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CAN GREEN BUILDING LAW SAVE THE PLANET?

By Stuart Kaplow*

I. Impact on the Planet

Buildings have a large impact on the planet and are tremendous consumers of electricity, accounting for projected 74.0% of the total electricity consumption in the United States in 2012.¹ In a broader measure, buildings in the United States account for 41.0% of the nation's overall energy use.²

Building occupants in the United States use over fifteen trillion gallons of potable water each year, which is 13.6% of the total water consumed per day.³ To appreciate the relationship between electricity and water, 20% of the electricity used in California goes to move and treat water.⁴

The U.S. Environmental Protection Agency estimates that building occupants generate over 250 million tons of solid waste per year, which is 4.43 pounds per person per day.⁵ Of that, only 1.53 pounds per person per day is recycled or composted.⁶ Building-related construction and demolition debris totals approximately 160 million tons

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1. U.S. DEP'T OF ENERGY, 2011 BUILDINGS ENERGY DATA BOOK 6-1 tbl. 6.1.1 (2012), available at http://buildingsdadabook.eren.doe.gov/docs/xls_pdf/6.1.1.pdf.
2. *The Greenest Building: Quantifying the Environmental Value of Building Reuse*, at 17 PRES. GREEN LAB, (2011), available at http://preservationnation.org/information-center/sustainable-communities/green-lab/lca/the_Greenest_Building-lowres.pdf.
3. *Green Building Facts*, at 2, U.S. GREEN BUILDING COUNCIL, available at <http://www.usgbc.org/Docs/Archive/General/Docs18693.pdf> (last visited March 28, 2014).
4. *Water Supply-Related Electricity Demand in California*, CAL. ENERGY COMM, (November 2007) available at, <http://www.energy.ca.gov/2007publications/CEC-500-2007-114/CEC-500-2007-114.PDF>
5. *Municipal Solid Waste*, Office of Solid Waste, U. S. ENVTL. PROT. AGENCY, <http://www.epa.gov/waste/nonhaz/municipal/> (last updated Feb. 28 2014).
6. *Municipal Solid Waste Fact Sheet*, U. S. ENVTL. PROT. AGENCY, <http://www.epa.gov/osw/nonhaz/municipal/index.htm> (last updated Feb. 28, 2014).

per year, accounting for nearly 26% of total non-industrial solid waste generation in the U.S.⁷ Buildings contribute 38.1% of total carbon dioxide emissions in the United States.⁸ In contrast, cars and light trucks together produce only 20.5% of carbon dioxide emitted.⁹

There are a myriad of other environmental impacts and an untold number of metrics that could be compiled (e.g., urban heat island effect, storm water), but it is clear that buildings have a negative impact on the natural environment. There are nearly 4.9 million commercial buildings in the U.S.¹⁰ Each year approximately 170,000 new commercial buildings are constructed and less than 44,000 nonresidential buildings are demolished.¹¹

While buildings and the construction of buildings provide countless benefits to human beings beyond merely providing shelter, this article will describe how Green building is the ideal means of mitigating the negative impacts that human activity has on the planet. This article will lay a foundation by defining and explaining Green building. It will then construct on that footing, through a review of standards, codes, and rating systems that are “Greening”¹² buildings, the postulate that Green building law can save the planet.

II. Defining Building Green

There is no single widely accepted definition of Green building. There is also no single chronological history of Green building upon which to build. Some Green building practices, such as using local and renewable materials or passive solar design, date back millennia.¹³ The ancient Pueblo people in the Southwest built entire villages as early as 1500 B.C. using a southern exposure and overhanging cliffs to cool their adobes in winter, while sunlight struck less directly during the hot summer.¹⁴

For many people, April 22, 1970 - the first Earth Day - was the beginning of the modern environmental movement when as many as twenty

7. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Office of Solid Waste, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm> (last updated Feb. 28, 2014)

8. *Assumptions to the Annual Energy Outlook 2010*, U.S. ENERGY INFORMATION ADMIN. (June 9, 2010) <http://www.eia.gov/oiaf/aeo/assumption/>

9. *The Greenest Building*, supra note 3.

10. *Buildings and their Impact on the Environment: A Statistical Summary*, U.S. ENVTL. PROT. AGENCY, available at, <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf> (last revised April 22, 2009).

11. *Id.*

12. In today's environmental lexicon, the adjective “green” has quickly transmogrified into a verb as well.

13. *Green Building Basic Information*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/greenbuilding/pubs/about.htm> (last updated Dec. 19, 2012).

14. *Id.*

million Americans became participants in environmentalism.¹⁵ That environmental movement, coupled with the 1970s oil price increases triggered by the 1973 oil embargo by Arab members of the Organization of Petroleum Exporting States, created an interest in energy-efficient and environmentally friendly practices. Emblematic of this public interest, in the late 1970s President Jimmy Carter installed solar panels on the White House roof to provide hot water.¹⁶

The contemporary Green building movement arose out of the need and desire for more energy efficient and environmentally friendly buildings.¹⁷

Sustainable building is often used as a synonym for Green building. The 1987 report, *Our Common Future*, issued by the United Nation's World Commission on Environment and Development, that defined sustainable development as, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," became known as the Brundtland Report, in recognition of former Norwegian Prime Minister Gro Harlem Brundtland's role as the Commission chair, and is today the *de facto* definition of sustainable building.¹⁸

The U.S. Green Building Council, Inc.¹⁹ was founded in 1993 as a private, non-profit organization which describes its mission as dedicated to sustainable building design and construction.²⁰

There is no single law, in the United States or elsewhere, that defines Green building. While federal law does not define Green building, the Environmental Protection Agency offers a definition in its fact sheets:

Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation

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15. *Earth Day: The History of a Movement*, EARTH DAY NETWORK, <http://www.earthday.org/earth-day-history-movement> (last visited June 1, 2014).
 16. Juliet Eilperin, *White House solar panels being installed this week*, THE WASHINGTON POST BLOG, August 15, 2013 <http://www.washingtonpost.com/blogs/post-politics/wp/2013/08/15/white-house-solar-panels-finally-being-installed/>
 17. EPA, *supra* note 14.
 18. *The World Comm'n on Env't and Dev.*, OUR COMMON FUTURE 27 (Oxford University Press) (1987).
 19. The start-up non-profit was originally named the U.S. Green Manufacturers Council reflecting that the target members were building product manufacturers. Given the increased emphasis, some 20 years later, on building product manufacturers in LEED® v4, the latest version of the rating system, that name change provides very real insight into the founders' vision and the future of the organization. See, David Gottfried, EXPLOSION GREEN, p. 58, Morgan James (2014).
 20. *USGBC History*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/about/history>.

and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or high performance building.²¹

At the federal level, the Energy Policy Act of 2005²² and the Energy Independence and Security Act of 2007²³ included energy efficiency and sustainable design requirements for high performance federal buildings.²⁴ Additionally, since the early 1990s, there have been a series of federal executive orders and agency-specific rules promoting Green building, and the federal government has instituted sustainable practices at many of its buildings.²⁵ While none of this rises to the level of providing a national statutory definition of Green building, the federal government, starting in 2010 and with some exceptions, has constructed and leased only Green buildings.²⁶

The State of Maryland is representative of other state governments,²⁷ in that it also does not have a single definition for Green building.²⁸ Interestingly, as early as 2001, section 10-722 in the Tax-General Article of the Annotated Code of Maryland provided that “[b]y regulation, the [Maryland Energy] Administration shall adopt standards for a building to qualify as a green base building eligible for the tax credits under this section that are consistent with the criteria for green base buildings set forth by the United States Green Building Council or other similar criteria.”²⁹ Maryland was one of the first states to offer the voluntary incentive of a Green building tax credit

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21. *Green Building Basic Information, Definition of Green Building*, ENVIRONMENTAL PROTECTION AGENCY, <http://www.epa.gov/greenbuilding/pubs/about.html> (last updated Dec. 19, 2012).
 22. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified as amended in scattered sections of 42 U.S.C.).
 23. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (codified as amended in scattered sections of 42 U.S.C.).
 24. *See id.* *See also* Energy Policy Act of 2005, *supra* note 23.
 25. *See* The Office of the Federal Environmental Executive, *The Federal Commitment to Green Building: Experiences and Expectations*, 1, 3-5 http://www1.eere.energy.gov/femp/pdfs/fedcomm_greenbuild.pdf
 26. *See* 42 U.S.C.A. § 17091 (West Supp. 2008).
 27. As will become evident from reading below, governments in Maryland have enacted more than two score and seven laws involving Green building, making the State fertile ground for Green building. Maryland ranks 2nd among all states for LEED® projects certified in 2013. *See* Jacob Kriss, *USGBC Releases Top 10 states in Nation for LEED Green Building*, U.S. GREEN BUILDING COUNCIL, (Feb. 18, 2014) <http://www.usgbc.org/articles/usgbc-releases-top-10-states-nation-leed-green-building>. As such, in considering the efficacy of Green building laws for this article, enactment from Maryland will often be referred to.
 28. Stuart Kaplow, *What Makes a Building Green*, LEGAL LIBRARY, (June 2008) http://www.stuartkaplow.com/library3.cfm?article_id=147.
 29. MD. CODE ANN., TAX-GEN. § 10-722 (LexisNexis 2013).

against a taxpayer's personal or corporate income tax,³⁰ although the definition created for that program, which may seem simplistic by today's standards, was not replicated in future Maryland enactments.³¹

At least forty-four states and more than 400 local governments across the nation have enacted some form of Green building legislation,³² but as would be expected from such a plethora of unrelated enactments, they provide no single definition of Green building. The definitions range from exacting to extremely broad. For example, Baltimore City approved a relatively simple and fairly typical definitional standard; although as applied, it is also among the strictest mandatory Green building laws in the nation.³³ Section 3705.1.2 of the Baltimore City Revised Code, as enacted on August 13, 2007, provided simply:

the building must achieve . . . a silver-level rating in the appropriate LEED rating system, as certified by the [U.S.] Green Building Council, or . . . energy and environmental design standards that the Building Official identifies as equivalent to a silver-level rating in the appropriate LEED rating system.³⁴

In contrast, Carroll County, Maryland selected a more progressive definition, not tied to LEED® or any other third-party rating system, within its property tax credit incentive.³⁵ Carroll County defines Green building as having “environmentally friendly or ‘green’ technologies, including conserving water, incorporating recycled or recyclable materials, and incorporating renewable and energy efficient power generation.”³⁶ On May 5, 2009, Carroll County's governing body enacted a local ordinance implementing the new tax credit, with a definition of Green building that prioritized its aims for saving the planet.³⁷

30. Tristan Roberts, *Green Building Get Tax Relief: Incentive Programs Promote Sustainable Buildings*, GREEN SOURCE (April 2007) http://greensource.construction.com/features/0704mag_policywatch.asp.

31. Md. Code Ann., Tax-Gen. § 10-722 (LexisNexis 2013).

32. Stuart Kaplow, *Hastings is Adopting a Unique Green Building Code*, GREEN BUILDING LAW UPDATE BLOG (October 2, 2013) <http://www.greenbuildinglawupdate.com/2013/10/articles/codes-and-regulations/local-government/hastings-is-adopting-a-unique-green-building-code/>

33. BALTIMORE, MD., MUN. CODE § 3705.1.2 (2010) <http://legistar.baltimorecitycouncil.com/attachments/7120.pdf>.

34. LEED, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/leed> (last visited Mar. 27, 2014).

35. MD. CODE ANN., TAX-PROP. § 9-308(e)(1) (LexisNexis 2013).

36. *Id.*

37. *See id.* § 9-308(e)(2).

III. No Fight Over Global Warming

Given the large environmental impact that buildings have on the planet, it is not necessary to consider global warming in the context of this article. Moreover, as detailed below, not only is Green building the solution to many of the environmental impacts arising from human activity, but there is also an economic argument that Green building is profitable.³⁸

That said, it is clear that there is climate change - that the earth's climate is not static, but rather is changing. Considered in an historical context, this is not about Al Gore's Academy Award winning documentary, *An Inconvenient Truth*, which scared people by showing Florida disappearing under rising seas. It was another almost-president, Benjamin Franklin, the most distinguished scientific American of his age, who in a 1784 essay reported climate change from Paris where volcanic eruptions in Iceland over several months caused temperatures in the Northern Hemisphere to plummet and "[h]ence the first snows remained unmelted. Hence the air was more chilled."³⁹ The climate was and is changing. The earth has generally and gradually, over the past several hundred years, been getting warmer.⁴⁰

Given that humans take shelter from the climate inside buildings, humans need to design and construct those buildings to be resilient as may be appropriate in whatever climatic zones they are located in.⁴¹ Moreover, the general expectation that the human population will exceed 10 billion by the year 2050, is another reason to promote and invest in Green building.⁴²

One can believe that much of the current global warming rhetoric is oversimplified or even exaggerated, and still be committed to Green building. As a point of modern scientific inquiry, climate change science is decades old and while reasonable minds can still consider how much impact human activity has on climate change, Green building is a low risk geoengineering solution to the problem.⁴³

38. *Why Build Green?*, ENVTL PROT. AGENCY (Dec. 9, 2012) <http://www.epa.gov/greenbuilding/pubs/whybuild.htm>.

39. Richard J. Payne, *The 'Meteorological Imaginations and Conjectures' of Benjamin Franklin*, 10 *North West Geography* 2 (2010), http://www.mangeogsoc.org.uk/pdfs/payne_10_2.pdf

40. Seth Borenstein, *The Artic Gets Darker, Earth is Getting Warmer*, *The Weather Channel* (Feb. 18, 2014), <http://www.weather.com/news/science/environment/artic-gets-darker-earth-getting-warmer-20140218>.

41. *See generally, Resilient Buildings*, THE ROCKEFELLER FOUNDATION, (Sept. 18, 2013), <http://www.rockefellerfoundation.org/blog/resilient-buildings>

42. *Linking Population, Poverty and Development, Population Trends*, UNITED NATIONS POPULATIONS FUND, <https://www.unfpa.org/pds/trends.htm> (last visited Mar. 27, 2014).

43. *Green Building is a Solution to Mitigation of Climate Change*, UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE, (Oct. 2009) https://www.unece.org/press/pr2009/09tim_p08e.html

Today the debate about climate change is shifting from a discussion of costs and risks toward the question of “how to capitalize on exciting opportunities.”⁴⁴ “Companies and investors are quickly realizing that climate change is not merely a social, political or moral issue, but an economic and business issue as well.”⁴⁵ This is translating into a wave of investment and innovation” including in real estate.⁴⁶

IV. Green Building is the Solution

While there is no one homogenized building type, Green buildings can significantly reduce energy use, water use, solid waste and CO₂ emissions.⁴⁷ By way of example, compared to the average commercial building, the LEED® Gold buildings in the U.S. General Services Administration’s portfolio generally consume 25% less energy, use 11% less potable water, have 19% lower maintenance costs, have 27% higher occupant satisfaction, and emit 34% lower greenhouse gas emissions.⁴⁸

Studies of existing Green buildings demonstrate between 25% and 50% less energy use than conventional buildings.⁴⁹⁵⁰ Reducing building energy use is key to both benefiting the planet and reducing building operating costs. Energy use is a substantial cost of building operation. The value of lower energy bills in Green buildings can be significant not only in terms of the immediate lower operating expenses, but also for return on investment.

The vast majority of CO₂ emissions from buildings result directly from electricity use.⁵¹ The reduced electricity use, associated with an

44. Robert Fletcher, *Capitalizing on Chaos: Climate Change and Disaster Capitalism*, EPHEMERA THEORY & POLITICS IN ORGANIZATION, <http://www.ephemerajournal.org/contribution/capitalizing-chaos-climate-change-and-disaster-capitalism>; see also, Press Release, Deutsche Bank, Deutsche Bank Asset Management Launches Climate Change Investment Initiative (Oct. 17, 2007) https://www.db.com/presse/en/content/press_releases_2007_3670.htm?month=3

45. See Press Release, *supra* note 45.

46. *Id.*

47. *Green Building*, MOTHER NATURE NETWORK <http://www.mnn.com/eco-glossary/green-building> (last visited Mar. 27, 2014).

48. Re-Assessing Green Building Performance: A Post Occupancy Evaluation of 22 Buildings, GSA PUBLIC BUILDINGS SERVICE (2011) http://www.gsa.gov/graphics/pbs/Green_Building_Performance.pdf (last visited Mar. 27, 2014).

49. Greg Kats, *The Costs and Financial Benefits of Green Buildings, A Report to California’s Sustainable Building Task Force* (2003) U.S. GREEN BUILDING COUNCIL <http://www.usgbc.org/resources/costs-and-financial-benefits-green-buildings-report-california’s-sustainable-building-task>

50. Cathy Turner & Mark Frankel, *Energy Performance of LEED® for New Construction Buildings*, NEW BUILDINGS INSTITUTE (2008) https://wiki.umn.edu/pub/PA5721_Building_Policy/WebHome/LEEDENERGYSTAR_STUDY.pdf

51. Buildings and Climate Change, U.S. Green Building Council, <http://www.documents.dgs.ca.gov/dgs/pio/facts/LA%20workshop/climate.pdf>

overall energy use in Green buildings, correlates to an average 33% to 39% reduction in CO₂ emissions (as well as reductions in other pollutants arising from electricity generation).⁵² Controlling building energy use is the only method of reducing CO₂ emissions that is currently cost effective or likely to be so in the near future⁵³ and Green building is the means to that end.⁵⁴

Green buildings conserve water. Water use reduction strategies typically include efficiency of potable water use through better designed plumbing fixtures.⁵⁵ Among the most aggressive strategies is the increasing capture and reuse of greywater.⁵⁶ Taken together, these strategies can reduce potable water use below code by over 40% indoors and over 50% for exterior landscaping and cleaning.⁵⁷

Solid waste reduction, diversion, and recycling from Green buildings relative to existing buildings is large.⁵⁸ Diversion rates in excess of 70% are commonly met.⁵⁹ LEED® promotes a significant amount of construction waste management that has resulted in over eighty million tons of total waste being diverted from landfills.⁶⁰

In modern American society, environmental matters tend to be described apocalyptically, as if human existence on the planet is at risk. While some desire an equally hyperbolic government response, even at the risk of changing our way of life, today most Americans have a deep distrust of government and of far reaching public programs. Therefore, the solution to these environmental issues is to promote voluntarily building Green in the private sector. When Green buildings dramatically reduce energy use, water use, solid waste and CO₂ emissions, Green building is the solution to many of the very real environmental impacts of the day.⁶¹

V. Green Standards, Rating Systems, and Codes

To understand the role that government can effectively play in saving the planet, consideration of the role that government plays in Green building is proper. To appreciate that governmental function, a quick chronological perspective is necessary.

Government regulation of building is not new. The Code of Hammurabi from Babylon which was drafted around 1790 BCE was among

52. Kats, *supra* note 50.

53. *Id.* at 70.

54. Kats, *supra* note 50.

55. *Id.* at 40.

56. Kats, *supra* note 50.

57. Kats, *supra* note 50.

58. *Id.* at 48.

59. *Id.* at 47.

60. Rob Watson, *Green Building and Market Impact Report – 2011* (Nov. 8, 2011) available at, <http://www.greenbiz.com/research/report/2011/11/07/green-building-market-and-impact-report-2011>

61. Kats, *supra* note 50.

the first building codes.⁶² Those who complain about modern penalties for violations of building codes are likely not familiar with King Hammurabi's edict, "If a builder builds a house for someone, and does not construct it properly, and the house which he built falls [in and kills its owner], then the builder shall be put to death."⁶³

There has been regulation of building in North America from the time of the Plymouth Colony,⁶⁴ but the first modern building code was adopted in New York City on June 20, 1916.⁶⁵ 6 years to the day after the Triangle Shirtwaiste factory fire. It required one stairwell for each 2,500 square feet of floor area.⁶⁶

With that historical backdrop, today we have green standards including ASHRAE 90.1 and ASHRAE 189.1, rating systems including Energy Star and LEED®, and codes including the International Energy Conservation Code and the International Green Construction Code.⁶⁷

A. Standards

Standards are consensus documents developed and published to define minimum values of acceptable performance.⁶⁸ The International Organization for Standardization (ISO) is the world's largest developer of standards. The American Standards Institute (ANSI) is a private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States.⁶⁹ The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), founded in 1894, develops standards for the refrigeration processes and the design and maintenance of indoor environments.⁷⁰

ASHRAE Standard 90.1 provides minimum requirements for the energy efficient design of buildings.⁷¹ ASHRAE Standard 189.1 pro-

62. G.R. Driver & John C. Miles, eds., Hammurabi *The Babylonian Laws*. Oxford: Clarendon Press (1952)

63. *Id.* at 427.

64. Christopher Fennell, *The Plymouth Colony Archive Project*, UNIVERSITY OF ILLINOIS (1998) available at, <http://www.histarch.illinois.edu/plymouth/ccf-law.html>

65. New York, N.Y. Building Code (1916) available at, <https://archive.org/details/newcodeofordinan00newyrich>

66. *Id.* at §153 (c).

67. Stephanie Vierra, *Green Building Standards and Certification Systems*, WBDG (2011), available at, www.wbdg.org/resources/gbs.php.

68. *Id.*

69. *American National Standards Institute*, WIKIPEDIA, http://en.wikipedia.org/wiki/American_National_Standards_Institute (last visited March 26, 2014).

70. *You Can Change the Green Building Standard Today*, GREEN BUILDING LAW UPDATE, <http://www.ashrae.org/standards-research—technology/standards—guidelines> (last visited March 26, 2014).

71. *Standard 90.1-2013: Energy Standard for Buildings Except Low-Rise Residential Buildings*, ASHRAE, <https://www.ashrae.org/resources—publications/bookstore/standard-90-1> (last visited March 26, 2014).

vides a “total building sustainability package” to design, build and operate Green buildings.⁷² From site location to energy use to recycling, this standard establishes how to build a Green building.

Significantly, the United States Department of Defense uses a variant of ASHRAE 189.1-2009.⁷³ The Defense Department’s Unified Facilities Criteria system provides planning, design, construction, sustainment, restoration, and modernization criteria for military facilities.⁷⁴ On March 1, 2013, the Department of Defense issued the new UFC 1-200-02 High Performance and Sustainable Building Requirement.⁷⁵ That UFC provides minimum standards to achieve high performance and sustainable facilities that comply with federal laws, including EISA 2007 and Executive Order 13423 together with its Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings.⁷⁶ The UFC is an edited version of ASHRAE 189.1-2009 customized to be suitable for military use.⁷⁷ Also as described below, ASHRAE 189.1-2009 is published together with the International Green Construction Code so that local jurisdictions adopting the IgCC can make adherence to 189.1 an alternative compliance path when the locality enacts the IgCC.⁷⁸ Arguably, the governmental adoption of such a standard to prescribe Green building is not what is intended for a standard because it has neither inspection metrics nor enforcement mechanisms. Such a standard could, however, act as the basis for codes and ratings systems.

ASHRAE 189.1 will be republished in 2014 for adoption in the IgCC 2015.⁷⁹ In an environment of Green building standards, rating systems, and codes, the republishing of ASHRAE 189.1 may be the single most significant act in 2014 toward improving the environment.⁸⁰ Those who think the importance of a republished ASHRAE 189.1 is overstated should note that the Department of Defense, the largest

72. *Standard 189-1: Standard for the Design of High-Performance Green Buildings*, ASHRAE, <https://www.ashrae.org/resources—publications/bookstore/standard-189-1> (last visited March 26, 2014).

73. *See High Performance and Sustainable Building Requirements*, DEPARTMENT OF DEFENSE, http://www.wbdg.org/ccb/DOD/UFC/ufc_1_200_02.pdf (last visited March 26, 2014).

74. Unified Facilities Criteria (UFC), WBDG, http://www.wbdg.org/ccb/browse_cat.php?c=4 (last visited March 26, 2014).

75. *Id.*

76. *See Interagency Sustainability Working Group, Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding*, ENERGY STAR, https://www.energystar.gov/ia/business/Guiding_Principles.pdf (last visited March 26, 2014).

77. *See High Performance and Sustainable Building Requirements*, *supra* note 74.

78. *Standard 189-1: Standard for the Design of High-Performance Green Buildings*, *supra* note 73.

79. *See Forward, Proposed Standard 189.1*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/Docs/Archive/General/Docs6338.pdf> (last visited March 26, 2014).

80. Stuart Kaplow, *infra* note 89.

owner of buildings in North America, and the owner of more Green buildings and more LEED® certified buildings than anyone else, based its UFC 1-200-02 High Performance and Sustainable Building Requirement on the earlier ASHRAE 189.1-2009.⁸¹

ASHRAE 189.1-2014 will contain a number of new and updated requirements to reflect information that has become available since the publication of the 2011 standard.⁸² Additionally, it will now reference the 2013 versions of Standards 62.1 and 90.1, and incorporate changes reflecting the alterations to those standards. Pending final approvals, there may also be changes requiring quality lighting, filter sealing, materials declarations, and more.⁸³

B. Codes

Modern building codes are the law, most often adopted by local government legislative bodies. The International Building Code, as published by the International Code Council (“ICC”),⁸⁴ is in use or adopted in all fifty states and the District of Columbia.⁸⁵

The fire code weighted emphasis of building codes (dating to New York City in 1916) remains today. IBC Sec 101.3 provides,

The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.⁸⁶

And today, the ICC develops more than just a building code.

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81. See *High Performance and Sustainable Building Requirements*, *supra* note 74.
82. The Department of Defense uses to 2009 version of the standard and not the later 2011 version of ASHRAE 189.1. Stuart Kaplow, *infra* note 89.
83. *Id.*
84. The International Code Council was established in 1994 as a non-profit to develop a single set of comprehensive and coordinated national model construction codes. The founders of the ICC are Building Officials and Code Administrators International, Inc., International Conference of Building Officials, and Southern Building Code Congress International, Inc. Since the early part of the last century, these non-profit organizations developed three separate sets of model codes used throughout the United States. As it became clear that a single set of codes was an ideal, the three model code groups responded by creating the International Code Council and by developing codes without regional limitations. *About the International Code Council*, INTERNATIONAL CODE COUNCIL, http://www.iccsafe.org/gr/Documents/AdoptionToolkit/02-About_the_ICC.pdf (last visited March 26, 2014).
85. *International Code Adoptions*, INT’L CODE COUNCIL <http://www.iccsafe.org/gr/Pages/adoptions.aspx> (last updated March 2014).
86. International Building Code Ch. 1 §101.3 (West 2012).

The ICC also developed the International Energy Conservation Code, encouraging energy conservation through efficiency in design, mechanical systems, and lighting systems.⁸⁷ An energy conservation code is a major deviation from the life safety drivers in the building codes. The IECC 2009 is widely adopted across this country because a commitment to adopt it was a precondition to states receiving stimulus funds under the American Recovery and Reinvestment Act of 2009⁸⁸ from the federal government.

There is an IECC 2012, but its adoption has been slow because its energy efficient performance is about 20% higher than the 2009 code, which is a significant increase.⁸⁹ In part because of adoptions of energy codes, energy efficiency has increased significantly. With a goal of reducing energy use, energy codes are of great import to green building. Critics have, however, effectively pointed out that this all looks a lot like establishing a national energy efficiency standard for every building.⁹⁰

The ICC developed the International Green Construction Code ("IgCC"),⁹¹ also a significant leap from the life safety based building code. The IgCC is a collaborative effort of the International Code Council, the U.S. Green Building Council, the American Institute of Architects, ASTM International, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, and the Illuminating Engineering Society.⁹²

The IgCC is intended to be administered by local code officials as an overlay on existing construction and energy codes in the ICC codes family (including the building code and energy conservation code).⁹³ The IgCC provides model code language to be adopted by local governments as an overlay to existing codes working in tandem with the administrative requirements of other adopted codes, to establish "baseline regulations for new and existing buildings related to energy conservation, water efficiency, building owner responsibilities, site impacts, building waste, and materials."⁹⁴

87. International Energy Conservation Code Ch. 1 §101.2 (West 2012).

88. Stuart Kaplow, *International Green Construction Code: Disruptive by Design*, LEGAL LIBRARY (Apr. 12, 2014, 11 AM) http://www.stuartkaplow.com/library3.cfm?article_id=195.

89. *International Energy Conservation Code*, INSTITUTE FOR MARKET TRANSFORMATION (2012) <http://www.imt.org/codes/iecc>

90. Mark Kubajak, *Letter to the Editor: Financial Burdens of Complying with Future Building Codes*, FINE HOMEBUILDING, (March 12, 2013) <http://www.finehomebuilding.com/item/28094/letter-to-the-editor-financial-burdens-of-complying-with-future-building-codes/page/all>

91. *The International Green Construction Code*, INTERNATIONAL CODE COUNCIL <http://www.iccsafe.org/cs/IGCC/Pages/default.aspx> (last visited March 27, 2014).

92. *Id*

93. *Id*.

94. *Id*.

By way of example the IgCC version 2.0 requires energy performance to be 30% better than the minimum requirements of the IECC 2006 whereas the LEED® 2009 prerequisite, requires energy costs to be 10% lower than the baseline in a whole building simulation per ASHRAE 90.1 -2007.⁹⁵ Similarly, the overlay code requires that plumbing fixture and fitting flow rates be reduced by 20% compared to the current International Plumbing Code while the LEED® 2009 prerequisite, that is nearly identical, requires that plumbing fixture flow rates be reduced by 20% compared to the International Plumbing Code 2006.⁹⁶ The IgCC also mandates commissioning of mechanical systems.⁹⁷ And this new code shifts many responsibilities for building Green from the design professional to the owner to be consistent with traditional code requirements.⁹⁸

While Maryland became the first state to broadly adopt the IgCC in 2011, the code has not been implemented.⁹⁹ Note, the IgCC as enabled in Maryland is not mandatory.¹⁰⁰ The state enabled local jurisdictions to adopt the IgCC as a voluntary compliance path and not a single jurisdiction has done so.¹⁰¹

In addition to Maryland, the IgCC is partially adopted or used in part as the basis for Green building regulations only in Richland, Washington; Keene, New Hampshire; Dallas, Texas; Maplewood, Minnesota; Fort Collins, Boulder, Carbondale and Snowmass, Colorado; Kayenta Township, Phoenix, and Scottsdale, Arizona; Boynton Beach, Florida; Rhode Island; Oregon; North Carolina; and, Washington DC.¹⁰² It is surprising to many that adoption has not been faster and broader. It may be that mandatory Green building codes are controversial and fly in the face of the tenets of Green building as voluntary stewardship of the earth, which would explain the large market share

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95. Stuart Kaplow, *Maryland is the 1st State to Adopt the International Green Construction Code*, LEGAL LIBRARY (May 2011) http://www.stuartkaplow.com/library3.cfm?article_id=185
 96. Stuart Kaplow, *Maryland is the 1st State to Adopt the International Green Construction Code*, KEYSTONE ENERGY EFFICIENCY ALLIANCE, <http://energywisepa.org/node/1050> (last visited April 13, 2014).
 97. Stuart Kaplow, *The International Green Construction Code Arrives*, BUILDING BALTIMORE – SEPTEMBER 2011, <http://onlinedigeditions.com/publication/?=83278&p=25> (last visited April 13, 2014).
 98. Kaplow *supra*, note 96.
 99. William J. Atkinson, *Maryland Welcomes International Green Construction Code*, MARYLAND BAR BULLETIN, April 2012.
 100. Jeremy Sigmon, *Maryland Legislation Enables Broader Fundamental Protections Through Green Building Code*, U.S. GREEN BUILDING COUNCIL (May 10, 2011), <http://www.usgbc.org/articles/maryland-legislation-enables-broader-fundamental-protections-through-green-building-code>.
 101. Stuart Kaplow, *IgCC About to Get a Boost in Maryland*, GREEN BUILDING LAW UPDATE, (Nov. 12, 2013), <http://www.greenbuildinglawupdate.com/2013/11/articles/codes-and-regulations/igcc-about-to-get-a-boost-in-maryland/>
 102. *First International Green Construction Code (IgCC) Adoptions*, ICC Fact Sheet, http://www.iccsafe.org/cs/IGCC/Documents/First_IgCC_Adoptions_Fact-Sheet.pdf (last visited March 27, 2014).

that LEED® has, as a voluntary third party Green building rating system.¹⁰³ California actually enacted the first mandatory statewide Green building code. CalGreen, a code unique to the state (i.e., not based on the IgCC) became mandatory January 1, 2011.¹⁰⁴

The process of updating the 2012 International Green Construction Code commenced in November 2013.¹⁰⁵ Proposed IgCC changes will be posted online by March 10, 2014 for public review culminating with a vote by governmental ICC members concluding on October 21, 2014. And significantly, as noted above, ASHRAE 189.1 will be republished in 2014 for adoption in the 2015 IgCC. The resulting document, the IgCC 2015 will be released for use in the calendar year 2015 and will offer a more robust and greener Green Construction Code.¹⁰⁶

The ICC also developed, in conjunction with the National Association of Home Builders in 2007, the ICC 700 National Green Building Standard for residential buildings and lots, which was again a far cry from the traditional building code.¹⁰⁷ While residential building is beyond the scope of this article, this code is significant in Green building because there are more than 30,000 ICC 700 certified houses and lots.¹⁰⁸

The ICC 700 is a uniquely drafted code in that it can be used by any builder for their individual project as a rating system (including third party approval), or be the basis for a local government residential Green building code.¹⁰⁹ The current 2012 version of ICC 700 addresses what may have been the loudest criticism of the earlier ver-

103. *LEED and Green Building Codes*, POLICY BRIEF U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/Docs/Archive/General/Docs9246.pdf> (last visited March 27, 2014).

104. William E. Kelley, Jr. *Implications of the International Green Construction Code*, (September 10, 2012), AM. BAR ASSOC., <http://apps.americanbar.org/litigation/committees/construction/email/summer2012/summer2012-0912-international-green-construction-code.html>

105. Stuart Kaplow, *You Can Participate in Updating the ICC 700 National Green Standard*, GREEN BUILDING LAW UPDATE, (March 12, 2014), <http://www.greenbuildinglawupdate.com/2014/03/articles/codes-and-regulations/you-can-participate-in-updating-the-icc-700-national-green-building-standard/>.

106. Stuart Kaplow, *Proposals for changes to the International Green Construction Code are due by January 10* (Dec. 13, 2013), GREEN BUILDING LAW UPDATE, <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/proposals-for-changes-to-the-international-green-construction-code-are-due-by-january-10/>

107. *SS Green Code: CAL Green Code for Schools and Community Colleges*, DSA, <http://www.dgs.ca.gov/dsa/Programs/progSustainability/greencode.aspx>. (last visited March 27, 2014).

108. *2012 National Green Building Standard (ICC 700-2012)*, INTERNATIONAL CODE COUNCIL <http://shop.iccsafe.org/2012-national-green-building-standard-icc-700-2012.html> (last visited March 27, 2014).

109. Kaplow, *supra* note 106

sion, namely lax energy efficiency requirements.¹¹⁰ While the original ICC 700 was tied to the IECC 2006, the current version uses the IECC 2009 (estimated to result in energy efficient performance that is about 15% higher than the 2006 code).¹¹¹ Home Innovation Research Labs has launched the development process for the 2015 version of the ICC 700.¹¹²

As described above, codes are often adopted by local government legislative bodies, often with the advice of boards comprised with retired or senior members of local trades (e.g., the Plumbing Board, the Electricians Board, etc.) many of whom may not be conversant in sustainability and new innovations in Green building.¹¹³ Many, if not nearly all, local governments alter and amend national codes for their own purposes, sometimes with unintended consequences. At times governments adopt codes to include provisions that do not allow Green building practices. A prime example is that many local governments in Maryland had adopted the National Standard Plumbing Code or International Plumbing Code amending the national standard codes to remove the provisions that authorized the reuse of greywater.

Water, including storm water, other than toilet waste, draining from a building is greywater and suitable for reuse as nonpotable water.¹¹⁴ Reusing greywater serves several purposes: it reduces the amount of freshwater needed to supply a building, it reduces the amount of wastewater entering sewer or septic systems, and it provides an alternative for storm water management.¹¹⁵ The plumbing codes specify how systems must be designed, installed, and maintained to prevent contamination of the potable water supply.¹¹⁶

In 2010 the Maryland legislature made it state law that “a county may not adopt or enforce a provision of a local plumbing code that prohibits a greywater recycling system.”¹¹⁷ David Gottfried, one of the

110. Stuart Kaplow, *ICC 700 Residential Green Certifications Will More Than Double in 2014*, GREEN BUILDING LAW UPDATE (Jan. 16, 2014), <http://www.greenbuildinglawupdate.com/2014/01/articles/codes-and-regulations/icc-700-residential-green-certifications-will-more-than-double-in-2014/>.

111. *Id.*

112. *Id.*

113. *2015 National Green Building Standard Update*, HOME INNOVATION RESEARCH LABS, <http://www.homeinnovation.com/NGBS> (last updated March 27, 2014).

114. *DRLL'S Division of Occupational and Professional Licensing*, MARYLAND LABOR, LICENSING AND REGULATION, <http://www.dllr.state.md.us/license/pl/plregs.shtml> (last updated July 29, 2013).

115. Waskom and J. Kalenberger, *Greywater Reuse and Rainwater Harvesting*, COLORADO STATE UNIVERSITY EXTENSION DIVISION OF ENGAGEMENT, <http://www.ext.colostate.edu/pubs/natres/06702.html> (last updated Jan. 8, 2014).

116. *Gray Water*, LIVE GREEN HOWARD COUNTY, <http://livegreenhoward.com/green/water-resources/gray-water/> (last visited March 27, 2014).

117. H.B. 604, 2010 Gen. Assemb., Reg. Sess. (Md. 2010).

founders of the U.S. Green Building Council, suggests that we need “to radically alter building codes to allow green building practices.”¹¹⁸ In fact, in today’s potable water constrained world, he says “greywater use is not enough, we should be allowed to reuse Blackwater.”¹¹⁹¹²⁰

Codes are different from standards in that a code is the law. There is little flexibility in a code. Permits are required by codes and they are interpreted by a governmental (code) official. Generally, codes are slow to respond to the fast evolving field of sustainability and often are updated every three years.¹²¹ Modern codes are key both to enabling that a Green building can be legally constructed and in raising the floor of that building, both figuratively and literally, to comply with more rigorous thresholds.¹²²

“This is not your grandfather’s green movement anymore. This is Code Green.”¹²³

C. And Then There are the Rating Systems.

There are a host of third party Green building rating systems and each provides a set of metrics to evaluate and establish priorities.¹²⁴ Among the most commonly used Green building rating systems in the U.S. are Energy Star, Green Globes®, the Living Building Challenge™, and LEED®. There are also international rating systems, including BREEAM® (Great Britain), CASBEE® (Japan), Green Mark Scheme™ (Singapore), and Green Star SA® (South Africa).¹²⁵

118. MD. BUS. OCC. & PROF. CODE ANN. § 12-206 (2013).

119. Telephone Interview with David Gottfried, Chief Executive Officer, Regenerative Ventures (Feb. 27, 2014).

120. Blackwater is a term coined since the 1970s to describe wastewater that may contain fecal matter. It is distinct from greywater or the residues of washing processes and while greywater is often not treated before reuse, Blackwater must be processed or otherwise treated on site such that it is suitable and safe for reuse.

121. MD. CODE ANN., BUS. OCC. & PROF., § 12-301 (West 2013).

122. See *International Energy Conservation Code*, INSTITUTE FOR MARKET TRANSFORMATION, <http://www.imt.org/codes/iecc> (last visited March 27, 2014).

123. See Stuart Kaplow, *Resilience in Building is the Hot New Topic in Real Estate*, LEGAL LIBRARY (2013), http://www.stuartkaplow.com/library3.cfm?article_id=206. Maryland Governor Martin O’Malley issued an executive order with the single resilience edict that all new government building be raised a minimum of 2 feet of freeboard above the 100 year floodplain in lieu of the prior 1 foot freeboard requirement. *Id.*

124. Thomas L. Friedman, *HOT, FLAT, AND CROWDED, WHY WE NEED A GREEN REVOLUTION AND HOW IT CAN RENEW AMERICA*, 173 (Farrar, Straus and Giroux eds., 1st ed. 2008).

125. See, e.g., Nora Wang, Kim M. Fowler, and Robert Sullivan, *Green Building Certification System Review*, ii, U.S. DEPARTMENT OF ENERGY (2012), available at http://www.gsa.gov/graphics/ogp/Cert_Sys_Review.pdf. While beyond the scope of this article, the failure of the Kyoto Treaty was in part due to the United States’ recognition that China and India could not comply with the agreement’s mandatory carbon emissions.

i. Energy Star

The U.S. EPA's Energy Star program has, since 1992 when it was created as a voluntary labeling program, provided energy performance numerical ratings for buildings.¹²⁶ These ratings, on a scale of one to one hundred, provide a means for benchmarking the energy efficiency of specific buildings against similar buildings (seventy-five which correlates to a building exceeding the energy performance of 75% of similar buildings, is the minimum score required for Energy Star certification).¹²⁷ More than 1.4 million homes and more than 20,000 commercial buildings voluntarily sought and carry EPA's Energy Star certification.¹²⁸ As a practical matter, Energy Star is a single attribute rating system focused on energy and not broader environmental performance.¹²⁹ Given the importance of energy use reduction in Green building, including that other Green building rating systems use Energy Star ratings as an energy measurement, and the broad market acceptance of Energy Star, it plays a significant role in saving the planet.

ii. Green Globes®

Green Globes® is a private non-profit voluntary third party Green building assessment and rating system.¹³⁰ The genesis of the rating system was the Building Research Establishment's Environmental Assessment Method which has its roots in 1990 in Great Britain.¹³¹ In 1996, the Canadian Standards Association published BREEAM Canada for Existing Buildings.¹³² In 2000, the system took a leap forward in its evolution, becoming an online assessment and rating tool under

126. *See id.*

127. *About Energy Star*, ENERGY STAR, <https://www.energystar.gov/about/> (last visited March 27, 2014).

128. *Learn How Portfolio Manager Helps You Save*, Energy Star, <http://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/learn-how-portfolio-manager> (last visited March 27, 2014).

129. ENERGY STAR, *supra* note 128

130. *See id.* Also a single attribute rating system, the U.S. EPA's WaterSense program seeks to protect the future of our nation's water supply. WaterSense products and services that have earned the label must be at least 20 percent more efficient than base codes. *What is WaterSense*, ENVTL PROT. AGENCY http://www.epa.gov/WaterSense/about_us/what_is_ws.html (last visited March 27, 2014).

131. *The Practical Building Rating System*, GREEN GLOBES, <http://www.green-globes.com/home.asp> (last visited March 27, 2014).

132. *See generally BREEAM in Numbers*, BREEAM, <http://www.breeam.org/page.jsp?id=559> (last visited March 27, 2014). BREEAM is the sustainable building certification scheme that is the most widely used throughout the world. Over 250,000 buildings have been certified since its inception in 1990, and the scheme is now used in more than 50 countries, however, it is not widely used in the United States. *Id.*

the name Green Globes® for Existing Buildings.¹³³ Also in that year, Canadian Department of National Defense and Public Works and Government Services supported the development of a system for the design of new buildings.¹³⁴

Green Globes® is used in Canada and the U.S.¹³⁵ In 2004, the private non-profit Green Building Initiative acquired the rights to distribute Green Globes® in the United States.¹³⁶ Today there are less than 1,000 Green Globes® certified projects in the U.S. which correlates to less than a 5% market share of third party certified Green buildings.¹³⁷

The rating system includes a comprehensive environmental assessment protocol, online assessment, best practices guidance for green construction and operations, including from third party assessors with Green building expertise, and a certification system based upon a 1,000 point scale.¹³⁸ Those new and existing buildings that achieve 35% or more of the 1,000 points possible in the Green Globes® rating system preliminary self evaluation are eligible candidates for a certification of one, two, three, or four Green Globes® through a process utilizing third party assessors.¹³⁹ The Green Globes® system provides higher levels of achievement based on the number of points a building acquires.¹⁴⁰

The latest version of Green Globes® for New Construction was announced on June 4, 2013.¹⁴¹ This version has been characterized as significantly more robust than earlier versions and includes an increased focus on energy reduction, with four paths for determining energy performance, increased attention is paid to materials and resources, and, a reemphasis on life cycle assessment.¹⁴² Significantly,

133. *Green Building Programs: History of the Green Globes® System*, THE GREEN BUILDING INITIATIVE, <http://www.thegbi.org/products/green-globes/history.shtml> (last visited Mar. 27, 2014).

134. *Id.*

135. *Id.*

136. *Introduction*, GREEN GLOBES, <http://www.greenglobes.com/about.asp> (last visited Mar. 27, 2014).

137. Mike Gehrig, *International Real Estate Firm Acquires Original Developer of the Green Globes® Suite of Tools*, THE GREEN BUILDING INITIATIVE (July 9, 2008), http://www.thegbi.org/about-gbi/news/news/2008/news_20080709_eed.shtml.

138. Stuart Kaplow, *The Best Kept Secret in Green Building – a Conversation with Jerry Yudelson*, GREEN BUILDING LAW UPDATE (Feb. 18, 2014), <http://www.greenbuildinglawupdate.com/2014/02/articles/another-category/the-best-kept-secret-in-green-building-a-conversation-with-jerry-yudelson/>.

139. *Green Building Program: Green Globes® Overview*, THE GREEN BUILDING INITIATIVE, <http://www.thegbi.org/green-globes/> (last visited Mar. 27, 2014).

140. *Id.*

141. *Id.*

142. *Green Building Programs: New Version of Green Globes® for New Construction Launched*, THE GREEN BUILDING INITIATIVE, <http://www.thegbi.org/green-globes/revised-new-construction-program.shtml> (last visited Mar. 27, 2014).

this new version includes a standalone software feature providing an assessment of the federal government's Guiding Principles for New Construction, with a report detailing the level of compliance.¹⁴³ Further buttressing the new version of the rating system, on January 1, 2014, Jerry Yudelson, a well respected engineer widely known in the Green building field, became the President of the GBI, in a move that is seen as positioning Green Globes® for large market share growth.¹⁴⁴¹⁴⁵

Yudelson makes clear that the main issue in Green building today is the value added proposition.¹⁴⁶ Green building must provide value or the whole industry will be out of business in ten years.¹⁴⁷ He is often quoted saying, "Green building is like adult sex. Only performance matters, not good intentions."¹⁴⁸

iii. Living Building Challenge

The Living Building Challenge is a performance based Green building system initially launched in 2006 by the Cascadia Green Building Council.¹⁴⁹ In 2011, the International Living Future Institute became the umbrella organization for both the Cascadia Green Building Council and the Living Building Challenge.¹⁵⁰

The Living Building Challenge claims its rating system "is the built environment's most rigorous performance standard" making ambitious demands including 100% net zero energy, 100% net zero water,

143. *Id.*

144. Kaplow, *supra* note 139.

145. *See Green Building Initiative Names Jerry Yudelson as New President*, THE GREEN BUILDING INSTITUTE, (Jan. 6, 2014), <http://www.thegbi.org/assets/pdfs/news/Press-Release-Green-Building-Initiative-Names-Jerry-Yudelson-as-New-President.pdf>

146. Jerry Yudelson was a cofounder of the first U.S. Green Building Council chapter. He was in the room when the Greenbuild® convention and expo was conceived. He served on the USGBC national board of directors and he has been a prolific author and speaker about all things green building, including LEED®. So, some were surprised when he assumed the helm of the Green Globes organization. But any shock at Yudelson's new job is suppressed when he is heard to say that with more than four and a half million commercial buildings in the U.S., we have certified less than one percent of them as green. He describes his job as "not to get you to change from Protestant to Catholic, but rather to convert those with no religion to green building." *See generally* Kaplow, *supra* note 139.

147. *Id.*

148. *Id.*

149. *See generally, The Living Building Challenge: In Pursuit of True Sustainability in the Built Environment*, app. at 21, (Aug. 2008), https://ilbi.org/Ibc/LBC%20Documents/09-0604%20LBC%20v1_3%20ILBI.pdf/at_download/file.

150. *Id.*

on-site renewable energy, and 100% recycling or diversion of construction waste.¹⁵¹

The Living Building Challenge is comprised of seven performance areas, or 'Petals': Site, Water, Energy, Health, Materials, Equity, and Beauty. Petals are subdivided into a total of twenty Imperatives, each of which focuses on a specific sphere of influence.¹⁵² All of its tenets are mandatory, making it the most rigorous Green building certification system in the market today.¹⁵³ Additionally, Living Building Challenge certification is based on actual, rather than modeled or anticipated, performance.¹⁵⁴ Therefore, projects must be operational for at least twelve consecutive months prior to evaluation.¹⁵⁵ To date, thirteen projects have achieved certification through the Living Building Challenge, five of which have achieved full certification, while many others have entered the twelve month operational phase required prior to audit.¹⁵⁶

iv. LEED®

The U.S. Green Building Council, Inc., the non-profit founded in 1993 to promote sustainability in the building and construction industry, is today the dominate player in Green building.¹⁵⁷ From its founding, the organization has characterized Green building as a win-win, offering both environmental and economic opportunity.¹⁵⁸

The U.S. Green Building Council gave the real estate industry the words and the terms to describe what a Green building is with the release of the Leadership in Energy and Environmental Design (LEED®) voluntary third party certification system in 2000.¹⁵⁹ Today LEED® is the nationally accepted benchmark for the design, construction and operation of high performance Green buildings. LEED® is arguably the most widely recognized Green building program across the globe.

151. *About the International Living Future Institute*, THE INT'L LIVING FUTURE INST., <http://living-future.org/ilfi/about-international-living-future-institute> (last visited Apr. 4, 2014).

152. *The Living Building Challenge*, THE INT'L LIVING FUTURE INST., <http://living-future.org/lbc/> (last visited Apr. 4, 2014).

153. *About the Living Building Challenge*, THE INT'L LIVING FUTURE INST., <http://living-future.org/lbc/about> (last visited Apr. 4, 2014).

154. *The Living Building Challenge 2.1: A Visionary Path to a Restorative Future*, THE INT'L LIVING FUTURE INST., (Aug. 2012), http://living-future.org/sites/default/files/LBC/LBC_Documents/LBC%202_1%2012-0501.pdf

155. *Id.*

156. *Id.*

157. *The Living Building Challenge Case Studies*, THE INT'L LIVING FUTURE INST., <http://living-future.org/casestudies> (last visited Apr. 4, 2014).

158. *USGBC History*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/about/history> (last visited Apr. 4, 2014).

159. *USGBC About*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/about> (last visited Apr. 4, 2014).

As of January 1, 2014, more than 2.8 billion square feet of building space are LEED® certified.¹⁶⁰ The Green Building Certification Institute, the U.S. Green Building Council's sister organization, is LEED® certifying 1.5 million square feet of building space each day in 142 countries. Today, more than 54,000 projects are currently participating in LEED®, comprising more than 10.5 billion square feet of construction space.

With an organization that today has seventy-seven chapters, 13,000 member organizations and 188,000 LEED® professionals, the U.S. Green Building Council dominates brand acceptance and market share in the business of Green building and is a driver in the larger environmental industrial complex.¹⁶¹ The U.S. Green Building Council provides credentials, including as a LEED Green Associate® and LEED® Accredited Professional to those working in the building industries.¹⁶² The organization provides Green building educational programs to support this credentialing.¹⁶³ The U.S. Green Building Council also annually sponsors Greenbuild®, the largest conference and expo dedicated to Green building.¹⁶⁴

LEED® is a credit based system where building projects earn LEED® points for satisfying specific Green building criteria.¹⁶⁵ Within each of the LEED® credit categories, projects must satisfy particular prerequisites and earn points.¹⁶⁶ The categories in the current LEED® v4 include location and transportation, sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality.¹⁶⁷ Additional categories of integrative process, innovation in design, and regional priority credits address sustainable building expertise as well as design measures not covered under the environmental categories.¹⁶⁸ The number of points a project earns determines the level of LEED® Certification the project re-

160. *LEED Green Building Certification System: FAQ*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/Docs/Archive/General/Docs3330.pdf> (last visited Apr. 4, 2014).

161. *U.S. Green Building Facts Articles: Green Building Facts*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/articles/green-building-facts> (last visited Apr. 4, 2014).

162. *USGBC History: About USGBC*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/about> (last visited Apr. 4, 2014).

163. *U.S. Green Building: LEED Credentials*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/leed/credentials> (last visited Apr. 4, 2014).

164. *U.S. Green Building: LEED APs*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/leedap> (last visited Apr. 4, 2014).

165. *USGBC History*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/about/history> (last visited Apr. 4, 2014).

166. *LEED Green Building Certification System: FAQ*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/Docs/Archive/General/Docs3330.pdf> (last visited Apr. 4, 2014).

167. *Id.*

168. *LEED*, U.S. GREEN BLDG. COUNCIL, <http://www.usgbc.org/leed#credits> (last visited Mar. 18, 2014) (follow the "Credits" hyperlink).

ceives. LEED® certification is available in four progressive levels according to the following scale: There are 110 points: Certified 40–49 points, Silver 50–59 points, Gold 60–79 points, and Platinum 80 points and above.¹⁶⁹

Green building laws are spreading internationally from the Philippines to India.¹⁷⁰ With more than 10.5 billion square feet worldwide, it should not be surprising that most new Green building laws are LEED® centric.¹⁷¹ At year-end 2013, approximately 42% of all square footage pursuing LEED® certification existed outside the U.S.¹⁷² The international growth of LEED® presents huge opportunities to save the planet and large business opportunities as there are today LEED® projects in 142 countries and U. S. Green Building Council member companies in 86 countries, from Brunei to Israel and from Mauritius to Mongolia.¹⁷³

There exists a World Green Building Council that is a network of national Green Building Councils from around the world, making it the largest international organization influencing the Green building marketplace.¹⁷⁴ This loose confederation of Green Building Councils, some of which are member based and others that are government associated entities, is unified to promote sustainability through the adoption of Green building practices across the planet.¹⁷⁵

VI. LEED®

The U.S. Green Building Council's LEED® v4,¹⁷⁶ the newest and most current version of the rating systems launched on November 20, 2014.¹⁷⁷¹⁷⁸ On the day of launch, the U.S. Green Building Council

169. *Id.*

170. We take our rating systems seriously. *FAQ: LEED Green Building Certification System*, U.S. GREEN BLDG. COUNCIL, <http://www.usgbc.org/sites/default/files/Docs3330.pdf> (last visited Mar. 18, 2014).

171. Stuart Kaplow, *Green Building (Including LEED-Centric) Laws Spread Over Seas*, GREEN BLDG. LAW UPDATE (Dec. 1, 2013), <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/green-building-including-leedcentric-laws-spread-over-seas/>.

172. *About LEED*, U.S. GREEN BLDG. COUNCIL (July 25, 2012), <http://www.usgbc.org/articles/about-leed>.

173. *Id.*

174. Kaplow, *supra* note 172.

175. *About WorldGBC*, WORLD GREEN BLDG. COUNCIL, <http://www.worldgbc.org/index.php?cid=220> (last visited Mar. 18, 2014).

176. *See id.*

177. Stuart Kaplow, *USGBC Responds To Appeals From Vote Approving LEED v4*, GREEN BUILDING LAW UPDATE (Sept. 17, 2013), <http://www.greenbuildinglawupdate.com/2013/09/articles/leed-1/usgbc-responds-to-appeals-from-vote-approving-leed-v4/>. An article describing that appeals from the approval of LEED v4 had been taken in September 2013 and those appeals remain pending as this article is being drafted can be found on this author's blog. *Id.*

178. *LEED v4, the Newest Version of LEED Green Building Program Launches at USGBC's Annual Greenbuild Conference*, U.S. GREEN BLDG. COUNCIL (Nov. 20,

announced 122 beta projects were already using LEED® v4 and 2 projects had been certified, including an Existing Buildings - Operations & Maintenance project in Washington DC.¹⁷⁹

LEED® v4 is a significant upgrade to the LEED® 2009 version of the Green building rating system.¹⁸⁰ LEED® v4 is not simply a step in the continuous improvement of the rating system and while not a Neil Armstrong “giant leap for mankind” it is all but an entirely new third party verified Green building rating system.

To fully comprehend the breadth and scope of the new LEED® v4 it is necessary to understand that U.S. Green Building Council announced it was striving for improved environmental outcomes.¹⁸¹ LEED’s goals are articulated as the seven impact categories that should be daunting to anyone who wants to construct a building: Reverse Contribution to Global Climate Change; Enhance Individual Human Health and Well-Being; Protect and Restore Water Resources; Protect, Enhance, and Restore Biodiversity and Ecosystem Services; Promote Sustainable and Regenerative Material Resources Cycles; Build a Greener Economy; and Enhance Social Equity, Environmental Justice, and Community Quality of Life.¹⁸² These impact categories provide an ambitious agenda for the building industry that is actionable through accomplishing LEED® prerequisites, credits, and points.¹⁸³ In a very practical application, and by way of example, v4 allocates about 20 percent of all points to optimizing energy performance over the ASHRAE 90.1-2010.¹⁸⁴

2013), <http://www.usgbc.org/articles/leed-v4-newest-version-leed-green-building-program-launches-usgbc%E2%8099s-annual-greenbuild-confe>. As described above, the LEED® third party certification system is by far the most widely utilized in this country and arguably now the nationally accepted benchmark. As such, in considering the efficacy of Green building for the purposes of this article, LEED® will be utilized. *Id.*

179. *Id.*

180. *Id.* The significance of that project should not be lost by the reader both in that it is an Existing Building – Operations and Maintenance project (not New Construction) which rating system will be the single most utilized LEED® rating system in the U.S. and in the project’s location in Washington DC which has the highest concentration of LEED® certified projects in the nation (i.e., if DC were a state it would rank first for projects certified in 2013. See, *USGBC Releases the Top 10 States in Nation for LEED Green Building*, U.S. GREEN BLDG. COUNCIL (Feb. 18, 2014), <http://www.usgbc.org/articles/usgbc-releases-top-10-states-nation-leed-green-building>

181. U.S. GREEN BLDG. COUNCIL, *supra* note 179.

182. Chrissy Macken, *Improved LEED v4 Set to Drive Transformation in Built Environment*, ICON (Jan. 24, 2014), <http://icon.asid.org/index.php/2014/01/24/improved-leed-v4-set-to-drive-transformation-in-built-environment/>.

183. Brendan Owens ET AL., *LEED v4 Impact Category and Point Allocation Development Process*, U.S. GREEN BLDG. COUNCIL, http://usgbc.org/sites/default/files/LEED%20v4%20Impact%20Category%20and%20Point%20Allocation%20Process_Overview_0.pdf (last visited Mar. 18, 2014).

184. *Id.*

LEED® v4 is applicable to a wide variety of project types, addressing 21 different market sector adaptations within three new divisions.¹⁸⁵ Building Design and Construction includes New Construction, Core & Shell, Schools, Retail, Hospitality, Data Centers, Warehouse & Distribution Centers, Healthcare, Homes, and Midrise. Interior Design and Construction includes Commercial Interiors, Retail, and Hospitality.¹⁸⁶ Operations and Maintenance includes Existing Buildings - Operations & Maintenance, Schools, Retail, Hospitality, and Data Centers. By bringing all of these market adaptations into the suite of LEED® rating systems, U.S. Green Building Council removed barriers so that more facilities can participate in LEED®.¹⁸⁷

With the LEED® 2009 Existing Building – Operations and Maintenance certifying more than half of all the domestic floor area in the LEED® system in 2013, LEED® is no longer only a new construction standard.¹⁸⁸ So, the LEED v4 wholesale change to Operation and Maintenance ratings systems are of paramount import.¹⁸⁹ A key change, beyond increased rigor, is that Operation and Maintenance now has an Establishment component and a Performance component (tracking actual performance) and requiring recertification every five years.¹⁹⁰

There has been criticism of LEED v4, including of the new Materials and Resources points available to incentivize both product manufacturers that report product makeup and those that reduce the negative impacts from extraction of raw materials through the manufacturing process.¹⁹¹ These new points, which include the FSC¹⁹² only

185. *Minimum Energy Performance*, U.S. GREEN BLDG. COUNCIL, <http://www.usgbc.org/node/2613358?return=/credits/new-construction/v4> (last visited Mar. 18, 2014).

186. Scot Horst, *Better Buildings Are Our Legacy*, U.S. GREEN BUILDING COUNCIL, http://www.usgbc.org/sites/default/files/GreenSource%20Article_102813_web.pdf (last visited Mar. 27, 2014).

187. *Interior Design & Construction*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/Docs/Archive/General/Docs18939.pdf> (last visited Mar. 27, 2014).

188. Stuart Kaplow, *LEED v4 Buildings Can Register Beginning in November 2013*, LEGAL LIBRARY (July 2013), http://www.startkaplow.com/library3.cfm?article_id=207.

189. *Id.*

190. *Id.*

191. *Id.*

192. *Id.*

wood related points,¹⁹³ have led to attacks on LEED® across the country and in Washington DC.¹⁹⁴

At the time this article is being drafted there are anti-LEED® bills pending in five states.¹⁹⁵ HB 207 in Maryland may be the most subtle in that it does not on its face alter the existing law requiring that all State funded construction must be LEED® Silver certified or better, but instead adds an option for government projects to pursue a hybrid state version of the IgCC in lieu of pursuing LEED®.¹⁹⁶ The reality is that many in the public school construction arena are driving this bill, sponsored on behalf of the State's governor, because they do not want to construct or bear the cost of operating LEED® v4 schools.¹⁹⁷

The anti-LEED® legislation in Ohio, Ohio Senate Concurrent Resolution 25, provides, the "LEED v4 green building system fails to conform to recognized voluntary standard development procedures, including but not limited to American National Standards Institute (ANSI) procedures, and fails to base environmental and health criteria on risk assessment methodology" . . . so, the resolution proposes the "LEED v4 building rating system no longer be used by Ohio's state agencies and government."¹⁹⁸ The opposition is by and large to the Materials and Resources credits and the genesis of the opposition is a confluence of those from the wood wars of the days of old joined by a new coterie of plastic industry members concerned about the credits.¹⁹⁹ There are similar anti-LEED® bills also pending in Washington²⁰⁰ and in Alabama.²⁰¹ Similarly, there are existing executive

193. *Id.* FSC is an acronym of Forest Stewardship Council, a non-profit with global reach focusing on sustainable forestry. To appreciate the significance of this issue, an introduction on the FSC website reads, "The Certified Wood Credit in LEED has arguably been the single most important driver of forest conservation in history, contributing to tens of millions of acres of improved management and protection." *USGBC Members Approve LEED v4*, FOREST STEWARDSHIP COUNCIL (July 12, 2013) <https://us.fsc.org/leed-v4.210.htm>

194. Kaplow *supra* note 189. Despite that the previous LEED® credit for FSC Certified Wood credit is gone from LEED® v4 the new MRc3 credit, "Building product disclosure and optimization – sourcing of raw materials" is a new lightning rod. To receive the credit, a project must use "at least 25%, by cost, of the total value of permanently installed building products." For wood products, the credit requires products "certified by the Forest Stewardship Council or USGBC-approved equivalent." Forest Stewardship Council, *supra* note 194.

195. Earlier battles in the "wood wars," when the FSC Certified Wood credit was at the center of controversy, resulted in Congress halting funding of 2012 and 2013 Department of Defense LEED® Gold and Platinum projects, lead Maryland to enact a state law to not pursue the FSC Wood credit on government LEED® projects, and more. *Id.*

196. See *infra* text accompanying notes 210, 212, 215-217

197. H. B. 207 (Md. 2014).

198. S. Con. Res. 25, 130th Gen. Assemb. (Ohio 2013).

199. *Id.*

200. S.B. 6341, 63rd Cong. (Wash. 2014).

201. S.B. 326, 2013 Regular Sess. (Ala. 2013).

orders by governors prohibiting the use of LEED® on government projects, including by example, the December 8, 2011 Executive Order by Governor Paul LePage of Maine.²⁰² While these proposed anti-LEED® laws should not be ignored, few think there is any crisis of purpose or legitimacy in the LEED® rating systems and many believe opposition might be expected when LEED® commands a 95% market share in the multi-billion dollar certified Green building market.²⁰³

VII. More Than Just Buildings

If Green building is going to save the planet it will have to include Green roads. Over 65% of the impervious surfaces in the U.S. are due to transportation (e.g., roads, parking lots, sidewalks, and driveways),²⁰⁴ with the vast majority being roads.²⁰⁵ There are 3,980,817 miles of roads in the United States. Roads are the largest built structures Americans come into contact with and yet they are so ubiquitous and familiar that they have become an impervious given, the dark matter of the motor vehicle cosmos. The amount of impervious roads is equivalent to the size of the state of Ohio²⁰⁶ and the negative environmental impacts associated with those impervious surfaces are daunting.

Additionally, road building consumes a lot of energy. Building a one mile long single road lane uses as much energy as 50 American households in a single year.²⁰⁷ Despite these figures, when modern American society thinks about Green building, those thoughts are almost universally of buildings and not of infrastructure like roads and bridges. As sustainability increasingly becomes a mainstream response to the negative impacts that human activity has on the planet, one of the strategies some government departments of transportation have adopted is a “green streets and highways rating system.”²⁰⁸ Similar to LEED® certification for buildings, emerging sustainability initiatives for roads are just beginning to pick up speed across the nation and there is no current widely accepted standard or practice for rating green roads.²⁰⁹

202. See Press Release, Maine.gov, Governor LePage Seeks To Expand Use of ‘Green’ Building Materials (Dec. 8, 2011), <http://content.govdelivery.com/bulletins/gd/MEGOV-20f6a2>.

203. See EPA, Buildings and their Impact on the Environment: A Statistical Summary (Apr. 22, 2009), available at <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf>.

204. See *id.*

205. See *id.*

206. Greenroads Resources Frequently Asked Questions, GREENROADS FOUNDATION, <https://www.greenroads.org/136/resources.html> (last visited Aug. 7, 2014).

207. *Id.*

208. *Id.*

209. *Id.*

Established in 2010 and gaining traction today, Greenroads Foundation is an independent nonprofit advancing sustainability education and initiatives for roads.²¹⁰ As the developer of the Greenroads Rating System, the foundation manages the review and certification process for sustainable roadway and bridge construction projects in the U.S. and internationally.²¹¹

The Greenroads Rating System was the first third party, point based system available to certify sustainable roadway and transportation infrastructure projects.²¹² The points translate to one of four certification levels: Bronze, Silver, Gold, and Evergreen.²¹³ The Greenroads Manual is available without cost.²¹⁴ More than 100 projects of various types, sizes and stages of design, and construction have been used as case studies to test and refine the Greenroads Rating System.²¹⁵

Another alternative is the Institute for Sustainable Infrastructure's Envision sustainable infrastructure rating system.²¹⁶ Envision is a voluntary third party sustainable development rating system for all types and sizes of infrastructure projects, as opposed to buildings (i.e., also something like LEED® for roads and bridges).²¹⁷ The emergent rating system is in use, in a non-regulatory manner, in over 150 U.S. jurisdictions from New York City to Chicago, from Dallas to Los Angeles, and from Kansas City to San Diego.²¹⁸ It has been used for nearly every type of project imaginable from roads to Brownfield redevelopment, from airport expansions to fisheries, from wastewater to drinking water treatment plans, and from pipelines to transmission lines.²¹⁹

If Green building is going to save the planet, society will have to think with a more expansive mindset than only buildings, and Greenroads or Envisions or similar systems need to be part of the expanded mix on solutions.

VIII. A Broad Breadth of Green Laws

While there is no single accepted definition for Green building, governments across the country are enacting Green building laws that seek to articulate energy policy and environmental solutions, including laws that respond to the overwhelming public sentiment that gov-

210. *Id.*

211. *Id.*

212. *Id.*

213. *Id.*

214. The Greenroads Manual, GREENROADS FOUNDATION, <https://www.greenroads.org/1184/manual.html> (last visited Aug. 7, 2014).

215. *See id.*

216. *See, Envision Sustainable Infrastructure Rating System*, INSTITUTE FOR SUSTAINABLE INFRASTRUCTURE, available at <http://www.sustainableinfrastructure.org/process/projects.cfm> (last visited Aug. 7, 2014).

217. *See id.*

218. *See id.*

219. *See id.*

ernment has not done enough to save the planet. Environmental laws are not new and following the first Earth Day in 1970, there was a burst of federal legislation and not less than twenty-three major environmental laws were passed in that decade, from the Endangered Species Act to the National Forest Management Act, each prohibiting something and most having relatively minor, if any role in saving the planet.²²⁰ In contrast the emergent body of Green building law follows three distinct regulatory schemes.²²¹ The first regulatory scheme is for a government to require that its government-owned buildings be constructed to an articulated Green building standard.²²² A second, and widely admired, regulatory scheme is when a government offers voluntary incentives to private developers, whether as tax breaks, direct grants or loans, or advantages in processing approvals for Green buildings.²²³ Third, an increasing, but still modest number of local governments are mandating by law that all new construction or major renovations which exceed a certain square footage, whether public or private, must be constructed to a Green building standard.²²⁴

A. Governments Building Green

Government schemes that require their own building to be Green date back more than a decade when, on September 14, 1998, President William Jefferson Clinton issued the first of three Greening executive orders, Executive Order 13101, calling upon the federal government to increase its “use of recycled products [including recovered products] and environmentally preferable products [including building products].”²²⁵ By 2003, federal government building accounted for nearly 10% of all LEED® registered projects.²²⁶ While the federal government remains at the forefront of Green building, some states, including Maryland,²²⁷ and some local governments, from Seattle to New York,²²⁸ have self-imposed requirements for gov-

220. Stuart D. Kaplow, *Maryland Local Government Mandatory Green Building Laws and Incentives: “I’m from the government and I’m here to help,”* LEGAL LIBRARY, available at http://www.stuartkaplow.com/library3.cfm?article_id=162

221. *See id.*

222. *See id.*

223. *See id.*

224. *See id.*

225. Exec. Order No. 13101, 63 Fed. Reg. 49,643 (September 14, 1998) (Amending the Federal Acquisition Regulation clarified language concerning the use of products including building materials or recovered materials); Federal Acquisition Regulations for Department of Defense, 73 Fed. Reg. 21,801 (April 22, 2008) (codified at 48 C.F.R. pt. 1).

226. *Building Design & Construction: White Paper on Sustainability*, BLDG. DESIGN & CONSTR., pg. 20, 2003, available at <http://www.usgbc.org/Docs/Resources/BDCWhitePaperR2.pdf>.

227. *See* MD. CODE ANN., STATE FIN. & PROC. § 3-602.1 (LexisNexis 2014) (imposing, with some exceptions, a LEED® Silver rating or an equivalent rating on buildings constructed in capital projects funded solely with state funds).

228. *See*, NEW YORK CITY CHARTER Ch. 9, § 224.1 (2007).

ernment owned buildings. Increasingly, state and local governments are requiring that their own school construction be Green building.²²⁹

B. Voluntary Incentives

The second regulatory scheme involves voluntary incentives offered by government as tax breaks, direct grants or loans, or advantages in processing approvals for Green buildings, as a non-prescriptive, non-mandatory approach which does not burden owners and operators of land with another mandate.²³⁰ This philosophy of advantaging Green building is a real estate owner-friendly, results-oriented environmental incentive that may portend a future for broader environmental policy, going even beyond Green building.²³¹

On October 3, 2008, Congress passed, and President Bush signed into law, the Emergency Economic Stabilization Act of 2008, a \$700 billion financial rescue package that included \$150 billion of tax breaks and voluntary incentives.²³² Significantly, the bill included over \$18 billion in tax credits for sustainability projects, the most ever for that purpose in any single enactment,²³³ including the extension of the all important energy efficient commercial buildings deduction, and the creation of a new tax credit for electricity created by waves, tides, or ocean currents.²³⁴

A host of existing federal Green building and renewable energy tax credits expired at the end of 2013.²³⁵ Extensions of some of those tax provisions are anticipated to obtain Congressional approval during 2014.²³⁶ By way of example, the much heralded 179D federal income

229. *NYC Green Schools Guide*, SCHOOL CONSTRUCTION AUTHORITY, <http://nycsca.org/business/workingwiththesca/design/pages/nycgreenschoolsguide.aspx>.

230. Stuart D. Kaplow, *Hastings is Adopting a Unique Green Building Code* (October 2, 2013), GREEN BUILDING LAW UPDATE BLOG, available at <http://www.greenbuildinglawupdate.com/2013/10/articles/codes-and-regulations/local-government/hastings-is-adopting-a-unique-green-building-code/> (At least 44 states and more than 400 localities offer various LEED® initiatives, some of which include voluntary incentives tied to LEED® standards).

231. *Id.*

232. Emergency Economic Stabilization Act of Public Law 110-343, 122 Stat. 3765, available at <http://www.gpo.gov/fdsys/pkg/PLAW-110publ343/pdf/PLAW-110publ343.pdf>.

233. *Senate Moves to Protect Working Americans Threatened by Looming Financial Crisis; Bill Includes Baucus Protections for Taxpayers, Tax Relief to Promote Jobs, Energy, Families*, THE UNITED STATES SENATE COMMITTEE ON FINANCE, October 1, 2008, <http://www.finance.senate.gov/newsroom/chairman/release/?id=5119e511-9331-4e65-802d-c88f24602bea>.

234. Emergency Economic Stabilization Act § 102; Energy Improvement and Extension Act of 2008, Pub. L. No. 110-343, § 303, 122 Stat. 3807,3845.

235. Molly F. Sherlock, *Tax Provisions Expiring in 2013* ("Tax Extenders"), CONGRESSIONAL RESEARCH SERVICE, November 5, 2013, available at <http://www.fas.org/sgp/crs/misc/R43124.pdf>.

236. *Id.*

tax deduction for the cost of certain energy efficient equipment installed in commercial buildings, which deduction may be as much as \$1.80 per square foot of building floor area for buildings that achieve a 50% reduction in energy and power costs, expired December 31, 2013.²³⁷

Maryland programs are typical of other state initiatives. In 2004, Maryland offered a Green building tax credit against a taxpayer's personal or corporate income tax, capped at a maximum of \$25 million in tax credits that could be issued by the state.²³⁸ However, all of the credits were long ago allocated in Maryland where many similar tax credit programs are now fully expended and are no longer accepting applications.²³⁹

Across the country, local governments are increasingly offering real property tax credits.²⁴⁰ Typical of those laws, effective December 3, 2007, Baltimore County offered a five-year tax credit, in the amount of the percentage of the total county property tax assessed on a Green building, as follows: 50% for LEED® certified Silver buildings, 60% for LEED® certified Gold buildings, and 80% for LEED® certified Platinum buildings.²⁴¹

C. Government Mandates

Pursuing the third scheme of new laws, Baltimore City is representative of a very limited number of jurisdictions, mandating that, for all new construction and renovation of both private and public buildings over 10,000 square feet, "[e]very . . . building . . . must achieve . . . a silver-level rating in the appropriate LEED® rating system, as certified by the Green Building Council."²⁴² Boston was the first major city to mandate Green building of private development.²⁴³ Unlike Baltimore's law, however, the Boston mandate applies only to construction of buildings of 50,000 square feet or more, and only requires that each project be LEED® "certifiable," though it need not actually be

237. Stuart Kaplow, *179D Tax Deduction La Règle du jeu (the Rules of the Game) are Changing* (February 2013), LEGAL LIBRARY, available at http://www.stuartkaplow.com/library3.cfm?article_id=193

238. MD. CODE ANN., TAX-GEN. § 10-722(b)(1), (k)(1)(v) (LexisNexis 2013).

239. MARYLAND ENERGY ADMIN, Maryland Green Building Tax Credit Program, <http://energy.maryland.gov/Business/greenbuild.html>. (as of May 7, 2012 the Maryland program is no longer accepting applications).

240. AMERICAN INSTITUTE OF ARCHITECTS, *State and Local Green Building Incentives*, available at <http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aia076936.pdf>.

241. BALT. COUNTY, MD., CODE § 11-2-203.1(c) (2013).

242. BALT., MD., BLDG. CODE Ch. 37, § 3705 (2008) (The mandate for LEED® Silver for all buildings is effective July 1, 2009).

243. Brooks Rainwater, *Boston, D.C., Adopt Green Building Rules for Private Development*, AIARCHITECT THIS WEEK, Feb. 2, 2007, available at http://www.aia.org/aiarchitect/thisweek07/0202/0202p_bostondc.cfm.

LEED® certified.²⁴⁴ Howard County, Maryland²⁴⁵ and Montgomery County, Maryland,²⁴⁶ are other examples of local governments that currently mandate privately owned buildings to be third-party certified as Green.²⁴⁷ As described above, California enacted the first statewide Green building code in the nation.²⁴⁸ The CalGreen Code became effective January 1, 2011 and while it is a different shade of green than LEED®, the California law mandates sustainability.²⁴⁹ Other jurisdictions have enacted mandatory laws, including the District of Columbia ordinance that applies to “new construction or substantial improvement of a nonresidential privately-owned project with 50,000 square feet of gross floor area or more.”²⁵⁰

IX. Governments Building Shades of Green

There are many Green building laws currently in place and more are being enacted at an ever increasing pace. Below is a representative compilation of the new Green building laws proposed within the few months preceding the drafting of this article.

A. U.S. General Services Administration

On October 25, 2013, the U.S. General Services Administration (“GSA”) announced that it had issued its new recommendation on the federal government’s use of third party Green building certification systems.²⁵¹ In its recommendation to the Department of Energy, GSA recommended both the Green Globes® 2010 and LEED® 2009 as the third party certification systems that the federal government would use.²⁵² The recommendation portends a Green building world (which has always been dominated by LEED®) turned upside down and as of the drafting of this article, the implications of that recommendation are not yet obvious.²⁵³

Section 436 of EISA requires the Director of GSA’s Office of Federal High-Performance Green Buildings to evaluate Green building certification systems every 5 years to identify a system and certification

244. See BOSTON, MASSACHUSETTS, MUNICIPAL CODE Art. 37, § 37-4 (2012).

245. HOWARD COUNTY, MARYLAND, MUNICIPAL CODE § 3.1004(b) (2013).

246. MONTGOMERY COUNTY, MARYLAND, MUNICIPAL CODE § 08.26.01.02 (2013).

247. See generally *id.*; HOWARD COUNTY, MARYLAND, *supra* note 246.

248. Greg Kats, *The Costs and Financial Benefits of Green Buildings, A Report to California’s Sustainable Building Task Force* (2003) U.S. GREEN BUILDING COUNCIL <http://www.usgbc.org/resources/costs-and-financial-benefits-green-buildings-report-california-s-sustainable-building-task>

249. *Id.*

250. D.C. CODE § 6-1451.01 et seq.

251. Stuart Kaplow, *GSA Selects Both Green Globes And LEED For Federal Buildings* (October 28, 2013), GREEN BUILDING LAW UPDATE BLOG, <http://www.green-buildinglawupdate.com/2013/10/articles/leed-1/gsa-selects-both-green-globes-and-leed-for-federal-buildings/>

252. *Id.*

253. *Id.*

level that will be most likely to encourage a comprehensive and environmentally sound approach to certification of Green federal buildings.²⁵⁴ EISA requires the GSA Administrator to provide his recommendation to the Secretary of Energy, who then consults with the Secretary of Defense and the GSA Administrator to identify the system appropriate for use in the federal sector to certify green buildings.²⁵⁵ GSA first evaluated certification systems in 2006 focusing on new construction. Based on this 2006 review, GSA recommended LEED® and the federal sector has accordingly used LEED®.²⁵⁶

GSA's most recent evaluation of Green building certification systems focused on certification systems for new construction, major renovations, and existing buildings.²⁵⁷ "We've found two tools that allow us to measure how federal buildings of all kinds can best save energy, improve overall performance, and cut down utility costs," said Kevin Kampschroer, Director of GSA's Office of Federal High-Performance Green Buildings.²⁵⁸ GSA recommended the Green Globes® 2010 and LEED® 2009 as the third party certification systems that the federal government could use to gauge performance in its construction and renovation projects.²⁵⁹ Additionally, under the recommendation, GSA indicated that it will conduct more regular reviews in order to keep up with the latest Green building tools that the market has to offer.²⁶⁰ This is significant as the newly released versions of both Green Globes® and LEED® were not evaluated or recommended.²⁶¹

Agencies can use one of the two certification systems for new construction and one for existing buildings, recognizing that the federal building portfolio ranges from office buildings, to laboratories, to hospitals, to airplane hangars.²⁶² Federal construction and modernization projects must also adhere to the government's own Green building requirements, including the Guiding Principles as mandated by Executive Order 13514.²⁶³ No one of the certification systems reviewed addresses all of the Guiding Principles.²⁶⁴ However, the latest version of Green Globes® (i.e., not the version approved for federal use) now includes the ability to certify new construction for compliance with the Guiding Principles.²⁶⁵ LEED® v4 does not have such a feature,

254. 42 U.S.C. § 17092(c)(4).

255. 42 U.S.C. § 17092(c)(2).

256. Kaplow, *supra* note 252.

257. *Id.*

258. *Id.*

259. *Id.*

260. *Id.*

261. *Id.*

262. *Id.*

263. *Id.*

264. *Id.*

265. *Id.*

but U.S. Green Building Council has been working on a “crosswalk” to address the Guiding Principles.²⁶⁶

While any final analysis will have to wait to see what rating system individual civilian federal agencies select, there can be no dispute that this shift by GSA is a victory for Green Globes®.²⁶⁷ LEED® may, however, have won the bigger battle because allowing federal agencies to choose between the two rating systems will take the wind out of the sails of the coterie that want to ban LEED® from government projects.²⁶⁸

B. The Department of Defense

Only days after the GSA action, in another tectonic shift in government policy, the Department of Defense announced it had determined to also permit the use of both the Green Globes® and LEED® for third party Green building certification.²⁶⁹ This is important news not only because the Air Force, Army, Marines, Navy and other instrumentalities of the Department of Defense own and operate 299,000 buildings and 211,000 additional structures, making it the largest owner of buildings in North America, but it is also the owner or more Green building and more LEED® certified building than anyone else.²⁷⁰

The new “Department of Defense Sustainable Building Policy” supersedes the October 25, 2010 policy that authorized only LEED®.²⁷¹ Additionally, the Department of Defense is the U.S. Green Building Council’s largest customer. That new policy announced in the just released November 10, 2013 memorandum from John Conger, Acting Deputy Under Secretary of Defense²⁷² provides, in relevant part,

DoD Components are responsible for establishing an auditable process to ensure applicable new buildings and major renovations meet requirements as defined in the UFC. The auditable process shall include green-building certification of those facilities through any of the systems approved for federal use pursuant to section 436(h) of EISA, and ap-

266. *Id.*

267. *Id.*

268. *Id.*

269. Stuart Kaplow, New Department of Defense Policy Accepts Green Globes (December 4, 2013), GREEN BUILDING LAW UPDATE BLOG, <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/federal/new-department-of-defense-policy-accepts-green-globes/>.

270. *Id.*

271. *Id.*

272. Memorandum from John Conger as the Acting Deputy Under Secretary of Defense to the Assistant Secretary of the Army 1 (Nov. 10. 2013), *available at* <http://www.greenbuildinglawupdate.com/uploads/file/111013%20DOD%20Memo.pdf>.

propriate documentation in the Component's real property information management system. . .

(Which is "military speak," for both Green Globes® and LEED® are approved as third party certification systems for military building use.)²⁷³

Shortly thereafter, President Obama signed the National Defense Authorization Act for fiscal year 2014 on December 26, 2013²⁷⁴ which lifted the ban on the Department of Defense pursuing LEED® Gold or Platinum certifications, a large win for the U.S. Green Building Council.²⁷⁵

By way of background, in the National Defense Authorization Act for the fiscal year 2012, section 2830(b)(1) provided, "No funds authorized to be appropriated by this Act or otherwise made available for the Department of Defense for fiscal year 2012 may be obligated or expended for achieving any LEED® gold or platinum certification."²⁷⁶ When the National Defense Authorization Act for the fiscal year 2013 was enacted, it continued and expanded the limitation of use of funds for LEED® Gold or Platinum not just for fiscal year 2012 funds and fiscal year 2013 funds but all funds whether prior appropriated or not.²⁷⁷

So, it was very good news for the U.S. Green Building Council that the National Defense Authorization Act for fiscal year 2014, in "compliance with rules of the House of Representatives and Senate regarding earmarks and congressionally directed spending items" provided, in the compilation of²⁷⁸

Legislative Provisions Not Adopted . . . Continuation of limitation on use of funds for Leadership in Energy and Environmental Design (LEED) gold or platinum certification.

273. *Id.*

274. NDAA – National Defense Authorization Act, ARMED SERVICES COMMITTEE (Feb. 2014), available at <http://armedservices.house.gov/index.cfm/ndaa-home?p=ndaa> ("This legislation was substantially based on two bills: (1) HR. 1960, the National Defense Authorization Act for FY14 which passed the House on June 14, 2013 by a vote of 315-108; and (2) S.1197, a product of the Senate Armed Services Committee which passed out of committee on the same day by a vote of 23-3").

275. Stuart Kaplow, *Defense Authorization Acct Lifts Ban in LEED Gold and Platinum*, GREEN BUILDING LAW UPDATE BLOG (December 30, 2013), available at <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/federal/defense-authorizationact-lifts-ban-on-leed-gold-and-platinum/>.

276. *Id.*; National Defense Authorization Act, H.R.1540. 112th Cong. §2831(b)(1) (2012) (enacted).

277. National Defense Authorization Act, H.R. 4310, 112th Cong. §2823 (2013) (enacted).

278. Compliance with rules of the House of Representatives and Senate regarding earmarks and congressionally directed spending items. http://armed-services.house.gov/index.cfm/files/serve?File_id=8A5E9112-80EF-43E1-A4E9-9AB0C0C107D8.

That is, there are no longer limitations of the Department of Defense pursuing LEED® Gold and Platinum certifications.²⁷⁹

C. *State Government Does It to Itself*

The Commonwealth of Virginia now requires that new construction and renovation of state government buildings be Green.²⁸⁰ As such, Virginia has become the latest government to mandate alternative compliance paths for Green building.²⁸¹

Green building is not new in Virginia. In fact the first Governor's Executive Order calling for energy performance and water conservation in Executive Branch building dates to 2007, Virginia's quadricentennial year, celebrating 400 years since the establishment of the Jamestown Colony.²⁸² In 2008, the Virginia General Assembly, the oldest continuous law making body in the New World, authorized the Department of General Services to create "Virginia Energy Conservation and Environmental Standards" for government building use.²⁸³ A 2010 Executive Order signed by Governor Bob McDonnell said all new or renovated Executive Branch buildings, "should conform to LEED silver or Green Globes two-globe standards."²⁸⁴

Now, with the issuance of the 2013 edition of the Virginia Construction & Professional Services Manual,²⁸⁵ the statutes and executive orders have come together to put Virginia at the forefront of Green building.²⁸⁶ Applicable to "all executive branch agencies and institutions entering the design phase for: construction of a new building greater than 5000 gross square feet in size; or, renovation of greater than 5000 square feet of a building where the cost of renovation exceeds 50 percent of the value of the building,"²⁸⁷ new construction or renovation shall be designed and constructed consistent with either. . .

- A. LEED 2009 for New Construction & Major Renovations, Silver certified, or
- B. Green Globes, obtaining 2 Globes certification, or

279. *Id.*

280. Stuart Kaplow, *IGCC Variant Green Building Standard for Public Buildings in Virginia*, GREEN BUILDING LAW UPDATE BLOG (Jan. 5, 2014), available at <http://www.greenbuildinglawupdate.com/2014/01/articles/codes-andregulations/state/igcc-variant-green-building-standard-for-public-buildings-in-virginia/>.

281. *Id.*

282. *Id.*

283. *Id.*

284. *Id.*

285. *Id.*

286. *Id.*

287. *Id.*

C. The Virginia Energy Conservation and Environmental Performance Standards that is the IgCC, Public Version 1.0, as significantly modified.²⁸⁸

Careful observers will note the new 2013 Manual calls to both a LEED® and Green Globe standard that are not the most current and an earlier version of the IgCC. However, the real ‘take away’ is the addition of the IgCC variant into the mix of “high performance building certifications” for public building construction authorized under Virginia law.²⁸⁹ Old Dominion is now at the forefront of an increasing number of governments adopting laws with alternative compliance paths for Green building.²⁹⁰

D. *Local Government Does It To Itself*

In King County, Washington, government construction and major renovations commenced after December 19, 2013 must strive to achieve the top national green construction rating.²⁹¹ In 2005, County Ordinance 15118 required all new County projects with budgets over \$250,000 to seek the highest LEED® certification “that is cost effective based on life cycle cost analysis” and the limits of available funding.²⁹² In 2008, County Ordinance 16147 increased the goal to LEED® Gold certification “as long as there is no cost impact to the Current Expense fund and no more than a two-percent cost impact to other funds, as compared to projects not seeking certification.”²⁹³ That law was set to expire on December 31, 2013.²⁹⁴ The replacement ordinance is greener and requires, each

. . . project shall plan for and achieve a [LEED] Platinum rating as long as a Platinum rating can be achieved with no incremental cost impact to the general fund over the life of the asset and an incremental cost impact of no more than two percent to other funds over the life of the asset as compared to a project not achieving a green building or sustainable development rating.²⁹⁵

Taking a step back from a LEED® only law,²⁹⁶ other third party certifications will now be permitted:

288. *Id.*

289. *Id.*

290. *Id.*

291. See King County, Wash. Code, § 18.17.010 (2013).

292. King County, Wash. Code, § 15118 (2005).

293. King County, Wash. Code, § 16147 (2008).

294. *Id.*

295. King County, § 18.17.010.

296. See Laura Nightengale, *Tornado-struck Kansas town offers inspiring example*, Journal Star (Dec. 22, 2013, 9:08 PM), <http://www.pjstar.com/article/20131222/NEWS/131229788/11133/NEWS>.

A project may request use of an alternative green building or sustainability rating system in lieu of LEED or the Sustainable Infrastructure Scorecard. Alternative green building and sustainable rating systems include: the Evergreen Sustainable Development Standard, administered by the Washington State Department of Commerce; the Built Green Four-Star administered by the Master Builders Association of King and Snohomish Counties; Sustainable Sites Initiative Program, developed by the American Society of Landscape Architects and Lady Bird Johnson Wildflower Center and United States Botanical Garden; Salmon Safe founded by the Stewardship Partners; or the Living Building Challenge administered by the International Living Future Institute.²⁹⁷

Of note by a separate ordinance, the County's Auditor is reviewing Green building, including the balance of dollar cost versus environmental benefit.²⁹⁸ The ordinance will be phased in by August 1, 2014, after revisions in response to the audit.²⁹⁹

X. New Law Incentivizing Green

On September 10, 2013, Sag Harbor Village, New York incentivized Green building.³⁰⁰ The New York state legislature unanimously passed the energy conservation legislation in 2012 enabling local governments to provide property tax exemptions for commercial and residential construction or improvements that meet LEED® standards.³⁰¹ On September 10, 2013, the Village Board of Trustees of Sag Harbor adopted Local Law #4 of 2013, providing,³⁰²

construction of improvements to real property meeting LEED certification standards for green buildings shall be exempt from taxation to the extent provided by this local law.

The real property tax exemption is for any increase in assessed value resulting from the construction or reconstruction of a property for up to ten years, as prescribed in the law.³⁰³ LEED® Silver, Gold and Platinum certified building is exempt from 100% of increased tax for the

297. King County, § 18.17.010.

298. Stuart Kaplow, *King County Mandates its Green Building be the Greenest, with a Twist*, GREEN BUILDING LAW UPDATE BLOG (Dec. 14, 2013), available at <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/local-government/king-county-mandates-its-green-building-be-the-greenest-with-a-twist/>.

299. *Id.*

300. See Sag Harbor Village Code § 250-33 (2013).

301. *State Legislature Approves Property Tax Exemptions for Green Building*, Sag Harbor Express (Jul. 11, 2012), <http://sagharboronline.com/sagharborexpress/page-1/state-legislature-approves-property-tax-exemptions-for-green-building-18423>.

302. See Sag Harbor Village Code § 250-32 (2013).

303. See Sag Harbor Village Code § 250-33.

first three years.³⁰⁴ For Platinum projects, that 100% exemption continues through year six and then phases out through year ten. There is slightly less advantageous phasing out of the exemption for Gold and Silver projects.³⁰⁵

The new law goes well beyond LEED® when the exemption also applies where the construction “meets the Green Building Initiative Green Globes Rating System, the American National Standards Institute or any other substantially equivalent standards for certification using a similar program for green buildings as determined by the Assessor.”³⁰⁶ Noting it is Sag Harbor, the maximum exemption amount under the law is \$1 Million.³⁰⁷ The voluntary incentives offered by government, like this tax break in Sag Harbor, are non-prescriptive, non-regulatory approaches to environmental solutions and energy policy that respond to the overwhelming public sentiment that government has not done enough to protect the planet, while not burdening land owners with another mandate.³⁰⁸ Green building is results oriented environmental stewardship that may portend a future for broader environmental policy.³⁰⁹

XI. New Laws Mandating Green

A. District of Columbia

The District of Columbia is preparing to implement a new Green Construction Code on March 5, 2014.³¹⁰ The new Green Code is significant, not only for those constructing or renovating buildings within the District, because it portends a new green regulatory scheme that may well be a national model.³¹¹ The District of Columbia is proposing to adopt its first Green Construction Code, which would be mandatory for all commercial projects greater than 10,000 square feet and all multi-family residential construction four stories or larger.³¹²

304. *Id.*

305. *Id.*

306. See Sag Harbor Village Code § 250-35 (2013).

307. Stuart Kaplow, *Sag Harbor Wants to Give You a Million Dollar Tax Break on Your LEED House*, GREEN BUILDING LAW UPDATE BLOG, (Sept. 24, 2013), available at <http://www.greenbuildinglawupdate.com/2013/09/articles/leed-1/sag-harbor-wants-to-give-you-a-million-dollar-tax-break-on-your-leed-house>.

308. *Id.*

309. *Id.*

310. See Department of Consumer and Regulatory Affairs, The District of Columbia, *Green Code-2012 Code Change Cycle*, <http://dcra.dc.gov/service/green-code>.

311. Stuart Kaplow, *Green Building Code Proposed in Washington DC is a National Model*, GREEN BUILDING LAW UPDATE BLOG, (Sept. 27, 2013), available at <http://www.greenbuildinglawupdate.com/2013/09/articles/codes-and-regulations/local-government/green-building-code-proposed-in-washington-dc-is-a-national-model/>.

312. *Id.*

The Green Code would apply to new construction and major renovations.³¹³

Significantly, there will be alternative compliance paths for privately owned building to satisfy the District's Green mandate:

1. LEED at a Certified level or higher, or
2. IgCC compliance, or
3. ASHRAE 189.1-2011 compliance, or
4. Enterprise Green Communities verified.³¹⁴

Additionally, all non residential new building projects greater than 10,000 square feet must also satisfy seventy-five points on the Energy Star Target Finder Tool which correlates to performing at a minimum better than 75% of similar buildings across the country.³¹⁵ Moreover, all new building projects are required to comply with the IECC 2012 (another of the codes proposed for adoption) which in and of itself results in a high performance building.³¹⁶

The District of Columbia was a leader in 2006 requiring certain large new privately constructed buildings to meet LEED® standards and it is again at the forefront with a regulatory scheme of alternative compliance paths requiring that all new construction be high performance building.³¹⁷ For those who wish to pursue LEED®, that option remains, although it has been suggested that the 2006 Act may be repealed to better align the Green building laws.³¹⁸

B. Dallas

Dallas was one of the first major cities in the nation to implement comprehensive mandatory Green building standards for both new residential and commercial construction.³¹⁹ By Resolution 08-1070 adopted unanimously on April 9, 2008, Phase 1 of the law was effective in 2009 and Phase 2 (originally to be effective October 1, 2011) was fully implemented on October 1, 2013.³²⁰

All new projects must meet the minimum requirements of the Dallas Green Construction Code, be LEED® certifiable, be Green Built Texas certifiable, or be certifiable under an equivalent Green building standard.³²¹ Projects need only be "certifiable" and not LEED® certified nor Green Built Texas certified.³²² Expedited review is available

313. *Id.*

314. *Id.*

315. *Id.*

316. *Id.*

317. *See* Green Building Act, D.C. Code § 10-1015 (2006)(repealed 2011).

318. *Id.*

319. Stuart Kaplow, *Green Building is Now the Law in Dallas*, ENVIRONMENTAL NEWS NETWORK, (Oct. 23, 2013), available at <http://www.enr.com/business/article/46583>.

320. *Id.*

321. DALLAS, TEX. CODE, Ch. 53, § 4304.

322. *Id.*

for projects that are, at a minimum, Dallas Green Construction Code compliant, LEED® Silver certifiable, or ASHRAE 189.1-2011 certifiable.³²³ Additionally, projects must reduce water usage by 20%. LEED® projects may achieve one point under the Water Use Reduction (20% Reduction) Credit or projects may use 20% less water than the baseline under the plumbing code.³²⁴

Single family residential may also meet the minimum requirements of ICC 700.³²⁵ Lots must be designed so that at least 70% of the built environment is permeable.³²⁶ Projects must utilize drip irrigation for all “bedding areas” of landscaping.³²⁷

Significantly, as one of the optional compliance paths a project may comply with the Dallas Green Construction Code, which is an enactment of the IgCC with local amendments.³²⁸ Many have noted Dallas deleted Chapter 6 of the IgCC, the energy conservation provision, and elected instead to keep existing energy code requirements.³²⁹ Also deleted are the chapters for commissioning and causing the code to apply to alterations of existing buildings.³³⁰ Dallas also accepts approved third party plan review and inspection for its Green building program.³³¹

Make no mistake, the new code remains controversial in the broader real estate world, including across Texas, as mandating proprietary Green building standards on private construction.³³² However, allowing a developer the option of selecting among alternative compliance paths and allowing private third party compliance review for achieving Green building in Dallas, as is currently proposed in the District of Columbia, may well portend the future of a sustainable built environment.

4. Key West

On November 6, 2013 the City Commission of Key West, Florida unanimously adopted Ordinance 13-19 establishing LEED® Certified level certification or Florida Green Building Coalition Bronze level

323. *Id.*

324. *Id.*

325. *Id.*

326. Stuart Kaplow, *Green Building is Now the Law in Dallas*, ENVIRONMENTAL NEWS NETWORK, (Oct. 23, 2013), available at <http://www.enn.com/business/article/46583>.

327. *Id.*

328. *Id.*

329. DALLAS, TEX RESOLUTION 08-1070.

330. *Id.*

331. Dallas' Third Party Green Building Program, DALLAS CITY HALL, http://www.dallascityhall.com/building_inspection/dallas_third_party.html (last visited Aug. 7, 2014).

332. Stuart Kaplow, *Green Building is Now the Law in Dallas*, ENVIRONMENTAL NEWS NETWORK, (Oct. 23, 2013), available at <http://www.enn.com/business/article/46583>.

certification as a prerequisite to all residential construction.³³³ The ordinance was an update to the existing Building Permit Allocation System creating an application process for the 91 new residential units to be allocated annually.³³⁴ That System ensures residential growth does not exceed hurricane evacuation capacity of the roads in the Florida Keys and Key West has not received new residential units for development since the original 1993 allocation of 1,093 units.³³⁵

The prerequisites are a local government legislative effort to address the most pressing sustainability issues facing Key West, including potable water consumption, sea level rise, and reduction in greenhouse gasses.³³⁶ Developed by City staff in concert with local builders and architects, the aim was “to identify a green building standard requirement that was easy to measure and use, and has been proven successful.”³³⁷ All new residential units, including additions to existing structures “constituting more than 50% of the value of the building” must be 1.5 feet freeboard, have a rainwater catchment system for the new roof area, and obtain a minimum Green building certification.³³⁸

While it is anticipated most new single family units will pursue LEED for Homes®, the ordinance also authorizes the use of the Florida Green Building Coalition “voluntary green building standard,”³³⁹ which, similar to LEED®, is a credit based third party Green building certification system with prerequisites; but is neither voluntary nor a standard, and rather is a good example of a state specific mandatory rating system.³⁴⁰ The Florida rating system emphasizes enhanced indoor air quality, water conservation, stormwater management, and affordable and reliable energy.³⁴¹

Significantly, the Building Permit Allocation System is an annual competitive process where points are awarded for meeting certain goals and “the highest number of points can be achieved by obtaining Green Building Certification, Upgrade 3, which is the equivalent to LEED . . . Platinum.”³⁴² It is anticipated that multi-unit development will propose the higher standard. Even building renovations that will

333. Stuart Kaplow, *LEED Certified Residential Building is Now the Law in Key West*, GREEN BUILDING LAW UPDATE BLOG, (Dec. 8, 2013), available at <http://www.greenbuildinglawupdate.com/2013/12/articles/codes-and-regulations/local-government/leed-certified-residential-building-is-now-the-law-in-key-west/>.

334. *Id.*

335. *Id.*

336. *Id.*

337. *Id.*

338. Key West Code of Ordinances, Chapter 86 §§ 86-9 *et seq.*

339. Florida Green Building Coalition, *Florida Green Building Coalition Green Homes Reference Guide and voluntary green building standard*, <http://keywest.legistar.com/gateway.aspx?M=F&ID=0f77e89b-6545-41e3-859f-d3ee73a0838c.pdf>.

340. *Id.*

341. *Id.*

342. *Id.*

not trigger the new Green building thresholds, must still demonstrate water and energy use at least 15% below the Florida Building Code standards.³⁴³ It is clear that Key West has embraced sustainability, including mandating Green building.³⁴⁴

5. *Hastings*

Hastings on Hudson, a village with a population of just over 9,400, located east of the Hudson River, less than 20 miles north of Times Square, has adopted a custom written Green Building Code.³⁴⁵ The Code is unique because it was written by a group of residents from this village.³⁴⁶ It is not based on LEED®, the IgCC, ASHRAE 189.1, or any of the national green codes, rating systems or standards.³⁴⁷ Few other local governments have undertaken the daunting task of writing a Green building code from scratch.³⁴⁸

In Hastings, the twenty page code was worked on for three years by volunteers seeking a more sustainable community and provides,

The intent of this Green Building Code is to minimize short-term and long-term negative impacts on the environment; reduce greenhouse gas emissions to mitigate human impact on the climate; and provide owners and occupants with economic benefits from energy and water savings, use of renewable energy sources and sustainable building products and practices.³⁴⁹

The Code applies to all residential and commercial projects that require a building permit.³⁵⁰ The custom code regulates a broad breadth of the usual Green building requirements, including stormwater, heat island – non roof, irrigation, native plantings, bicycle racks, electric vehicle charging stations, light trespass, energy monitoring dashboards, reduced interior water use, low VOC paints, reflective White roofs unless vegetated, construction waste recycling, and mechanical system commissioning.³⁵¹

343. *Id.*

344. *Id.*

345. Stuart Kaplow, *Hastings is Adopting a Unique Green Building Code*, GREEN BUILDING LAW UPDATE BLOG (Oct. 2, 2013), <http://www.greenbuildinglawupdate.com/2013/10/articles/codes-and-regulations/localgovernment/hastings-is-adopting-a-unique-green-building-code/> (citing HASTINGS-ON-HUDSON, GREEN BUILDING CODE, Chapter 160 (2013), available at http://hastingsgov.org/Pages/HastingsNY_Documents/01BA42C1-000F8513).

346. *Id.*

347. *Id.*

348. *Id.*

349. *Id.*

350. *Id.*

351. *Id.*

In addition to those mandated requirements, the Code delineates a list of “greener” optional sustainable measures.³⁵² Projects over a minimum size must achieve at least 5 points from the list that includes rainwater harvesting, economy of wood construction framing, geothermal heating, photovoltaics, passive solar heating strategies, use of LEDs, salvaged or reused materials, local materials, FSC certified wood, restoring sites with native plants, and other “sustainability measures” suggested by the builder.³⁵³

The Village Trustees of Hastings are striving to be at the forefront of Green building practices in the country today and as this article is being prepared, the Village is awaiting its first permit application under the law.³⁵⁴

7. *Baltimore*

Baltimore City is poised to adopt a new zoning code that is among the most green building friendly land use ordinances in the country.³⁵⁵ A Green building friendly zoning ordinance is significant when so many local codes including land use ordinances across the country stand in the way of sustainability efforts.³⁵⁶

The Baltimore City Zoning Code was last comprehensively updated in 1971.³⁵⁷ At that time, the focus was on auto-oriented development, separation of uses, and preserving the City’s heavy manufacturing base.³⁵⁸ In 2008, the City Department of Planning began the current process of rewriting the Zoning Code, attempting to make it Green building friendly.³⁵⁹ In September, 2013, the City Planning Commission approved a draft code focusing on sustainability, recommending adoption by the City Council. While sustainability is incorporated throughout the new Zoning Code,³⁶⁰ there are several concepts that result in a Green building friendly enactment:

352. *Id.*

353. *Id.*

354. *Id.*

355. Stuart Kaplow, *The Most Green Building Friendly Zoning Code in the Nation – Baltimore?*, GREEN BUILDING LAW UPDATE BLOG (Nov. 4, 2013), <http://www.greenbuildinglawupdate.com/2013/11/articles/codes-andregulations/local-government/the-most-green-building-friendly-zoning-code-in-the-nation-baltimore/>.

356. *Id.*

357. *See The NEW Baltimore City Draft Zoning Code: Background*, REWRITEBALTIMORE.ORG, <http://www.rewritebaltimore.org/index.html> (last visited Aug. 7, 2014).

358. *See id.*

359. *See generally*, *Baltimore City Planning Department*, BALTIMORE.GOV, <http://www.baltimorecity.gov/Government/AgenciesDepartments/Planning.aspx?kw=planning> (last visited Aug. 7, 2014). *See also The NEW Baltimore City Draft Zoning Code*, *supra* note 359.

360. A comprehensive compilation of the draft zoning code is available at <http://rewritebaltimore.org/>.

- Solar power (roof and ground mounted) is allowed throughout the City and only a building permit is needed if other general site requirements are met including that it be installed to rise no more than forty-two inches from the roof surface.
- Wind power is allowed throughout the City and again, only a building permit is needed if the maximum height of any ground-mounted wind energy system is sixty-five feet or twenty feet above the tree line, whichever is greater or ten feet above the roof of the primary structure.
- Community-based alternative energy systems are a permitted and conditional use in all zoning districts.
- Bicycle parking is now required for apartment buildings, schools, and commercial establishments over 10,000 square feet.
- One vehicle parking space can be eliminated for every twelve bicycle spaces.
- Reduction in the amount of land required for parking is achieved by allowing shared and alternating parking.
- Parking space dimensions are reduced by 10%.
- Parking lot size can be reduced by land banking, allowing up to 25% of the area required for parking to be held as open space in anticipation of future parking needs.
- New Transit-Oriented Development Districts are intended to promote new, well-integrated residential and commercial development around transit stations.
- Rain barrels, compost piles, greenhouses, hoop houses, and recycling collection stations are considered permitted encroachments in the appropriate yard areas.
- Green roofs are encouraged in Commercial and Industrial zoning districts.
- Urban Agriculture is now a permitted and conditional use in most zoning districts, and Farmers' Markets have been added as a permitted temporary uses.
- Community-Managed Open Space is now a permitted use in most zoning districts.
- The keeping of livestock and animals is permitted.³⁶¹

It is worthy to note that Baltimore has a mandatory Green building law enacted in 2007 that requires all newly constructed, extensively modified non-residential, and specific multi-family residential buildings that have or will have at least 10,000 square feet of gross floor area to achieve a Silver rating in the appropriate LEED® rating system or satisfy the Baltimore City Green Building Standard (a LEED-like

361. *See id.*

local enactment).³⁶² The mandatory law has had limited efficacy with new construction and almost no market impact on renovations as property owners strive to avoid the enactment.³⁶³

Zoning ordinances that look favorably upon Green building are significant when today so many local codes and land use ordinances across the country have priorities from days long past and stand in the way of sustainability efforts.³⁶⁴

XII. The Profit Motive for Green Building

There is a strong business case for Green building. There is nothing wrong with making a profit from climate change through Green building. With lower operating costs and better indoor environment quality, Green buildings are more attractive to a growing group of business and institutional buyers. High performing building features often increasingly enter into tenants' decisions about leasing space and into buyers' decisions about purchasing properties.³⁶⁵ Between 2008 and 2012, there was dramatic growth in the percentage of businesses that built Green to achieve lower operating costs (increased to 76% from 17%) and to obtain higher building values (increased to 38% from 22%).³⁶⁶

Additionally, many corporate leaders believe that sustainability leads to market differentiation and improved financial performance.³⁶⁷ A widely discussed study showed that employees working in the LEED® certified branches of a financial institution were found to be "more productive and engaged in their work."³⁶⁸

362. See generally Baltimore City Green Building Standards, *Green Building Requirements*, available at http://static.baltimorehousing.org/pdf/bcgbs_law.pdf.

363. See *id.*

364. Stuart Kaplow, The Most Green Building Friendly Zoning Code in the Nation – Baltimore?, GREEN BUILDING LAW UPDATE BLOG (Nov. 4, 2013), <http://www.greenbuildinglawupdate.com/2013/11/articles/codes-and-regulations/local-government/the-most-green-building-friendly-zoning-code-in-the-nation-baltimore/>.

365. Eric A. Kremer, Carmela D. Nicholas, "Green" Leasing: Landlord and Tenant Perspectives, Perspectives on Real Estate Newsletter, PILLSBURYLAW.COM 2012, <http://www.pillsburylaw.com/publications/green-leasinglandlord-and-tenant-perspectives>.

366. McGraw Hill Construction (2013), *World Green Building Trends SmartMarket Report: Business Imperative and Market Demand Driving Green*, CONSTRUCTION.COM, <http://construction.com/about-us/press/world-greenbuilding-trends-smartmarket-report.asp> (last visited March 25, 2014).

367. McGraw Hill Construction (2010), *Growth in Green Building Use Expected to Drive Use of BIM Tools Says New McGraw-Hill Construction Study*, CONSTRUCTION.COM, <https://construction.com/AboutUs/2010/1112pr.asp> (last visited March 25, 2014).

368. E. Conlon & A. Glavas, *The Relationship Between Corporate Sustainability and Firm Financial Performance*, available at <http://business.nd.edu/uploaded/Files/Conlon%20and%20Glavas%202012.pdf>.

Today's tenants understand and are looking for the benefits that Green tenant spaces have to offer. In most markets new "Class A" office space must be Green.³⁶⁹ Lease-up rates for Green buildings typically range from average to 20% above average.³⁷⁰ Green building owners reported an increase in occupancy by 6.4% for new construction and 2.5% for existing building projects which translates into higher effective rental rates.³⁷¹ A recent study of the San Diego market showed that the overall vacancy rate for Green buildings was 4 percent lower than for non-green properties (11.7%, compared to 15.7%) and that LEED® certified buildings continued to command the highest rents.³⁷²

Building Green is cost effective; even when taking into account first costs, return on investment improved by 19.2% on average for existing building greening projects and 9.9% on average for new projects.³⁷³ Operating costs decreased by 13.6% for new construction and 8.5% for existing building projects.³⁷⁴ In reaction, in the United States, the Green share of the U.S. nonresidential construction market grew from less than 2% in 2005 to 44% in 2012.³⁷⁵ That strong market share growth rate during an otherwise difficult period in the broader real estate market drives allied businesses, including legal work for attorneys in the emergent area of sustainability and green building law.³⁷⁶

There is a profit to be made in Green building when those high performance structures are a competitive differentiator, mitigating risk and attracting tenants while lowering operating costs with increased effective rental rates.³⁷⁷ With immediate and measurable results, the business case for Green building makes itself.

369. Norman Miller, *Does Green Still Pay Off?*, available at <http://www.costar.com/josre/pdfs/DoesGreenStillPayOff.pdf>. (last visited March 29, 2014).

370. *Id.*

371. See McGraw Hill (2010), *supra* note 368.

372. CBRE Global Research and Consulting, *Green Outlook 2011: Global Market View - Q2, 2012*, available at <http://www.cbre.com/AssetLibrary/Global-MV-2Q12.pdf>.

373. See McGraw Hill (2010), *supra* note 368.

374. *Id.*

375. McGraw Hill Construction (2013), *World Green Building Trends SmartMarket Report: Business Imperative and Market Demand Driving Green*, CONSTRUCTION.COM, <http://construction.com/about-us/press/world-greenbuilding-trends-smartmarket-report.asp> (last visited March 25, 2014).

376. Press Release, The American Institute of Architects, The American Institute of Architects Answers Market Demand with Introduction of New Sustainable Project Construction Documents (May 17, 2012), <http://www.aia.org/press/releases/AIAB094809>.

377. See McGraw Hill (2010), *supra* note 368.

XIII. Saving the Planet

George Carlin's³⁷⁸ observation that Earth is 4.5 billion years old, so "The planet isn't going anywhere; we are,"³⁷⁹ belies the comedic wisdom of this very real fact.³⁸⁰ So, rather than asking whether Green building law can save the planet, a more apt question might be "can it save mankind and our current way of life."

This article has advanced the postulate that Green building is the ideal means of mitigating the negative impacts that human activity has on the planet; that Green building can save mankind and our current way of life. The theorem that evolves from that query, in next order, is whether Green building *law* can save mankind and our current way of life.

Ideally, Green laws, and for that matter other laws, promote innovation and create an environment rich for investment. The Patent Act of 1790, signed into law by President George Washington, gave inventors rights to their creations and laid the foundation upon which business would thrive in the new United States.³⁸¹ In an example of the best and worst of laws on the same subject, on January 27, 1880, Thomas Edison received the patent for his incandescent lamp that paved the way for the universal domestic use of electric light (ultimately allowing mankind to work, study, and play after sundown).^{382,383} On December 19, 2007, however, President George W. Bush signed the EISA 2007 banning that Edison 100 watt incandescent lamp³⁸⁴ because it converts 90 percent of its energy into wasted heat, which we all noticed when we burned our fingers trying to remove a bulb before it cooled

378. Some readers of this article will know George Carlin from his "Seven Words You Can Never Say on Television" monologue that gave rise to *FEDERAL COMMUNICATIONS COMMISSION V. PACIFICA FOUNDATION*, 438 U.S. 726 (1978).

379. Dadniel, George Carlin – Saving the Planet, YOUTUBE (Oct. 21, 2007), <http://www.youtube.com/watch?v=7W33HRc1A6c>.

380. *Id.*

381. The first United States patent statute, Patent Act of 1790, Ch. 7, 1 Stat. 109 (April 10, 1790), available at <http://docs.law.gwu.edu/facweb/claw/patact1790.htm>

382. National Archives, America's Historical Documents, *Thomas Edison's Patent Application for the Light Bulb*, <http://www.archives.gov/historical-docs/doc-content/images/edison-patent-light-bulb.pdf>.

383. See UNITED STATES PATENT OFFICE, *Green Technology Pilot Program*, available at http://www.uspto.gov/patents/init_events/green_tech.jsp (although no longer accepting applications, the U.S. Patent and Trademark Office operated a pilot program to accelerate the examination of certain "green" technology patent applications. Under the Green Technology Pilot Program, an applicant was able to have an application advanced out of turn for examination for applications pertaining to green technologies including greenhouse gas reduction (applications pertaining to environmental quality, energy conservation, development of renewable energy resources or greenhouse gas emission reduction). The program closed to new applications on the date that 3,500 applications had been accorded special status).

384. Energy Independence and Security Act, 42 U.S.C. §17001 (2007).

down.³⁸⁵ But should the government have made the manufacture and importing of a light bulb illegal?

Beyond simply an effort to capture the dollars available in advantaging this market segment, many believe that a voluntary, non mandatory approach to environmental protection is the best hope for stewardship of our planet; hence the broad brand and wide market share acceptance of LEED®. Many in the building industries also believe that burdening owners of terra firma with yet more government mandates is wrong and will not be efficacious.

The broad failure of the IgCC to be implemented anywhere suggests a building code that goes far beyond life safety is going too far. Further, the fact that, as of the drafting this article, ASHRAE 189.1 has only been implemented by the U.S. military is equally damning. Additionally, attempting to mandate that a private land owner must build a LEED® or Green Globes® certified structure misuses the voluntary rating systems.

David Gottfried, the U.S. Green Building Council co-founder who unabashedly believes “all building should be green” said in a recent interview, “LEED was designed as a voluntary standard” acknowledging that “some governments have grabbed onto it.”³⁸⁶

Jerry Yudelson, the President of the Green Building Initiative, makes clear he does not advocate mandatory Green building laws for private building and he sees “a benefit of allowing the freedom of the marketplace to control this rapidly changing field, where performance counts.”^{387 388}

The marketplace shift to Green building has been dramatic and a bright spot in an otherwise tough economy. Today, in most U.S. markets, any “Class A” building requires Green building certification, and more than half of all non-residential construction will be Green. Green building will soon be the norm and anything else will be substandard. With its current brand acceptance and market share, most of that Green building will be voluntarily third party LEED® certified.

And there is nothing wrong with building Green and cashing in on the innovations developed in response to climate change.

385. See Friedman, *supra* note 124.

386. Interview with David Gottfried, CEO of Regenerative Ventures (Feb. 27, 2014).

387. Kaplow, *The Best Kept Secret in Green Building*, *supra* note 139.

388. *Id.* Imposing civil penalties or criminalizing the failure of a landowner constructing a building to obtain a third party green building certification (while obviously not in the same order of magnitude as the penalty of death imposed by the Code of Hammurabi for failure to construct a building properly) raises very real issues of how efficacious that sustainable project will be when the owner is simply pursuing a number of points to avoid legal jeopardy. *Id.*

The answer to the question posed at the onset of this article is yes; Green building law can save the planet. Green building laws that promote innovation and create an environment rich for investment in real estate can save both mankind and its current way of life.