010 Comments from industry leaders: ICC, AIA, ASTM, ASHRAE, USGBC, IES,” Retrieved March 19, 2011, from: [http://www.iccsafe.org/newsroom/Documents/PV\\_2%20quote%20addendum\\_11\\_15-v.2.pdf](http://www.iccsafe.org/newsroom/Documents/PV_2%20quote%20addendum_11_15-v.2.pdf)

<sup>3</sup> See, e.g., The American Institute of Architects, “International Green Code,” *Issue Brief*, January 13, 2011, Retrieved March 20, 2011, from: <http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab085333.pdf>

<sup>4</sup> International Code Council, *International Green Construction Code, Safe & Sustainable by the Book, Public Version 2.0*, §101.2, Chapter 10, (November, 2010) available at [http://98.129.193.74/IGCC-PV2\\_PDF.pdf](http://98.129.193.74/IGCC-PV2_PDF.pdf) [hereinafter cited as *IGCC*].

<sup>5</sup> See *Id.*, Chapter 6, “Energy Conservation, Efficiency and Atmospheric Quality,” Chapter 9, “Commissioning, Operation and Maintenance.”

<sup>6</sup> See, Scott Muldavin, *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*, (The Muldavin Company, Inc., 2010), 23, available at <http://www.GreenBuildingFC.com>.

<sup>7</sup> See *Id.* 24.

<sup>8</sup> U.S. Environmental Protection Agency, “Buildings and their Impact on the Environment: A Statistical Summary,” Revised April 22, 2009, Retrieved March 26, 2011, from: <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf>

<sup>9</sup> Energy Policy Act of 2005, Title IX, Subtitle A, §914 (Public Law 109-058), available at: <http://www.gpo.gov/fdsys/pkg/PLAW-109publ58/html/PLAW-109publ58.htm>

<sup>10</sup> National Institute of Building Sciences, “Assessment to the U.S. Congress and U.S. Department of Energy on High Performance Buildings,” 2008, p. 2, Retrieved March 26, 2011 from: [http://www.nibs.org/client/assets/files/hpbc/NIBS\\_HighPerformanceBuildings\\_Report.pdf](http://www.nibs.org/client/assets/files/hpbc/NIBS_HighPerformanceBuildings_Report.pdf) [hereinafter cited as NIBS].

<sup>11</sup> *Id.* at p 9

<sup>12</sup> *Id.*

<sup>13</sup> See, *Issue Brief*, “International Green Code,” *supra* note 3.

<sup>14</sup> See, International Code Council, “New Green Construction Code Unveiled,” *News Release*, March 15, 2010, Retrieved March 26, 2011, from: <http://www.iccsafe.org/newsroom/News%20Releases/NR031510-IGCC-Unveiled.pdf>

<sup>15</sup> *Id.*

<sup>16</sup> See, *IGCC*, *supra* note 4, at Preface, “Roadmap to the International Green Construction Code.”

<sup>17</sup> See, International Code Council, “Efforts Combined to Create First Set of Model Codes and Standards for Green Building,” *News Release*, Revised March 12, 2010, Retrieved March 26, 2011, from: <http://www.iccsafe.org/newsroom/News%20Releases/NR031110-IGCC.pdf>

<sup>18</sup> See, The White House Office of Media Affairs, “President Obama’s Plan to Win the Future by Making American Businesses More Energy Efficient through the ‘Better Buildings Initiative,’” February 3, 2011, Retrieved April 8, 2011 from: <http://www.whitehouse.gov/the-press-office/2011/02/03/president-obama-s-plan-win-future-making-american-businesses-more-energy>

<sup>19</sup> *Id.*

<sup>20</sup> Building Officials Association of Florida, Inc., “Resolution 2010-03,” June 9, 2010, Retrieved April 8, 2011 from: <http://www.iccsafe.org/Communities/Green/Documents/2010-13IGCC%20%282%29.pdf>

<sup>21</sup> International Code Council, IGCC Supporters, Retrieved April 8, 2011, from: <http://www.iccsafe.org/cs/IGCC/Pages/IGCCOrganizationSupporters.aspx>

<sup>22</sup> U. S. Conference of Mayors, “Calling On U.S. Cities to Adopt Green Building Codes, Adopted Resolutions 2010,” available at: [http://www.usmayors.org/resolutions/78th\\_Conference/adoptedresolutionsfull.pdf](http://www.usmayors.org/resolutions/78th_Conference/adoptedresolutionsfull.pdf)

<sup>23</sup> See, Maryland House Bill 972, “Building Codes – International Green Construction Code,” effective March 1, 2012, Retrieved April 10, 2011, from: <http://mlis.state.md.us/2011rs/billfile/hb0972.htm#Synopsis>

<sup>24</sup> International Code Council, “ICC Code Development Process,” retrieved March 26, 2011, from: <http://www.iccsafe.org/AboutICC/Documents/GovtConsensusProcess.pdf>

<sup>25</sup> See, *IGCC*, *supra* note 4, at Preface, iii.

<sup>26</sup> *See Id.*, at vii.

<sup>27</sup> *Id.*

<sup>28</sup> See, Green Building Web Pages, A Public Web Resource Guide, “LEED-Mandating Agencies,” retrieved April 1, 2011 from: [http://www.greenbuildingpages.com/links/weblinks\\_LEED.html](http://www.greenbuildingpages.com/links/weblinks_LEED.html)

<sup>29</sup> See, Jonathan E. Furr, *Green Building and Sustainable Development: The Practical Legal Guide*, (American Bar Association, Section of Real Property, Trust, and Estate Law, 2009), 231.

<sup>30</sup> See, Muldavin, *supra* note 6, at 44.

<sup>31</sup> See, *IGCC*, *supra* note 4, at Chapter 3, §302.1, Table 302.1.

<sup>32</sup> *Id.*

<sup>33</sup> *See Id.* at Chapter 3, §303, Table 303.1

<sup>34</sup> *See Id.* at Preface, “Roadmap to the International Green Construction Code”

<sup>35</sup> NIBS, *supra* note 10, at 9.

<sup>36</sup> See, e.g., U.S. Green Building Council, Public Policies Adopting or Referencing LEED, Retrieved April 8, 2011, from: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852>

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<sup>37</sup> See, e.g., Henry Gifford, “A Better Way to Rate Green Buildings,” Retrieved March 26, 2011, from: <http://www.energysavingscience.com/>

<sup>38</sup> See e.g., Timon Singh, “Frank Gehry Slams LEED, Calls Sustainable Design ‘Political,’” May 5, 2010, Retrieved March 26, 2011, from: <http://inhabitat.com/frank-gehry-calls-sustainable-design-political/>

<sup>39</sup> See, NIBS, *supra* note 10, at 13.

<sup>40</sup> Cathy Turner and Mark Frankel, “Energy Performance of LEED for New Construction Buildings, Final Report,” (New Building Institute, March 2008,) 1-4. Retrieved March 26, 2011 from: <http://www.usgbc.org/ShowFile.aspx?DocumentID=3930>

<sup>41</sup> See, *IGCC*, *supra* note 4, at Chapter 9, §903, Table 903.1.

<sup>42</sup> *Id.*, *IGCC*, *supra* note 4, at Chapter 6, §602.1, Table 602.1.

<sup>43</sup> *Id.*, *IGCC*, *supra* note 4, at §612.1.1

<sup>44</sup> *See Id.*, *IGCC*, *supra* note 4, §202

<sup>45</sup> *Id.*, *IGCC*, *supra* note 4, at §612.1.5 (HVAC), §612.3.5 (lighting and electrical)

<sup>46</sup> *Id.*, *IGCC*, *supra* note 4, at §613.2

<sup>47</sup> *See Id.*, *IGCC*, *supra* note 4, at §109.2

<sup>48</sup> *Id.*, *IGCC*, *supra* note 4, at Chapter 6, §602.2 describes acceptable “Compliance Paths” under which circumstances:

- 1) For new, small buildings ( $\leq 25,000$  ft<sup>2</sup>) a prescriptive-based path is available (§602.2 .1);
- 2) For new, large buildings (over 25,000 ft<sup>2</sup>) and as an elective in small buildings the available paths are:
  - a) Performance-based (zEPI, §602.2.2);
  - b) Outcome-based (Annual Net Energy Performance §602.2 .3); or
  - c) Energy Use Intensity-based (EUI, §602.2.4).
- 3) For additions to existing buildings, two paths are available based on building size (§602.3); and
- 4) For alterations to existing buildings, energy used after the alteration must not exceed the prior use (§602.3).

Three paths are available:

- a) “Determination of energy savings” a predictive comparison of use before and after alteration (§602.3.1);
- b) “Measurement-based compliance” compares actual measurement before and after alteration (§602.3.2); and
- c) “Third-party certification-based compliance” approved agency uses approved means (§602.3.3).

<sup>49</sup> See, Zach Mortice, “ICC, AIA, ASTM Begin Work on International Green Construction Code,” (The American Institute of Architects, 2009), Retrieved March 27, 2011 from: [http://info.aia.org/aiarchitect/thisweek09/0814/0814n\\_greenodes.cfm](http://info.aia.org/aiarchitect/thisweek09/0814/0814n_greenodes.cfm)

<sup>50</sup> *IGCC*, *supra* note 4, at Chapter 6, §602.2.

<sup>51</sup> *See Id.*, *IGCC*, *supra* note 4, at §604.1

<sup>52</sup> *See Id.*, *IGCC*, *supra* note 4, at §904.

<sup>53</sup> See, Levin Nock, Ph.D. and Clint Wheelock, “Executive Summary: Energy Efficiency Retrofits for Commercial and Public Buildings Energy Savings Potential, Retrofit Business Cases, Financing Structures, Policy and Regulatory Factors, Demand Drivers by Segment, and Market Forecasts,” (Pike Research, LLC, 2010), Retrieved April 2, 2011 from: <http://www.pikeresearch.com>

<sup>54</sup> *Id.* at 5

<sup>55</sup> *Id.* at 3, 5

<sup>56</sup> *Id.* at 5

<sup>57</sup> *See Id.* at p. 3

<sup>58</sup> *See Id.*, at p. 2

<sup>59</sup> *Id.* at p. 7

<sup>60</sup> *See*, Muldavin, *supra* note 6, at 45.

<sup>61</sup> Nock, *supra* note 53, at 6.

<sup>62</sup> *See*, *IGCC*, *supra* note 4, at Chapter 10, §1003.1.

<sup>63</sup> *See Id.*, *IGCC*, *supra* note 4, at §1002.1

<sup>64</sup> *See Id.*, *IGCC*, *supra* note 4, at §1002.2

<sup>65</sup> *See Id.*, *IGCC*, *supra* note 4, at §1004.1

<sup>66</sup> *See Id.*, *IGCC*, *supra* note 4, at §1006.3

<sup>67</sup> *See Id.*, *IGCC*, *supra* note 4, at §§1003.3.1-1003.3.10

<sup>68</sup> *Id.*, *IGCC*, *supra* note 4, at §1006.2

<sup>69</sup> *See Id.*, *IGCC*, *supra* note 4, at §1006.4