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**A Discussion on Regenerative Design: The 2012 Beyond LEED
Symposium**

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Symposium**

by

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Report

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Masters of Science in Community and Regional Planning

The University of Texas at Austin

May, 2012

Acknowledgements

Thank you to the organizers, panelists, and participants of the Beyond LEED: A Regenerative Design Symposium. Thank you to Dr. Steven Moore who has been instrumental in the gathering of information for this report as well as acting as moderator during the symposium. As well, I would like to acknowledge the contributions of Elizabeth Walsh, who not only helped organize the symposium, but provided valuable guidance in the post-symposium analysis.

Abstract

A Discussion on Regenerative Design: The 2012 Beyond LEED Symposium

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The University of Texas at Austin, 2012

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This is a report about modern theories of sustainability and the progression of regenerative design. I utilize a framework of sustainability put forth in 2001 by Simon Guy and Graham Farmer to analyze the content of the Beyond LEED Symposium held in January, 2012 on the campus of the University of Texas at Austin. Using the six logics of sustainability proposed by Guy and Farmer; eco-technic, eco-centric, eco-aesthetic, eco-cultural, eco-medical, and eco-social, I examine the results of the symposium and determine which of these logics is being employed in the development of a new, regenerative design paradigm. I will also examine whether or not the Guy and Farmer framework of sustainability, and its contained logics, represent an incomplete definition of contemporary theories of sustainability. The results of this study and of the Beyond LEED Symposium suggest a change in how we think about sustainability and regenerative design.

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Research Question

To what degree do the viewpoints expressed by panelists and participants at the Beyond LEED symposium suggest a new direction or paradigm shift in sustainable building practice than is currently exhibited by the US Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system?

Introduction

The purpose of this report is to bring to light some of the insights provided by participants in the 2012 Beyond LEED Symposium, and to discuss the potential of sustainable building practice in the immediate future. It is important to first provide you, the reader with a framework through which you may be able to process the statements published in this report. The statements provided in this report represent my interpretation of the suggestions made by participants in the symposium and thus may not be interpreted as the participant had originally intended. I will attempt to provide a realm of objectivity in the writing of this report, but I accept that full objectivity will not be possible as the information processed is qualitative in nature. I will first provide a brief background on the organization and green building rating system in question. Second, I will outline the impetus behind the formation of the Beyond LEED symposium and I will then follow with a discussion on the interpretations and definition of sustainability. I will conclude with an analysis and discussion of the participant and panelist responses. I wish to provide by the end of this report a more clear vision of where the practitioners, academics, and community members involved in the symposium feel that the principles of sustainability and regenerative design fit into our common future.

The US Green Building Council (USGBC) is a 501(c)(3) membership based non-profit organization “committed to a prosperous and sustainable future through cost-efficient and energy-saving green buildings” (US Green Building Council [USGBC], 2012). The USGBC formed in 1993 and established a vision that the “buildings and communities will regenerate and sustain the health and vitality of all life within a generation” (USGBC, 2012). In 1999, several members from the board of the USGBC sought to expand the reach of their mission for “green” buildings and formed the World

Green Building Council (WorldGBC, 2012). The WorldGBC acts not as an extension of the USGBC's ideas for North American development but rather as a council of international green building systems and initiatives. The WorldGBC describes their presence as a means to, "formalize international communications, help industry leaders access emerging markets, and provide an international voice for green building initiatives" (WorldGBC, 2012).

The USGBC describes the Leadership in Energy and Environmental Design, or LEED system as providing, "building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions" (USGBC, 2012). The LEED certification system was introduced in 2000 by the USGBC and was developed by what the USGBC refers to as "an open, consensus-based process led by committees" (USGBC, 2012). At the time of its inception, the LEED certification system addressed only newly constructed or significantly renovated commercial buildings in what came to be known as LEED-NC (New Construction). That was LEED 1.0, and more than a decade later we now have LEED 2012 in the works and LEED 2009 certifications in eight distinct categories with a ninth in its pilot phase. LEED currently provides certifications for new construction/major renovations, existing buildings: operations and maintenance, commercial interiors, core and shell, schools, retail, healthcare, and homes. At the time of writing, the rating system for neighborhood development is in its pilot phase. LEED for Neighborhood Development (LEED-ND) represents a partnership and collaborative effort between the USGBC, Congress for New Urbanism (CNU), and the Natural Resources Defense Council (NRDC). LEED-ND places an emphasis on development location and on the LEED-ND website the USGBC has provided a Google-map interfaced database whereby a project team can search for regional credit opportunities by

zip-code or address. Also provided by the USGBC is a new ESRI ArcMap extension that assists projects teams in the calculation of street connectivity and walking and bicycling distance (USGBC, 2012).

Understanding “Sustainability”

One could spend a great deal of time discussing the meaning of the term sustainability, and many authors already have. This report will not center on semantics, rather I wish to understand the change and direction of an idea as it exists in a range of professional practices. I will begin my exploration of the sustainability of modern building practice and certification systems by looking back to see where our ideas of sustainability and ecological stewardship in the built environment come from.

Steven Moore provides in his 2002 article titled, “Sustainability in History and at UT-Austin,” a brief but broadly-based timeline of the history of the concept of sustainability. Moore holds that the origin of sustainability can be traced back to the concept of sustained-yield in silviculture practice. At base of this concept is that you wish to reap the largest amount of harvest without degrading the productivity of the stock; a simple idea, yet one that is often overlooked in the discourse of sustainability. Specifically Moore cites John Evelyn’s book, *Sylva: A Discourse of Forest, Trees and the Propagation of Timber*, published in 1664 as the first scholarly work to document the practice of sustained yield, as thus sustainability (2002).

Much of the modern discourse surrounding the concept of sustainability forms under the umbrella of environmentalism, which can be said to have been a reaction to the Industrial Revolution, whereby nature was to be utilized as a free source of materials with no regard for future performance of natural systems. As Moore establishes in his article, there exist many disciplines within which the term and concept of sustainability are relevant. The field of physics represents sustainability as the minimization of lost energy, a concept that started with the defining of entropy as the Second Law of Thermodynamics in 1865 (Moore, 2002). Sustainability within physics is essentially a

one-way street whereby we accept that energy will be lost through action, and all we can do is try to be more efficient.

The biologist or ecologist on the other hand would see sustainability in far less quantitative measures and would not seek efficiency in a physical sense, but rather a holistic understanding of the chaos involved in the formation of sustained natural systems. In place of a conservation of energy, ecologists favor a conservation of natural environments. Biologic sustainability, like physical sustainability is about conservation, but biology is more system oriented in that it accepts that our understanding of a specific biological action or entity is completely dependent upon the environmental systems within which it exists (ibid).

Moore also discusses how sustainability can also be considered through the lenses of politics and economics. Sustainability within the discipline of politics is tied closely to the concepts of Deep Ecology and a Land Ethic, conceived by Arne Naess and Aldo Leopold, respectively. These two concepts call for the embrace of all of the elements surrounding ourselves, human or not and alive or inanimate as part of a larger community, and that all things carry rights. Deep Ecology in particular called for the rights of the ecosystem as a whole and that these rights are not to be ignored in the process of development (Naess, 1988). In this sense, the understanding of sustainability through politics is one of representation in a decision making process; that which is sustainable is that which embraces and grants rights to the systems of nature.

The concept of sustainability within the discipline of economics responds largely to 18th Century Industrial development whereby nature was not seen as a capital good but rather as a free resource to be exploited. The growth in the understanding that our economic viability is not only related to, but is actually dependent upon the health of our natural reserve has led to a clearer understanding of sustainability in economic terms.

Sustainability in the discipline of economics is recognizing the presence of a larger economy beyond the human economy (Moore, 2012).

From a demographic or societal standpoint, sustainability is largely a production of Malthusian principles of unchecked population growth. Malthus' 1798 book, An Essay on the Principle of Population provided a first glimpse at what would be known as the Malthusian Growth Principle which posited that populations tend to grow exponentially and that food production was subject to linear growth (Malthus, 1798). This concept went on to inspire the concept of carrying capacity, which has since been expanded across the fields of biology, economics, and sociology. The carrying capacity is essentially the maximum population that can exist with a finite production of food and resources. The carrying capacity could also be interpreted within this discussion as the point at which that which is sustainable becomes unsustainable.

These are all relevant lenses through which to understand a history of sustainability, but how do we understand the history of sustainability. Perhaps the most commonly accepted history of sustainability is concerning the definition of 'sustainable development' within the Brundtland Report of 1987 as, "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own need." (United Nations 1987, p. 1). That is to say that our notion of "sustainable" building practice and development arrived out of the recognition that our behavior was previously "unsustainable" and that the possibility of ecosystem collapse through human consumption was very real.

As is evidenced in Steven Moore's article, our current discourse on sustainability carries with it a broad range of origins, all with slightly different frames and measures of success. It becomes important then to recognize the difficulty inherent in the task of defining not just a term, but a broadly-based idea. Essentially what happens with this

type of discussion is that we; as participants in a conversation, reduce or package ideas into something that can be generally understood as relevant, then each individual takes the shared ideas and unpacks them differently, into an idea that is relevant and functional to them. I will attempt to avoid an over-reduction of ideas within this report.

In finding a working definition of sustainability on which to base my analysis of the Beyond LEED Symposium, I will employ a published framework rather than accept one overarching definition. In their article, “Reinterpreting Sustainable Architecture: The Place of Technology” authors Simon Guy and Graham Foster formulate one such framework, one that provides working definitions for what they refer to as the six “competing logics of sustainable architecture” (2001, p. 141). Guy and Farmer use the term logic in their text as “a specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices through which meaning is given to social and physical realities” (2001, p. 141). This definition exists as an acknowledgment that different individuals and different groups interpret ideas differently based on the value that idea holds within their social and physical situation. The six logics of sustainable architecture defined by Guy and Farmer include the eco-technic, eco-centric, eco-aesthetic, eco-cultural, eco-medical, and eco-social.

Eco-Technic Logic

The first of these logics, the eco-technic, is centered on the belief that through incremental change we can find solutions to environmental problems using science and technology. This technorational discourse or “technocentric” ideology is quite pervasive in the United States as we look to science and technology to alter existing practices or institutions through innovation rather than invention; that is to say that we have the tools, we just need to make them better to more successfully meet our needs. Guy and Farmer

describe within this logic the paradigm of ecological modernism; whereby material conditions shape ideas, apart from the place, and the focus of its followers upon global issues and situation of sustainability within a distant context, calling for the formation of globalized consensus regarding the protection of the environment for future generations. The eco-technic, as applied to building design strategy is described by Guy and Farmer as “adaptive but based on recognizably modern; usually high-technology buildings that attempt to maximize the efficiency of buildings in spatial, construction, and energy terms” (2001, p. 142). An eco-technic approach to sustainability is one of quantification of variables such as energy consumption, waste production, and cost-benefit analysis. The LEED system likely falls into this category of seeking technological and material solutions to create some quantifiable impact on the efficiency of building production. The highly technical and energy-efficient works of architects Richard Rogers and Renzo Piano represent the eco-technic logic well. One project that Rogers and Piano worked on together is the Centre Pompidou in Paris (see fig 1).



Figure 1: Centre Pompidou by Richard Rogers and Renzo Piano

Eco-Centric Logic

The second logic of sustainability stands in stark contrast to the eco-technic, with its emphasis placed on the reshaping of our system of values rather than attempting to reconcile ecology and building production through technological progression. The eco-centric logic is focused on ecology and the establishment of a moral framework that “extends moral considerations beyond anthropocentric concerns to encompass nonliving objects and ecological systems” (Guy & Farmer 2001, p.142). It is a paradigm that considers above all the interactions of independent parts, both living and nonliving within a community. The eco-centrist would view the ultimate goal of sustainable building as that of complete noninterference, where sustainability is synonymous with complete ecosystem health. Reclaimed materials, self-sufficiency and small-scale building are typically preferred, yet the best solution of all for the eco-centric is to reduce building production across the board and to only build when absolutely necessary. One of the more deliberate instances of this building approach cited by Guy and Farmer is the “Earthships” of Mike Reynolds (see fig. 2). Reynolds builds structures from waste



materials such as tires and bottles; packed with earth they are structurally sound and in the case of his work in New Mexico, exist as completely self-sufficient homes.

Figure 2: Phoenix Earthship by Mike Reynolds as Eco-centric

Eco-Aesthetic Logic

Similar to the eco-centric is the logic of eco-aesthetics; which takes the eco-centric idea of efficient use of resources and reduction of ecological footprint, but takes the idea of reshaping values one step further and embraces sustainability as the product of a social change away from rationalism, modernism, and materialism and toward holism. Like the eco-centric, the eco-aesthetic seeks to move building practice away from anthropocentrism and formalism. Unlike the eco-centric, the eco-aesthetic places a great deal of importance on form in building production, and suggests that sustainable building form will express and reflect the organic, expressionist, non-linear, and chaotic attributes of the natural physical environment. The goal of the eco-aesthetic logic is the formation of a new architectural language utilizing new technologies for building production capable of mimicking the inherent complexities of ecological systems (Guy & Farmer, 2001). The buildings of Santiago Calatrava (see fig. 3) fall within this logic of sustainability.



Figure 3: Santiago Calatrava's La Rioja, Bodega Ysios

Another architect, Ken Yeang (see fig. 4) has embraced eco-aesthetics and has attempted to reimagine and rebrand sustainability in architecture as “EcoArchitecture,” the title of his biography published last year (Hart, 2011). His brand of architecture creates skyscrapers with plant life and human inhabitants coexisting throughout the many vertical layers. Similar to the works of one of my old professors, James Wines (see fig. 5), the structures utilize planting within the structure in a density rivaling the Hanging Gardens of Babylon. Yeang has developed an approach to building that focuses on low-energy strategies, but also provides a vision of ecosystem as a model of development guiding technical systems which mimic properties and attributes of ecosystems.



Figure 4: Ken Yeang Skyscraper



Figure 5: James Wines Skyscraper Garden

Eco-Cultural Logic

Much like the eco-centric and eco-aesthetic, the next logic; the eco-cultural, focuses on the reshaping of values within architectural practice. The key difference is in the caveat that the eco-cultural does not seek a universal solution or building culture like the eco-centric or aesthetic, but rather the “preservation of a diversity of existing cultures” (144). The eco-cultural logic centers on the *genius loci* and seeks to engage both environmental and cultural issues on a local level. The eco-cultural is seemingly a response to the uncultured placelessness characteristic of the International Style of Architecture. Guy and Farmer describe the eco-cultural concept of place as, “Learning to ‘dwell’ through buildings adapted to local and bioregional physical and cultural characteristics” (2001, p. 141). Whereas the eco-technic responds to global environmental concerns, the eco-cultural is responsive to local concerns and seeks to provide local solutions. Bioregionalism follows vernacular or indigenous forms of architecture under the assumption that these forms evolved as a response to a particular physical environment. “Contemporary architecture should therefore ‘recognize very deeply structured personal responses to particular places’ if it is to be sustainable (Guy & Farmer 2001, p. 144; Ujam and Stevenson 1996, p. 49). Norwegian philosopher Arne Naess and founder of the theory of Deep Ecology wrote about the importance of maintaining diversity of life on earth, and not in a purely ecology sense, but also including “human cultural diversity” (1988, p. 128-131). The architecture of the eco-cultural celebrates the “peculiarities of place...the reuse of traditional construction techniques, building typologies, and settlement patterns” (Guy & Farmer 2001, p. 144). Glenn Murcutt, an Australian architect celebrates architectural regionalism regularly in his projects (see fig.6).



Figure 6: Marika Alderton House by Glenn Murcutt

Eco-Medical Logic

The eco-medical logic is characterized by a focus on individual health and a detachment from the discussions of form or broader cultural concerns. Sustainability is achieved through the creation of a healthy environment; meaning the minimization of environmental hazards from medical perspective. The building originally seen as a “technological barrier to a hostile natural world” now represents a threat to our human health all on its own; the very materials we select pose immediate danger to our well-being (Guy & Farmer 2001, p. 145). The eco-medical seeks to create healthy indoor climates free of chemicals leaching from synthetic building materials. Beyond the physical impacts set upon the human body by poorly designed buildings, the eco-medical seeks to improve the human psychological interactions with our built surroundings. This physical and psychological eco-medical logic requires a deft touch and consciousness by the designer of the impact of materials on the sensory and biological experience. Guy and Farmer reference the German term *Baubiologie*, or “Building Biology” which

describes the field of building science investigating the indoor living environment in particular. The Institute of Building Biology and Ecology Neubeuern (IBN) lists the 25 principles of Building Biology, listed in order below:

1. Building site without natural and human-made disturbances
2. Residential homes away from sources of emissions and noise
3. Low-density housing with sufficient green space
4. Personalized, natural, human- and family-oriented housing and settlements
5. Building without causing social burdens
6. Natural and unadulterated building materials
7. Natural regulation of indoor air humidity through humidity-buffering materials
8. Low total moisture content of a new building that dries out quickly
9. Well-balanced ratio between thermal insulation and heat retention
10. Optimal air and surface temperatures
11. Good indoor air quality through natural ventilation
12. Heating system based on radiant heat
13. Natural conditions of light, lighting and color
14. Changing the natural balance of background radiation as little as possible
15. Without human-made electromagnetic and radiofrequency radiation exposure
16. Building materials with low radioactivity levels
17. Human-oriented noise and vibration protection
18. With a pleasant or neutral smell and without outgassing toxins
19. Reduction of fungi, bacteria, dust and allergens as low as possible
20. Best possible drinking water quality
21. Causing no environmental problems

22. Minimizing energy consumption and utilizing as much renewable energy as possible
23. Building materials preferably from the local region without promoting exploitation of scarce and hazardous resources
23. Application of physiological and ergonomic findings to interior and furniture design
24. Consideration of harmonic measures, proportions and shapes

(IBN 2012)

Bob Berkebile, one of the panelists brought in for the Beyond LEED symposium worked on a project with his firm BNIM which sought to create space that exhibited many of the aspects of the eco-medical and Baubiologie. The BNIM project for the Omega Center for Sustainable Living may be one of the better examples of a project embracing the eco-medical logic of sustainability (see fig. 7).



Figure 7: Omega Center for Sustainable Living by BNIM

Eco-Social Logic

The eco-social logic of sustainability forms from the philosophy of “Social Ecology” developed by Murray Bookchin in the 1960’s. The premise of social ecology is that the mode of interaction that humans have with the natural environment is a product of our modes of interaction with other humans. That is to say that the human dominates and destroys the environment because social patterns of domination have created conditions of social life which perpetuate such behavior. Social ecology also speaks to the hierarchies that form across societal boundaries which coincide with hierarchies of severity of environmental degradation. The theory is that a society that has accepted; or taken by force, a dominant role over another will in turn form a more dominant mode of interaction with the natural environment. Highly centralized societies, particularly those of great industrial strength represent the most dominant socially and ecologically, therefore, what the eco-social logic proposes is the decentralization of societies and the establishment of, “self-reliant societies that exercise local control, that responsibility for their environment, operate a local economy based on minimal levels of material goods and the maximum use of human resources” (Guy & Farmer 2001, p. 145). The practice of building is participatory and flexible, and each building is constructed to meet the needs of the occupants without impact to the natural environment. The product of building with the eco-social logic of sustainability is most typically realized in “independent ecocommunities,” as Guy and Farmer refer to them (p. 146). These communities, like Arcosanti (see fig. 8) in Arizona, seek to involve society in architecture through the establishment of biologically-inspired development systems of living and building.



Figure 8: Broad View of Arcosanti

The framing of the term “sustainability” differs immensely across professional fields and even within the practice of architecture it is difficult to find two individuals who share a view on what sustainability in building practice means. The organizers of Beyond LEED seem to have understood the presence of such complexities and ambiguity, as they arranged a panel of speakers from a broad array of professions. In the next section I would like to introduce the members of the Beyond LEED panel and review the white papers submitted prior to the symposium. It would be prudent at this point to recognize that the taxonomy of logics provided by Guy and Farmer were published more than ten years ago and may not represent current conditions of sustainability in building practice. Rather than try to place the ideas presented for and within the Beyond LEED symposium into the individual boxes, or logics provided by Guy and Farmer, I will use these logics to inform a baseline understanding of sustainability and focus on how this understanding has changed.

Beyond LEED: A Regenerative Design Symposium

The symposium was held at the University of Texas at Austin over the course of two days, starting on January 27th, 2012 and concluding on the 28th. The symposium was organized by the Center for Sustainable Development at the University of Texas. The symposium was set to focus on themes, issues and design approaches that have not been represented yet by LEED and other rating systems. The thoughts behind this are that LEED and similar systems represent checklists of best practices but that this approach is too limiting. The symposium was scheduled to coincide with Re: GENERATION, a multi-media exhibit in the Mebane Gallery in Goldsmith Hall on the University of Texas at Austin campus that explores the issues of judgment in architecture and the question of beauty in the built environment (Beyond LEED 2012)

The People

The panelists brought in for the discussion come from a variety of different backgrounds and bring with them completely different frameworks for interpreting the definition and value of the term “sustainable.” Represented in the discussion were architects, planners, medical professionals, social workers, and community organizers.

- Bob Berkebile (Architect, BNIM)
- Bill Browning (Consultant, Terrapin Bright Green)
- Raymond Cole (Professor, The University of British Columbia)
- Reid Ewing (Professor, The University of Utah)
- Holley Henderson (Consultant, H2 Ecodesign)
- David Heymann (Professor, UT School of Architecture)
- Scot Horst (Consultant, U.S. Green Building Council)

- Werner Lang (Professor, Technische Universität München)
- Suzanna Wight Kelley (Managing Director, AIA)
- Claudia Miller (Medical Doctor, UT Health Science Center San Antonio)
- Leslie Moody (Director, Partner for Working Families)
- Danielle Pieranunzi (Director, Sustainable Sites Initiative)
- Gail Vittori (Co-Director, Center for Maximum Potential Building Systems)

Bob Berkebile

Bob Berkebile is an architect and founding principle of BNIM, an architecture firm with a focus on sustainable architecture. Bob is a highly regarded environmentalist and preservationist who dedicated his professional life to improving the quality of life in our society through sustainable architecture and planning. The 2009 Design Intelligence Design Survey listed Bob as the number 3 on the list of the Top 5 U.S. Individual Role Models for green and sustainable design. Also in 2009, Bob received a Heinz Award from Theresa Heinz and the Heinz Family Foundation for his work promoting green design and design solutions which improve quality of life standards

Bob submitted to the organizers of the Beyond LEED Symposium a white paper titled, “Promoting Obsolescence: A journey toward regenerative design,” which outlines his thoughts on the future of LEED, the history of accredited green building practices, and how Living Buildings can lead to a more sustainable future. The ‘Living Buildings’ that Bob makes reference to represent projects within the Living Building Challenge; which will be discussed later. In his paper, Bob describes the importance of systems thinking and collaborative/integrated design approaches that link ecology, society and design (2012). In his paper, Bob cites Buckminster Fuller as a big influence on his recent

professional career, especially in the way that Bucky described the interaction of design and humanity, “that a design either increases the vitality of Spaceship Earth or not” (2012, pg. 1). Bob describes how this idea became particularly relevant to him following the 1981 collapse of the skywalk at the Hyatt Regency in Kansas City, Missouri; a building that he had designed. Though the collapse was found to be the fault of poor structural engineering, Bob walked away from the tragedy a different man. From then on he has devoted his professional career to understanding the unintended impacts that building designs on occupants and the environment. Bob collaborated with environmental organizations, industry research labs (like DuPont), the National Science Foundation, and more recently the USGBC. With the formation of the USGBC and subsequent LEED rating system, Bob and his colleagues at BNIM rolled out LEED Platinum designs regularly from the late 1990’s to the early 2000’s. In 2001, together with BNIM and a team of experts, Bob began work on the development of a building performance standard that would surpass the LEED Platinum standard. Where they saw the LEED Platinum certification as a way to lessen the impact that building production has on the living environment, they wanted to create a system that could actually improve life, and in 2006 the team, rolled out the Living Building Challenge in Chicago (Berkebile 2012). Instrumental in the development of the Living Building Challenge was Jason McClennon, a former principle of BNIM and current CEO of the Cascadia Green Building Council (ILFI, 2012).

As one of the original developers of the Living Building concept, Bob helped introduce the 2006 Living Building Challenge; a product of the Cascadia Green Building Council which set out to work with architects to design and certify buildings that were not only beautiful (one of their requirements), but ecologically functional. Buildings certified under the Living Building Challenge are required to achieve net-zero energy and

water use; meaning zero net energy and water consumption, use materials that are both regionally sourced and not harmful to health and the environment (Environmental Building Network 2012).

At the heart of Bob's white paper is the idea put forth by Bucky Fuller that "the only way to make significant change is to make the thing that you are trying to change obsolete" (2012, pg. 1). Bob is pushing for a new development that will make the "dysfunction of existing buildings and communities obsolete" (2012, p. 1). In his white paper Bob makes several arguments for collaborative and high-technology solutions which would place him within Guy and Farmer's eco-technic logic of sustainability. At the same time he calls for context-dependent solutions which reflect more of an eco-cultural logic. Likewise he proposes a healthier interaction between the building and the building inhabitants that fits within the eco-medical logic. This provides an excellent first example of the difficulty inherent in placing people and their ideas into boxes formed through generalizations.

Bill Browning

Bill Browning was a founding member of the USGBC's Board of Directors and founder of Terrapin Bright Green, LLC, a consulting firm focused on crafting, "high-performance strategies for corporations, governments, and large-scale real estate developments." In 1991, Bill founded Green Development Services at the Rocky Mountain Institute, a non-profit dedicated to the creation of a higher standard of living through resource efficiency. In 1998 Bill was named by Buildings magazine as one of five people "Making a Difference." Aside from his consulting work, Bill has authored several books including Green Development: Integrating Ecology and Real Estate; A

Primer on Sustainable Building; Greening the Building and the Bottom Line; and Biophilic Design (Terrapin Bright Green 2012).

Bill's submitted white paper is titled "Letting Deep Ecological History Determine Building Performance Metrics." Bill describes in his white paper the development of performance metrics based predominantly on the understanding of the deep ecological history of a site. The deep ecological history of the site is the understanding of the natural ecosystem functions that occur on the site without human interaction. It requires an awareness or study of the anthropological history of the site, a geologic history of the site, and a projection of the hydrology, solar energy, and carbon storage and sequestration of the site at a defined point of time. Bill describes the metrics used in the Mithun project done for the Lloyd Crossing area in Portland. For the project Mithun estimated the ecosystem performance of the site at a time before human intervention, measuring the rainwater usage/evapotranspiration, solar capture/reflectance/refraction, the carbon storage and sequestration, and wildlife composition. Mithun then utilized these measurements as metrics and calculated their modern day measurements, using the original ecological performance standards as goals and baselines for new development on the site. Through the utilization of new technologies coupled with low-tech design solutions, Mithun has established, on paper, a new community that functions ecologically as well as; or better than, the site before human impact. Bill's firm Terrapin Bright Green (TPG), has attempted something similar with a project in Manhattan, using old maps alongside geologic and ecologic analyses of the site they were able to identify that a stream, originally running through the island of Manhattan before colonization, was still running into the basement of one of the largest and most energy inefficient buildings in New York City. The structure at 111 Eighth Avenue had a massive sump pump in the basement which ran constantly. According to TBG's estimates, it pumped roughly 45

million gallons of clean cool water from the basement every year since the building was constructed some 80 years ago. TBG's main goals approaching the 111 Eighth Avenue site were to utilize the massive amount of water that was flowing onto the site then being immediately pumped out into a storm sewer. The implementation of technological solutions would allow the site to reach a water balance closer to the pre-development standards. Other additions, like a green roof and cogeneration of electricity and heat on-site can help achieve other goals such as a reduction of carbon usage and habitat production (Browning 2012).

Browning's ideas presented here represent several of Guy and Farmer's logics of sustainability, just as Bob Berkebile's do. The overarching theme presented by Browning is the idea that the sustainability of a project is dependent on how that project reacts to ecologic context through the implementation of technological solutions. This statement places Browning more so within the eco-centric logic than any others, though it does carry a hint of eco-technics.

Ray Cole

Ray Cole is a professor and former director of the University of British Columbia School of Architecture and Landscape Architecture. In 2001, Cole was selected as a North American Association of Collegiate Schools of Architecture Distinguished Professor. He is currently a Director member of the Canada Solar Buildings Research Network and the University of British Columbia designation of Distinguished University Scholar. Cole was a co-founder of the Green Building Challenge, an international effort to benchmark progress in green building performance and environmental assessment (The University of British Columbia 2012).

Ray Cole's submitted white paper is titled "Beyond LEED: Embracing Holism, Engaging Complexity & Accepting Uncertainty." The central idea of Cole's white paper is that complex systems, like green building, cannot be reduced to a simple set of metrics. In his paper Cole turns a critical eye on the state of current green building assessment tools. Cole refers to the fact that the individual constructions are rated relative to a benchmark rather than based on their actual consequence to human and natural systems. He notes that the criteria represent quantifiable metrics that are assumed to offer an accurate measure of overall green building performance. He also discusses how criteria have been kept discreet to avoid double-counting and how individual success within the certification process relies on scores attained for individual performance issues rather than a holistic evaluation. Cole, like many others also takes issue with the fact that current green building rating systems assume that future performance can somehow be predicted and need not be measured. Cole feels that current systems do not properly communicate or emphasize the conceptual framing of the enhancement of natural systems and fail to adequately account for or support a conscious cyclical process of resource use. The largest failure that Cole finds in current green building solutions is that their primary directive is to reduce the negative impact of human development on the health and integrity of ecological systems (Cole 2012).

Cole proposes in his white paper a response to the "do less harm" mentality supported by current green building rating systems. Regenerative design is a tool seen by Cole as having the potential to revolutionize the green building industry. At its core, regenerative design is a combination of systems thinking, community engagement, and respect for place. Cole notes that in order to facilitate regenerative design, we must first change the green building discussion to recognize the inherent complexity and dynamic interrelationship between human and natural systems. Where current green building

standards are aimed at reducing resource use and negative environmental impacts, a regenerative design approach carries with it a more positive message. Regeneration suggests a practice of building which can give back more than it receives. This positive feedback approach will over time build natural and social capital, as it is more attractive to designers, clients, and other stakeholders. While the ideology behind the development of regenerative design as the next step in green building practice seems promising, its implementation will likely prove difficult due to the very nature of regenerative design; the embracing of complexity and uncertainty. What is required is a complete paradigm shift whereby building occupants become “inhabitants” in a more ecological sense. The inhabitants would become part of the building system, contributing to the needs of the building just as the building responds to the inhabitants (Cole 2012). What Cole hopes for in the regenerative design approach to green building is the establishment of a “complex web of heterogeneous interdependencies” (2012, 8).

Cole’s white paper contains elements of several of Guy and Farmer’s logics of sustainability. The notion of building and inhabitant interaction, of making inhabitants part of the building system suggests something similar to the eco-social logic. Cole’s discussion of positive and regenerative ecological design fits well within Guy and Farmer’s eco-centric logic which involves a fundamental ecology within the building process. Likewise, Cole position that good design holds a respect for place reflects Guy and Farmer’s eco-cultural logic of sustainability.

Reid Ewing

Reid Ewing is a professor of City and Metropolitan Planning at the University of Utah. Dr. Ewing is currently an associate editor of the Journal of the American Planning Association, a columnist for Planning magazine, and a member of the LEED LP

Technical Advisory Group of the USGBC. Ewing is also a Fellow of the Urban Land Institute and has previously served two terms in the Arizona legislature, working primarily on urban policy issues at the congressional Budget Office. His professional focus as a planner is on the study of transit-oriented development solutions and the impacts of sprawl development on not only our environment but on our health. His 2010 article titled “Travel and Built Environment: A Meta-Analysis” won the Best Article of the Year award by the American Planning Association (APA). Dr. Ewing’s examination of the correlation between sprawl development and patterns of obesity, sponsored by the Robert Wood Johnson Foundation, produced the most widely cited academic paper in the Social Sciences as of late 2005, according to Essential Science Indicators. Ewing has written several books for the APA including US Traffic Calming Manual and Best Development Practices. He has two upcoming books including Pedestrian- and Transit-Oriented Design, for the APA, and Measuring Urban Design Qualities, for Island Press (The University of Utah 2012).

For the Beyond LEED symposium Dr. Ewing submitted a white paper titled simply, “Beyond LEED-ND.” In his paper Dr. Ewing reviews popular praise and criticism of the LEED Neighborhood Development (LEED-ND) system and provides his own thoughts on how to utilize the existing framework of LEED-ND while enhancing the certification procedure and quality of outcomes. Dr. Ewing describes how LEED-ND, originally rolled out in 2010, has done a great deal for sustainable community development in the short period of its existence. He details how the voluntary and thus non-regulatory nature of the certification makes it attractive to legislators looking to promote regional green building practices. He also describes how the certification has worked its way into city planning practices and has become an incentive toward the awarding of competitive housing grants; mainly from the federal Department of Housing

and Urban Development. Dr. Ewing does point out that the LEED-ND system fails to account for local and regional differences and makes little effort to address the character of building. Ewing's biggest problem with the current LEED-ND is that it is entirely too complex and subjective. He suggests that for LEED-ND to affect broad-based change in how we think about community development, it must be simplified and empirically grounded. He feels that by studying the actual outcomes of some of the credit designations, we can carry a more informed perspective into the certification and re-weight some of the credentials to reflect the outcomes that have been measured (Ewing 2012).

It is clear from his white paper that Dr. Ewing feels that the LEED-ND certification represents a tool that can have a real and transformative impact on green community development in the future. He does feel that further study of the outcomes of the credits that LEED-ND operates on can lead to a simpler, more empirical, and refined process that is increasingly capable of meeting its own objectives. Ewing's ideas shared in his white paper suggest changes to the formatting of the LEED system, adjusting the quantifiable variable used to rate sustainability, and making it more responsive to regional characteristics. These ideas reflect both eco-technic and eco-cultural concerns regarding sustainability as defined by Guy and Farmer (2001).

Holley Henderson

Holley Henderson is a sustainability consultant and founder of H2 Ecodesign. H2 is a consulting firm that helps clients find "eco-positive" design solutions in the built environment and business strategy. The firm helps to guide projects through the LEED certification process as well as providing support for sustainable solutions outside the

LEED framework. Prior to founding H2 Ecodesign, Holley worked with TVS Architects for ten years then served as the Director of Creative Design for Interface Carpet, which provided her with a great deal of insight into the needs of all side of the design and production process. Her understanding of the needs of clients, designers, and manufacturers helped to inform her shift into sustainability consulting. Along with her consulting work through H2 Ecodesign, Holley is the LEED-CI Core Committee Chair and serves on the Savannah College of Art and Design (SCAD) Advisory Board. Holley is the current National International Interior Design Association (IIDA) Sustainable Forum Advisor (USGBC 2012, found at leedbuilding.org).

Holley submitted a white paper for the Beyond LEED symposium titled, “Quantifying the Human Experience.” In her white paper, Holley discusses the issues associated with the creation of quantifiable metrics for the human elements of green building production, such as process, community, health, satisfaction, beauty and nature. In her discussion regarding the quantification of process Holley described the creation of the ANSI Integrative Process Guide (IPG) and its forthcoming addition to the LEED rating system this year (2012). Essentially the IPG will allow for measure during the occupancy phase of a buildings lifecycle; something that has been notoriously lacking in previous iterations of the LEED rating systems. While its inclusion is a step in the right direction, Holley argues that the LEED systems are still not giving enough weight to the occupancy phase. Community involvement has been another aspect of development that has been largely ignored in the past by the USGBC and LEED systems, and in her paper Holley notes that community involvement must occur and it must be continuous, just as the performance of a building must be monitored during occupancy so should the levels of community support. Holley also raises the issue of health impacts and building materials. She notes that while certain standards now exist within LEED, there must be a

greater weight placed on this category relative to others like those related to climate change. Likewise Holley sees a lack of tracking of the materials used in building production and the question of ‘who owns the materials’ corresponds with the question of ‘who is responsible for making sure that these are the right materials and will not be harmful?’ Holley believes that the jury is still out in terms of whether or not regulations imposed by government agencies will be comprehensive enough to begin forcing accountability. Beyond these concerns, Holley discusses in her white paper the potential for the quantification of satisfaction, beauty, and nature in green building practice. She feels that the rise of Biomimicry in green building practice is attempting to facilitate the resolution of man-made issues by natural means, but feels that for it to be truly marketable it must be able to provide evidence of a significant return on investment (Henderson 2012).

Overall Holley has not rejected the LEED system as it sits, but rather suggests the integration of new forms of quantifiable life-cycle analysis for more than just building performance, but also how the building interacts medically (health), socially (community, satisfaction and beauty), and biologically (nature). Holley’s focus in her white paper is the quantification of variables that seem to be lacking in current rating systems. This alone may place Holley within the eco-technic logic of sustainability which is concerned with achieving sustainable solutions through the measurement of quantifiable variables. Holley’s inclusion of health and social concerns could also place her partially within the eco-medical and eco-social logics as well.

David Heymann

David Heymann is an architect and professor in the University of Texas at Austin School of Architecture. Heymann is the Harwell Hamilton Regents Professor in the

School of Architecture and is an ACSA and University of Texas Distinguished Teaching Professor. Previously the Associate Dean for Undergraduate Programs, David is currently the chair of the Landscape Architecture Graduate Studies Committee. His professional and academic focus is on the relationship of buildings and landscape, especially the natural landscape. He has several high-profile professional works including a four-bedroom home on the Prairie Chapel Ranch in Crawford, Texas for former President George W. Bush. He was selected by the Architecture League of New York as one of their Emerging Voices and was awarded the Friars' Centennial Award (The University of Texas School of Architecture 2012).

Heymann submitted a white paper for the Beyond LEED symposium titled, "An Un-flushable Urinal: Thoughts on the Aesthetic Potential of Sustainability in Architecture." In his white paper, David describes what he feels are the possibilities and issues surrounding the formation of an aesthetic of sustainability. He proposes that an aesthetic of sustainability must exist separate from a previous building aesthetic and must require the performance of the building to couple with the meaning of the construction. That is to say that the experience of the building inhabitation must continuously reflect the sustainable intent. David also suggests that an aesthetic of sustainability must emphasize the process of creation rather than product. Essentially, the building needs to tell a story of sustainability in order to fulfill any form of sustainable aesthetic (Heymann 2012).

David also describes in his white paper the two primary agents of change: technological invention and revolutionary aesthetic insight arising from cultural desire. While listed as distinct agents of change, David emphasizes that one cannot exist without the other. Applied to the LEED rating system, the creation of specific technical regulations and measurement arises from the cultural desire to live lighter upon the earth

and change our building techniques. While David does not state directly how he feels about the current state and future prospects of the LEED rating system, it is implied through his discussion that he would like to see a radical shift in green building practice to allow for a more experiential inhabitation of sustainable constructions. The establishment of a sustainable aesthetic would carry with it the power of change, and perhaps what would follow this establishment is an architectural practice which needs no rating system, but is simply accepted as the way to design, build, and experience a building (Heymann 2012). David's arguments do not reflect any of Guy and Farmer's logic directly, though his centering on the aesthetics of sustainability suggests a lean toward the eco-aesthetic logic. The eco-aesthetic discussed by Guy and Farmer leans toward biomimicry, and the sustainable aesthetic discussed in David's white paper reflects a fundamental coevolution of natural, human, and technological building systems (2001).

Scot Horst

Scot Horst is the Senior Vice President of LEED + Innovation with the USGBC. Scot is a green building consultant with a diversity of experience in private and nonprofit sectors. Scot was previously the president of 7group, a green building consultancy firm as well as president of Athena Institute International, a nonprofit dedicated to conducting and furthering the knowledge base surrounding lifecycle assessments of building performance. He currently sits on the Advisory Board of Cradle to Cradle, the board of the Sustainable Building Alliance in Paris, and the Buildings Retrofit and Finance Steering Committee of the World Economic Forum. Scot lectures widely on the LEED rating systems and development of new approaches to advancing regenerative action in building production. Scot's professional focus is on finding way to help the built

environment meet natural systems in constructive and regenerative ways. Recently Scot co-authored *An Integrative Guide to Green Building*, published by Wiley & Sons (USGBC 2011).

Scot submitted for the Beyond LEED symposium a white paper titled, “Next Generation LEED.” In his white paper, Scot defends the LEED rating system against some of the more prevalent criticisms such as the lack of aesthetics in the ratings or the idea that LEED as a checklist is too limiting for architects and does not foster the creation of good architecture. Scot takes issue with the idea of going “Beyond LEED” as the name of the symposium states. It is his belief that the current LEED system has not achieved its ultimate goal of guiding building practice toward the improvement rather than harming of the environment and that rather than abandoning and going ‘beyond’ LEED, we must go further into LEED. Scot describes two new initiatives that the USGBC are hoping to inject into the green building world in the near future. The first initiative is a tool for regenerative design called ReGen. The ReGen tool adds a more public discussion to green building practice by opening lines of communication between professionals and projects leads across the globe. ReGen also widens the scope of LEED by asking the designers and architects to not only measure what is happening on-site, but how the construction impacts systems more broadly, eventually creating healthy ecosystem inputs rather than detriments. The second initiative to be rolled out soon by the USGBC is a LEED performance-based recertification program. Currently lacking from the LEED system, a performance-based recertification adds accountability and connects people, including designers and occupants to the outcomes of the design intent and function of the building (Horst 2012).

It is clear from Scot’s white paper that he does not favor the abolishment of LEED. On the contrary, Scot favors the growth of LEED as a transformative system of

best practices. He supports the regular reevaluation of the LEED systems to respond to advances in green building practice and public/professional input. For Scot, if LEED is to continue as a successful green building practice, it must be constantly adapting. Scot is essentially proposing the implementation of a new tool that provides systematic change through an eco-technic approach. While the LEED system can be placed confidently within Guy and Farmer's eco-technic logic of sustainability, the ReGen tool that he discusses can be placed within several different logics including the eco-cultural for its regional adaptability, eco-medical for its human health concerns, and eco-social for its social network framework.

Suzanna Wight Kelley

Suzanna Wight Kelley is the Managing Director of Strategic Alliances + initiatives for the American Institute of Architects (AIA). As the managing director of strategic alliances and initiatives, Suzanna is responsible for providing direction and oversight for alliances held between the AIA, allied and nonprofit organizations as well as to provide guidance on key Institute initiatives related to sustainable building practice and potential building industry transformation. Suzanna actively advises the AIA's Executive Vice President, Chief Executive Officer, COO and senior AIA leadership regarding the AIA's partnership strategy and trends in the transformation of general architectural practice including project delivery, sustainability and other topics (Beyond LEED 2012). Suzanna is also currently the Secretary of the Inaugural Board of Directors of the Association of Architecture Organizations (AAO) (Association of Architecture Organizers 2011).

Suzanna submitted a white paper titled, "Is our Future Big Enough for Everyone? Codes, Standards and 3rd Party Rating Systems." In her white paper, Suzanna describes

her vision of architecture and how we should judge architecture in the future. She discusses the evolving role of architect and how the field of architecture has started to embrace more than building practice. Suzanna sees architecture as a reflection of cultural values and feels that the judgment of architecture has and will, to a greater extent in the future come to rely upon measurement of economic value, social value, and overall appeal to the general public. Suzanna makes reference to the AIA's Committee on the Environment (COTE) and the Sustainable Design Measures created as part of their Top Ten Green projects. These measures seek to provide the background for a comprehensive definition of sustainability in architecture that integrates performance metrics with aesthetics, community connection, and environmental stewardship. Projects following these measures are judged according to how well they have integrated these strategies to achieve both measurable performance metrics and qualitative design aesthetics (Kelley 2012).

Suzanna does not address the current LEED system directly in her white paper, however it can be drawn out of her discussion of the COTE measures that she favors a more comprehensive and integrated approach to architectural design and judgment. Suzanna would likely make the suggestion that LEED integrate more social and community based credits as well as some form of general aesthetic design excellence recognition. Suzanna's views of sustainability as the integration of aesthetics, community connection, and environmental stewardship could be placed respectively in Guy and Farmers eco-aesthetic, eco-social, and eco-centric logics (2001).

Werner Lang

Werner Lang is a professor and Director of the Center of Energy Efficient and Sustainable Design and Building at the Technische Universität München (TUM). He is

also the former director of the Center for Sustainable Development at the University of Texas at Austin School of Architecture. Werner's research and professional work focus on the design of sustainable buildings, development of building systems, building construction and site management, thermal performance of buildings, and conceptual development of intelligent building systems. Since 2006, Werner has been the Director of Lang Hugger Rampp GmbH Architects in Munich, Germany. He is also the Director of the "Oscar von Miller Forum" in Munich. The forum exists as an independent educational initiative of the Bavarian construction industry (Beyond LEED 2012).

For the Beyond LEED symposium Werner submitted a white paper titled, "Beyond LEED: Urban Laboratory 'Nuremberg West.'" In his white paper, Werner discusses a project that he and his colleagues at the TUM are working on in the German city of Nuremberg. The project is known as Urban Laboratory 'Nuremberg West' and the goal of the project is to reevaluate the requirements of urban development. TUM would like to use the Nuremberg West project as a low-emission, energy-efficient city with a high quality of life. Long-term sustainability is the ultimate goal, and in his paper Werner discusses the role of rating systems like LEED, BREEAM, or the German DGNB as fulfilling short term goals, but posits that these systems are inherently too prescriptive to adapt to meet long-term goals. For Nuremberg West, TUM is attempting to create a robust system that can tolerate sudden and unpredictable change, something that Werner describes as crucial for the development of truly sustainable building systems. One of the methods by which Werner suggests that we can begin to develop these 'robust' systems is through modeling. One of the tools used by TUM in the Nuremberg West project will be the development of a long-term modeling program whereby certain scenarios can be tested and the resiliency of the building system can be observed. TUM and the

Nuremberg West design team hope to have created a truly sustainable and livable city by the year 2050 (Lang 2012).

Werner clearly feels that green building rating systems like LEED do provide support for short-term solutions, but that for a sustained positive-feedback building culture to exist we must seek long-term solutions. He sees the answer in a multidisciplinary systematic approach which studies all the variables related to the economic viability, social equity, and environmental impact of urban development. Werner stresses in his white paper that for a green building system to be truly sustainable it must be robust and adaptable. The modeling approach that Werner proposes in his white paper could be placed within the eco-technic logic discussed by Guy and Farmer because of its technocentric approach (2001).

Claudia Miller

Claudia Miller is currently a professor of Occupational and Environmental Medicine at the University of Texas Health Science Center at San Antonio (UTHSCSA). Claudia is the Assistant Dean for the MD/MPH Program and Vice Chair of the UTHSCSA. She is the founder and Director of the South Texas Environmental Education and Research (STEER) Program at UTHSCSA. STEER is unique in that it is the only medical school curriculum to offer hands-on experiential trainings and field experience in environmental health, public health, and international health at the US-Mexico Border for students enrolled in U.S. MD/MPH, medical, public health, and other health professions degree programs. Claudia's professional and research interests are focused on the impact that the physical environment, largely the built environment, has on neurodevelopment. Claudia has more than 30 years of experience in the public health, environmental health, and medical communities and has spent time with various federal

agencies and universities serving teaching, research, clinical and administrative roles. She is currently conducting research on the health effects of low level chemical exposures, including asthma, autism and ADHD. Claudia co-authored a report for the state of New Jersey about chemical susceptibility titled “Chemical Exposures: Low Levels and High Stake.” That landmark report received the World Health Organizations Macedo award (UT Health Science Center at San Antonio 2012).

Claudia submitted for the Beyond LEED symposium a white paper titled, “LEED: A Set-up For Sick Buildings? Is LEED Diamond the Answer?” In her white paper, Claudia addresses the concern that LEED does not sufficiently protect the inhabitants of a building from harmful chemicals, particles, allergens, and microbes. With her focus on Indoor Air Quality (IAQ) Claudia proposes the creation of a new LEED designation, call LEED “Diamond.” This new certification would combine our existing knowledge of green building practice with our ever expanding knowledge of precautionary measures for human health. Claudia suggests that our practice of improving IAQ go beyond our current standards which largely just provide for the control of environmental tobacco smoke. Her suggestion regards the inclusion of more stringent criteria which provide a greater amount of fresh air in buildings as well as minimizing the use of outgassing materials and furnishings, adopting safe cleaning practices, and even setting guidelines for occupant behavior such as the restrictions placed on the use of fragranced products (Miller 2012). Claudia’s viewpoints within her white paper place her clearly within the eco-medical logic described by Guy and Farmer (2001).

Leslie Moody

Leslie Moody is the Executive Director and co-founder of the Partnership for Working Families. Previously Leslie spent 10 years as the first female president of the

Denver Area Labor Federation, AFL-CIO. She was the co-founder of the Front Range Economic Strategy Center (FRESC), and co-chaired a successful community benefits campaign at the Cherokee-Gates brownfield redevelopment (communitybenefits.org). Leslie has 20 years of experience organizing people and campaigns centering on the need for economic and environmental sustainability. She has advised groups in dozens of cities nationwide on best practices to achieve equitable and accountable development (Beyond LEED 2012).

Leslie submitted for the Beyond LEED symposium a white paper titled, “Building for the Future: A Vision for Sustainable Communities.” In her white paper, Leslie examines the potential of utilizing Community Benefits Agreement (CBA) framework in sustainable building practice. What a CBA gives that LEED fails to address is an understanding of the impact of the development on jobs, commute times, transit, goods movement, access to goods and services, and other elements that facilitate urban ecosystems. The CBA framework, as it is used by Leslie and the Partnership for Working Families, is a private contractual agreement between developers and community alliances that outline the community benefits of a specific project. It is a powerful tool for communities for a number of reasons. CBA’s create accountability on the end of the developer while still encouraging redevelopment. It becomes attractive to both communities and developers because it represents a socially-oriented vision of economic sustainability that seeks to unite communities with the bureaucratic and political processes. It essentially makes the process of urban redevelopment go much smoother and creates localized solutions (Moody 2012).

In reference to the LEED system, one could potentially see the adaption of LEED certification parameters to include more of a CBA-like framework. Leslie proposes the incorporation of the major lessons learned from CBA’s of the past and present with the

greening aspects of the LEED system to rethink our true vision of sustainability as we move forward. While her viewpoints are largely informed by her work with communities, I would not necessarily place Leslie within the eco-social or eco-cultural logics. What she is really trying to drive home with her discussion of CBA's is the importance of accountability, which may rely more upon the quantification of performance under more of an eco-technical framework. Likewise, her framework of sustainability may reflect a logic not provided by Guy and Farmer; an eco-political logic that relies on the political reorientation of communities within the building and development process.

Danielle Pieranunzi

Danielle Pieranunzi is the Director of the Sustainable Sites Initiative, otherwise known as SITES. The Sustainable Sites Initiative is a program created through the collaboration of the American Society of Landscape Architects (ASLA), the Lady Bird Johnson Wildflower Center at The University of Texas at Austin, and the United States Botanic Garden. The program is designed to help move land development and management practices toward regenerative design. Danielle has worked with experts from across the country and crossing many disciplines related to sustainability, architecture, landscape architecture, and development to formulate a new system of comprehensive guidelines and criteria for the design, operations, and maintenance of high-performance landscapes. The SITES program is currently in its pilot phase, with field-testing ongoing for over 150 projects worldwide (UT at Austin: Beyond LEED). Danielle is a graduate of the University of Texas School of Architecture Masters of Sustainable Design.

For the Beyond LEED symposium, Danielle submitted a white paper titled, “How SITES™ and an ecosystem services framework can influence the performance of both architecture and landscape.” In her white paper, Danielle provides an outline of one of SITES, including the impetus for its formation and tools of implementation/SITES development practices. Danielle describes the SITES system as being different from other green building rating system for a number of reasons. SITES is the first rating systems to center its focus on the development of healthy landscape-building interactions. Likewise, SITES assumes a site-specific and regional strategy to promoting and measuring sustainability in the built and preserved natural environment; something that we have not seen yet within the LEED system. Also unlike the LEED rating system, SITES requires a monitoring process whereby the relative success in achieving sustainability is reevaluated periodically to ensure proper performance, operations and maintenance. What Danielle and SITES hope to create are building/landscape/human interactions that not only provide ecosystems services and build natural capital, but that educate and demonstrate the practices of sustainability (Pieranunzi 2012).

While Danielle does not specifically address the LEED rating system, she does make several suggestions as to how the process of green building should exist systematically. Danielle recommends that an integrated process must be used throughout the design and development of a site; this includes a multidisciplinary teams of professionals experienced in sustainable practices and can clearly inform the connection between architecture and landscape, while understanding how that ties in to the larger community and ecosystem. Danielle also stresses the importance of using a systems-thinking approach that responds to local context. This approach would give value to the relationships present in healthy and functional ecosystems and seek to restore the relationship between ecology and human activity. Design decisions should be informed

by the local place and respond to local concerns, harnessing the “genius loci” of the site. Also included in the localization of sustainable building should be information gathered from local stakeholders, who share the history and knowledge of the site’s ecological, cultural and social function. Danielle also discusses the importance of including feedback loops; as SITES is beginning to establish, to better monitor and report the successes, and perhaps more importantly failures, of specific design solutions or techniques. Danielle feels that one of the most important characteristics of green building, and thus green building rating systems, is the ability to adapt and respond to changes in future conditions rather than prescribing a singular definition of sustainability (Pieranunzi 2012). Danielle’s focus on the provision of local knowledge, gathering of multidisciplinary professionals, use of native plants, and emphasis on regionalism falls within the eco-social and eco-cultural logics of sustainability discussed by Guy and Farmer (2001).

Gail Vittori

Gail Vittori is the co-Director of the Center for Maximum Potential Building Systems (CMPBS). Gail is a USGBC LEED Fellow and was the 2009 Chair of USGBC’s Board of Directors. She was also the Convener and Co-Coordinator of the Green Guide for Health Care and the founding Chair of the LEED for Healthcare committee. She is currently the Vice-Chair of the Green Building Certification Institute (Beyond LEED 2012). Gail has worked with the CMPBS since 1979 and since 1993 Gail has coordinated the Center’s Sustainable Design in Public Buildings Program. During her time with the CMPBS she has worked on several high profile projects including acting as the Sustainable Design Consultant for the Pentagon Renovation Program’s Commissioning Team from 1999 to 2006 and consulting on several City of Austin design

projects including the first LEED certified public sector building in the state of Texas. Her professional focus is on developing green building and affordable housing solutions for communities. Her work, along with the work of CMPBS centers on community-based and participatory planning, design, and demonstration projects that emphasize the utilization of regionally appropriate technologies as well as flexible, healthy and affordable building systems (Center for Maximum Potential Building Solutions 2012).

Gail submitted for the Beyond LEED symposium a white paper titled “Stewarding the Common Good.” Within her white paper, Gail discusses the importance of recognizing the power of building codes as a means of maximizing the health, safety, and welfare of a population. She emphasizes the need for a “free space” in green building discourse whereby we may approach new methods without relying on the adaptation of old methods. Gail summarized her ideas about how to guide the production of healthy and sustainable building-related systems with a listing of parameters that I have included in full below.

- Transparency: rating systems need to develop with full disclosure of the parties involved and the basis for establishing the criteria and evaluation
- Flows and Life Cycle Thinking: rating systems should evolve from a linear to an integrated, cyclical basis for metrics, with the intent to focus on cycle continuation. For example, water should be measured from source to use to re-source.
- Balance: unlike conservation that focuses on using less, assesses levels of balanced flow as a baseline performance indicator.
- Prescriptive vs. Performance: we should encourage multiple approaches to achieve an agreed upon end point and emphasize context as a key criterion

- Metric vs. Market Transformation tool: we need both and should be clear about the value of a checklist that measures specific actions vs. a market transformation tool that changes and evolves conditions and context. Note Atul Gawande's *The Checklist Manifesto: How To Get Things Right* .
- Multiple Lenses: environmental, social, health, economic. There are multiple consequences associated with strategies addressed in rating systems. It is essential to be clear about what is measured and how.
- Multi-Attribute Assessment: move beyond defining "green" based on single-attributes such as recycled content
- Modeled vs. Measured Performance: this should evolve as a necessary function of rating systems, with modeled performance establishing a provisional rating pending actual measured performance over a specified time period(s) through a building's degree of life cycle balance. This also addresses the power of results – what benefits accrue from achieving the credits, as assessed through the multiple lenses stated above?
- Prerequisites and Credits: Establish flexibility that sets a clear baseline (prerequisites) and offers options to exceed/go "beyond" (credits).
- Speed, Nimbleness and Crowdsourcing: rating systems need to be responsive to changing conditions. The LEED Pilot Credit Library is a good example of opening up the rating system to new concepts and test drive them with the global community of users.
- Ecology of Commerce: inspired by Paul Hawken's influential book, create a national level flow model that places air-water-land pollution in terms of a regionalized ecology of commerce.

- Learning Community: establish an accessible approach to share information so others' can readily learn from successes and failures
- Identify Knowledge Gaps: what are patterns of influence and what do we still need to know that would benefit from a shared research agenda?

(Vittori 2012 p. 2-3)

Gail expresses in her white paper that the LEED system represents an adaptable program because of its transparent, consensus-based process and regular reevaluation. Without explicitly saying so, Gail suggests in her white paper that the next generation of green building system will likely not evolve from a current system; rather it will form freely (Vittori, 2012). Gail's focus on medical health in building practice fits well within the eco-medical logic of sustainability discussed by Guy and Farmer. Her discussion surrounding the use of a "learning community" reflects aspects of eco-social logic, and her concern regarding the use of metrics of sustainability represents hints of the eco-technic logic.

	<i>eco-technic</i>	<i>eco-centric</i>	<i>eco-aesthetic</i>	<i>eco-cultural</i>	<i>eco-medical</i>	<i>eco-social</i>	<i>other</i>
Bob Berkebile	●			●	●		
Bill Browning	●	●					
Raymond Cole		●		●		●	
Reid Ewing	●			●			
Holley Henderson	●				●	●	
David Heymann			●				
Scot Horst	●			●	●	●	
Werner Lang	●						
Suzanna Wight Kelley		●	●			●	
Claudia Miller					●		
Leslie Moody	●						● <i>eco-political</i>
Danielle Pieranunzi				●		●	
Gail Vittori	●					●	

Figure 9: Summary matrix of logics represented in panelist White Papers

The results of the study of submitted white papers suggest that eco-technic logics of sustainability are dominant amongst panelists at the Beyond LEED symposium. Not represented widely within the panelist's white papers is the eco-aesthetic logic of sustainability. This measurement suggests that like our current LEED green building rating system, our professionals have sought sustainable solutions predominantly through technical solutions. A new logic of sustainability arose out of Leslie Moody's white paper which suggests a policy led eco-political logic.

The Discussion

As the frame for my analysis of the discussion I worked with several colleagues and Dr. Steven Moore to identify themes. This collaborative content analysis was done in an attempt to minimize the subjectivity of our individual interpretations of what was

said before and during the symposium. As a group our main goal was to draw out of the panelists' submitted white papers certain categories or themes concerning LEED and regenerative design. These categories can then be expanded to encompass the participant input including comments made directly during the symposium as well as comments written by the audience on post-it notes during the conclusion of the symposium. I will discuss these three input stages independently; which I will refer to as the paper, panel and post-it stages. I will allow the input from these three phases to coalesce into more defined action goals that will represent the outcomes of the symposium.

The categories described below represent collections of individual ideas pulled from the white papers submitted by our thirteen panels prior to the symposium. A preliminary analysis formed eight categories which may represent some overlap conceptually.

What LEED Has Done

The first category addresses how the panelists felt that the USGBC's LEED rating system had succeeded. This included a strongly defensive stance by USGBC representative Scot Horst who essentially argued that we need not think "beyond LEED" as the name of the symposium suggests, but rather we must continue to adapt LEED and dive further into the LEED system. Other panelists, not representing LEED's founding organization, provided recognition that the LEED system has achieved a great deal of market success, "introducing green building into the mainstream," as Bill Browning put it (cite). While the market success of LEED and the development of sustainable building features attributed to LEED are recognized by the panelists, these recognitions are used in the white papers as a simple nod to the LEED system before transitioning into a critical analysis. In several of the paper, the praise for LEED is immediately followed by a

“However” or “That said....” It is clear that the panelists not representing the USGBC (like Scot Horst) use their brief praise of the LEED system to try to establish an objective baseline.

The discussion regarding what LEED has done provides an important starting point for the larger discussion regarding what happens next. The point of laying out what LEED has done is so that we may establish what works and what needs to be revised; broadly taken as the whole reason for the existence of the Beyond LEED symposium. While the naming of the symposium suggests an opinion that sits on the post-LEED end of the spectrum in opposition of the LEED-supportive views shared by Scot Horst. The category fits within the overall discussion as a baseline from which we may begin defining the problem. Several panelists used the baseline, “where we are now” discussion to point out the pitfalls of a LEED-type rating system. Werner Lang noted that LEED was useful in covering short-term solutions, suggesting that it is not capable of providing lasting long-term and sustainable solutions. Bill Browning commented that LEED is a simple measurement tool and as such is unable to provide inspiration for the production of new sustainable building practices. Within this discussion illustrating the achievements and shortfalls of the LEED system, much of rhetoric was focused on what Guy and Farmer defined within the eco-technic logic of sustainability; meaning a focus on the quantifiable technological solutions being used in LEED and the lack of social and regional awareness.

Expanded Dialogue/Collaboration

Several of the panelists mentioned in their white paper the need for more collaborative design approached and the need for green building dialogue to expand beyond the architectural studio. The discussion on expanding levels of collaboration

within green building and community development practices focuses on the forging of “alliances between building practitioners, environmentalists, public health and medical professionals,” as Gail Vittori put it in her white paper (2012, p. 1). Suzanna Wight Kelley and Werner Lang both stressed the importance of utilizing interdisciplinary teams to form integrated design processes. The strength of an interdisciplinary collaboration lies in the specialized knowledge and requirements that each individual brings into the design process. The utilization of many different skills and knowledge in a design process adds value and results in the “best value design for every client,” according to Wight Kelley (2012, p. 1). Lang discusses specifically the need to “engage the community and its leaders from different disciplines in a comprehensive consideration of needs” (2012, p. 4). Bob Berkebile, in his description of the Living Building Challenge stressed the importance of the creation of a collaborative team of clients, designers, expert consultants, and stakeholders. He referred to this community of collaboration as a “creative force...that can and does produce miracles” (2011, p. 6). This expansion of dialogue and participatory nature of many of the suggestions within this category reflects many of the themes present in Guy and Farmer’s eco-social logic whereby building is seen as participatory and flexible.

Performance Outcomes

The discussion of performance outcomes includes the functional measures of sustainable building. This includes the monitoring of building performance, the inclusion of feedback loops and the attempted quantification of traditionally qualitative values. Many of the panelists contributed to this category within the overall discussion. Scot Horst, representing the USGBC, provided his insight regarding a new initiative that USGBC hopes to include in the next LEED rating system release which includes a

performance-based recertification. Essentially the initiative would require the tracking of various performance measures relating to energy, water, waste, occupant satisfaction and health. Horst is convinced that this performance tracking will “connect people, in real time, to the outcomes of their intent and action,” thus providing a more deeply-rooted understanding of how green building must function (2012, p. 4). Both Gail Vittori and Werner Lang mentioned the importance of performance modeling; that is, the creation of complex models which can be used to predict the performance of a building or site as well as the impacts of changing certain variable. Bill Browning wrote about the importance of establishing performance goals in his white paper, and that the current LEED system was failing to establish such goals. Danielle Pieranunzi, of the Sustainable Sites Initiative discussed the importance and difficulty in providing value metrics on the human relationship with nature. Likewise, Holley Henderson focused her white paper on the difficulty inherent in quantifying such qualitative measurements as satisfaction, beauty and nature.

One of the more prevalent solutions proposed in the white papers is the inclusion of feedback loops in the hope of creating building systems with higher performance standards. It is shared by several of our panelists that it is important to first create monitoring procedures, and then utilize those monitoring outcomes to provide feedback for future improvement of building performance. It is accepted by Holley Henderson, Danielle Pieranunzi, Gail Vittori and Scot Horst that performance metrics and the inclusion of feedback loops to inform performance standards are necessary to form a new level of sustainable building practice. While on its surface this category fits well into Guy and Farmer’s eco-technic logic through the quantification of variables and seeming connection with scientific and technological problem solving, many of the ideas within this category also express values that could be set within the eco-aesthetic and eco-social.

The Site in Context

This category within the discussion focuses on the acknowledgement of the complexity of interactions that occur within urban systems. This can include infrastructural considerations as well as local/regional culture, and economic structure/impacts of development. Ray Cole referred to the importance of understanding the “story of place” in the collection of information prior to the design of any site (2012, p. 5). While a basic site assessment is required for nearly any building project, what is being referred to in this category is a more comprehensive understanding of the context within which a project exists. Reid Ewing stressed in his white paper the importance of accounting for local and regional differences in relation to transit services, proximity to neighborhood services, and less quantifiable aspects like the amount and character of surrounding development. Werner Lang posited within his discussion of urban redevelopment efforts in the German city of Nuremberg that “redevelopment requires an individual approach and the harnessing of the specific local potential as well as understanding the complex systematic interaction of a city’s individual components” (2011, p. 3). This category fits squarely within Guy and Farmer’s eco-cultural logic which sees sustainability as a response to local context and seeks to provide regional solutions.

Ecologic/Ecosystem Services

This category places an emphasis on the ecological presence of a building project and suggests that the built environment become more highly and positively integrated with the natural environment. Several panelists expressed this desire as a keystone goal for regenerative design. Pieranunzi, discussing SITES, mentioned the capacity that proper landscape design has to provide increases in “natural capital,” and the desire that she and others have to integrate ecological services into current economic accounting.

Bill Browning poses another way of seeing ecosystem services. He and his coworkers at Terrapin Bright Green (TPG) have adopted a system of creating performance metrics based on the narrative of the site. What this means is that the group utilizes the history of the site to understand and project backwards the ecological performance of the site prior to human impact. Whereas one approach utilized by environmental consultants on construction projects is to monitor current environmental performance measures and seek to not disturb the site too badly. What SITES and TPG seek to accomplish is a positive impact or a production of natural capital rather than a reduction of impacts. The comments made within this category can be placed within Guy and Farmer's eco-centric logic of sustainability which judges building based on its impact upon the environment and ecologic surroundings. Likewise the use of a narrative about the site would qualify as eco-cultural.

Systems Design/System Thinking

At the center of this category lies the proposition that we must essentially change the way that we are thinking about rating sustainability. In terms of sustainable and regenerative design Systems Thinking means embracing the complexity and uncertainty inherent in the world around us. It is recognizing that we do not fully understand the impacts of our design decisions, and directing research and experimentation toward finding better solutions and continuously rethinking and revising our building practice standards. Ray Cole provided one of the clearest endorsements of the complexity and uncertainty method development. He provides that the production of sustainable and regenerative designs is dependent upon the changing of the decision making process from one of "prescriptive and fixed control mechanisms to a reflective process that is anticipatory, responsive and flexible" (2012, p. 7). Scot Horst described one of the

strongest aspects of LEED as being its ability to change and adapt. It is through adaptive management that several of our panels feel we will be able to create building systems truly capable of delivering regenerative design solutions. Werner Lang describes these systems as “robust” and notes that a rating system cannot tolerate sudden change and adaptation, and therefore can only provide a first step in the direction of sustainability and toward regenerative design (2012). Gail Vittori notes in her paper that flexibility is integral to the success of any building-related rating system and that the system must embrace crowdsourcing as a means of responding to changing conditions (2012). This category does not fit as smoothly into any of Guy and Farmer’s logics as previous categories have. Suggestions made within this category center on the concept of adaptive thinking and essentially embracing what we know and what we do not know; which creates something of an abstract concept of sustainability, perhaps even a new logic. This new logic would likely feed from the measurement centered eco-technic, and the flexibility of the eco-social logic. Perhaps this new logic could be known as “ecoholism.”

Inhabitation and Human Behavior/Experience

The inhabitation category of our discussion focuses on the impact of green building on the human experience and the human condition. This category includes topics like health, beauty/aesthetics, interaction, and behavioral change. Health and the effects that the built environment has on the human physiology were major topics of discussion within the white paper submitted by the panelists. Specifically several of the panelists discussed the importance of greater monitoring of Indoor Air Quality (IAQ) and the use of building materials and fabrics which are proven to not contain any harmful chemicals. Claudia Miller represented the medical field at the symposium and within her

white paper she discussed the importance for setting our IAQ standards to meet the needs of the most vulnerable building inhabitants. Miller proposed the creation of an additional “LEED Diamond” rating which would utilize higher than LEED Platinum health standards by improving IAQ, reducing the use of toxic materials, increase the amount of fresh air, adopting safe cleaning practices, and even providing guidelines for occupant behavior extending beyond no tobacco smoke areas to include a limit/ban on fragranced products in general. Others, like Gail Vittori and Holley Henderson stressed the importance of a greater integration of health concerns into the overall fabric of LEED.

Qualifying the human experience not just in terms of measureable health impacts, David Heymann attempted with his white paper to insert design aesthetics into the discussion of sustainability and regenerative architecture. Heymann argues that the aesthetic of sustainability is dependent upon the performance of the building and the knowledge of the performance of the building. He feels that the value that we place on the performance of a sustainable building gives it beauty. He argues that the aesthetic trigger is invisible. What is meant here is that the thing that we usually see and equate with beauty does not necessarily exist within the aesthetic of sustainability, rather that the beauty and power inherent in a sustainable building project derives from something that cannot be seen but rather from the story of its creation and operation.

Ray Cole saw the human experience of architecture and green building through yet another lens as he posited that there must be a fundamental “reorientation of the approach to comfort in which the goals and objectives of the building systems and the inhabitants are equally engaged and equally attended to” (Cole et al. 2008, in Cole 2012, p. 8). Cole calls for the creation, or augmentation of a dialogue between inhabitant and the structure. What this dialogue would accomplish is the formation of a dynamic and interactive system that is both participatory and response and can adapt to changing

conditions based on inhabitant feedback. This category of my analysis most closely resembles Guy and Farmer's eco-social logic in that it based conceptually on the interaction of human being and built environment. Also discussed with in this category were some of the aspects that would fall into other logics such as the eco-medical, eco-technic and eco-aesthetic.

Support Tools

The final category created in response to the white papers provided by the symposium is that of suggested support tools. This category provides a look at what exactly the panelists feel needs to happen immediately in order to create sustainable and ultimately regenerative buildings. Scot Horst mentioned the forthcoming addition of a performance-based recertification system to the next release of LEED. Horst also mentioned another initiative that USGBC is looking into which was echoed by other panelists during the discussion, the inclusion of the ReGen tool for regenerative building design.

As described by Bob Berkebile in his white paper, the ReGen tool “will support practitioners and decision makers engaged in regenerative design and development processes, particularly in the early planning and design stages” (2012, pg. 7). The ReGen tool is described by Horst and Berkebile as a systems-based model that forms connections between parts of systems both internal and external to the project scope. One of the powers of the ReGen tool is the creation of a framework of shared information and what Bob Berkebile refers to as a collaborative dialogue of discovery. This tool exhibits many of the logics described by Guy and Farmer (2001) and represents a significant development in the green building industry; I will provide a more in-depth examination of the ReGen tool later in this report.

Other tools were suggested within the white papers, like the previously discussed “LEED Diamond” system proposed by Claudia Miller or the proliferation and support of SITES landscape-oriented projects described by Danielle Pieranunzi. While some of the panelists described issues that they wanted to see addressed within the LEED system, other proposed a movement away from the LEED system toward something completely new.

	<i>eco-technic</i>	<i>eco-centric</i>	<i>eco-aesthetic</i>	<i>eco-cultural</i>	<i>eco-medical</i>	<i>eco-social</i>	<i>other</i>
What LEED Has Done	●						
Expanded Dialogue/Collaboration						●	
Performance Outcomes	●	●			●		
The Site in Context			●				
Ecologic/Ecosystem Services		●	●				
Systems Design/System Thinking	●				●	●	<i>eco-holism</i>
Inhabitation and Human Behavior/Experience	●	●	●	●	●		
Support Tools	●	●	●	●	●		

Figure 10: Summary matrix of logics represented in white paper categories

The white papers submitted by the panelists of the Beyond LEED symposium represent a broad array of viewpoints from a diverse grouping of professions. Overall, the white papers tended to show a general dislike of the current organizational system in place under the LEED title. As illustrated in the matrix above (see fig. 10), the eco-technic and eco-social logics dominated amongst the categories defined during the white paper content analysis. The popularity of eco-social logic suggests a departure from the current paradigm of sustainability which embraces technological development and lacks any social context. The least popular logics within these categories were the eco-

medical, and eco-centric. Within the “Systems Design/ System Thinking” category a new logic of sustainability has been formed, called eco-holism for its holistic embrace of all the parts that interact to form that which may actually exist sustainably.

The panelists proposed simplification and reorganization to address a number of issues ranging from health and human services to community and social function, collaboration, performance monitoring, ecosystem services, and aesthetics. One of the common streams that would become more of a central focus during the symposium was the introduction of the ReGen tool. While it was described broadly in white papers and briefly discussed during the symposium, the ReGen tool seemed to be the gaining support across the spectrum of panelists and participants. While tools like the ReGen tool encompasses several of the logics of sustainability advanced by Guy and Farmer in 2001, other tools mentioned here can be placed within individual logics. The LEED Diamond system proposed by Claudia Miller represents eco-medical logic and the SITES program exists within a blend of eco-technic and eco-centric.

The Responses

Following the panel discussions on the second day of the symposium was a brief discussion involving the audience/participants more heavily previous discussions. This section of the symposium titled “Constructing an Agenda for Research and Action” was dedicated to the formation of real, tangible action items moving forward from the discussion. Within the first few minutes of this section, volunteers working at the symposium passed out three post-it notes to each of the panelists and each member of the audience. The moderator Steven Moore then asked the participants to use these three post-it note cards to provide “three things that we could do today to improve LEED as an

assessment system.” The following several pages of this report will focus on the participant responses to that question.

All together 120 post-it notes were posted and briefly organized into basic categories on the fly by volunteers. A team, including myself and Elizabeth Walsh, were able to sit down with the original post-it notes and formulate our own categories based on the content of the notes. While some of the suggestions fit clearly within one category, most could be interpreted as fitting within several. Likewise some of the notes did not fit within any of our categories and were given their own individual descriptions within the analysis. In an attempt to quantify the results of the participation phase of the symposium I used the categories as the basis for a count of responses. The results of that count can be seen in the chart below (see fig. 11). The categories will be discussed according to their individual content as well as how they generally compare to the six logics of sustainability discussed by Guy and Farmer in 2001.

The category that received the most attention in the participatory stage of the symposium was the desire to revamp the LEED system. While this category definition may seem overly broad, it includes only those notes which suggest working within the existing LEED structure. A total of forty-five comments were placed into the “Revamp LEED” category, accounting for 38% of the total comments posted. The suggestions made within this category include the establishment of new benchmarks, the technical improvement of the LEED online system, the overall simplification of the LEED system, increased customer service abilities, and the lowering of barriers to entry into the LEED system; such as lowering the cost of registration. Participants in the symposium’s post-it exercise also felt that LEED would be improved dramatically through the use of feedback loops and performance based compliance paths. Suggestions within this category included the creation of an automated performance based recertification system, a post

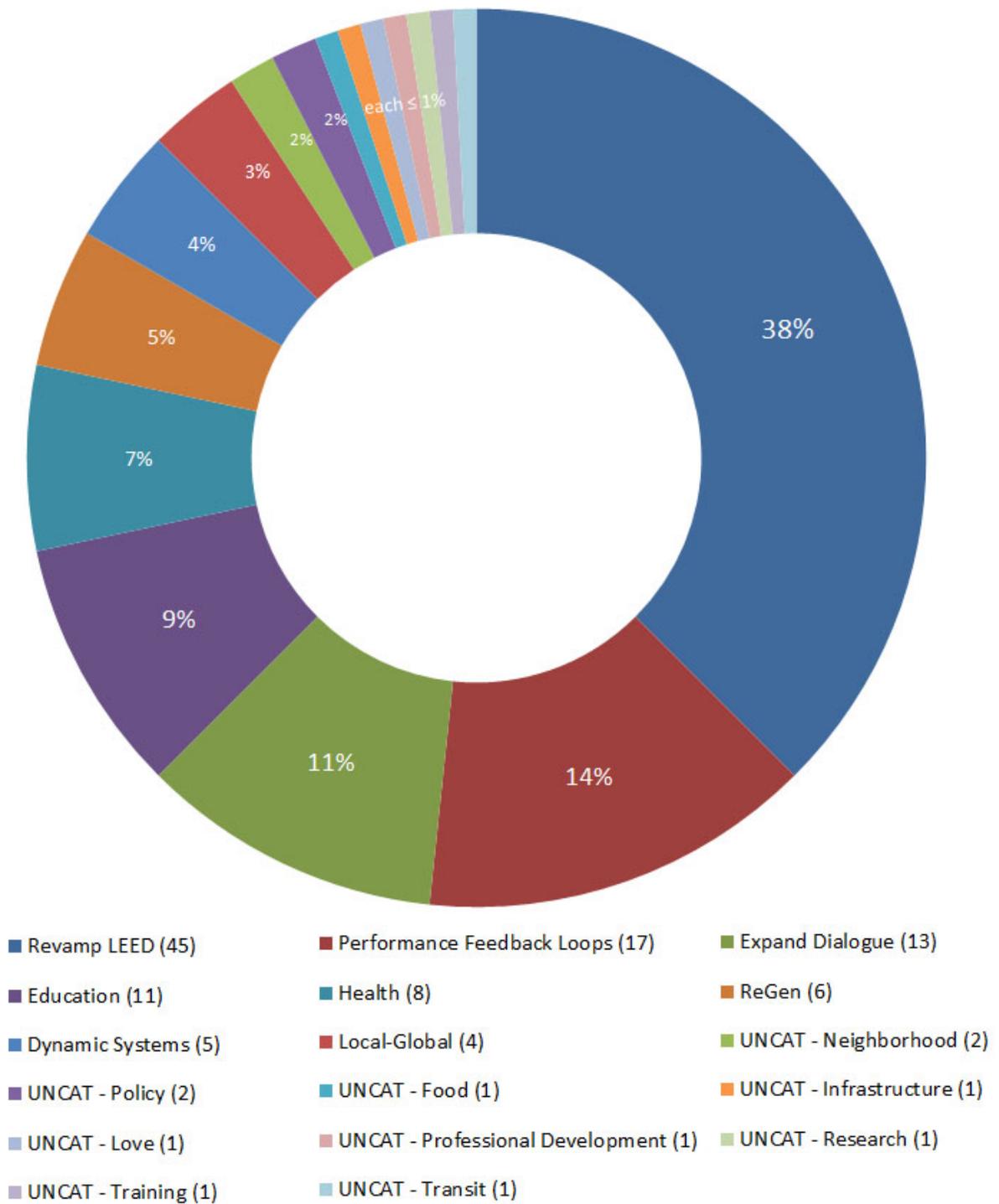


Figure 11: Breakdown of Post-It suggestions made by participants at Beyond LEED

occupancy reevaluation process, and a more widespread release of actual performance data. Within the “Performance Feedback Loops” category, the symposium collected seventeen suggestions, accounting for 14% of the total suggestions made. The suggestions placed within this category represent a range of Guy and Farmer logics. Generally speaking, all of the suggestions made here promote the retention of the existing LEED rating system structure, which could be defined as an eco-technic structure of quantifiable technical solutions.

The expansion of dialogue surrounding green building practice was the third most popular suggestion made by participants. Participants who made suggestions that fit within this category were concerned mainly with opening up the green building conversation and process beyond the disciplines of architecture and engineering. These suggestions called for increased community involvement in projects and for the placement of the social alongside the ecological in the discussion of sustainability in building practice. The potential outcomes that proponents of an expanded dialogue expect from an increase in community programming, social awareness, and taking a more holistic view of sustainability in building are a greater amount of community buy-in, a broadening of the sustainable/regenerative design movement, and the formation of a network of professionals and citizens that can build momentum in green building projects. Thirteen suggestions were placed into this category, accounting for 11% of the total feedback. Similar to the “expanded dialogue/collaboration” category defined previously for the panelists white papers, this category suggests an eco-social logic of sustainability as Guy and Farmer defined it.

Somewhat in the same vein as the category focusing on dialogue expansion, the following category groups responses that propose more of an outreach effort than is currently exhibited within the LEED system. Rather than general community outreach, these suggestions focused more of the educational aspect of green building and the importance that education related to sustainability and the concept of regenerative design has. Suggestions placed within the education category generally seek an increase in education related to green building practice for the general public and building users as well as the owners and developers. Several suggestions focused on the use of demonstration projects and on-site educational practices. One of the key concerns within this category was the raising of green building awareness and increasing the exposure of sustainable/regenerative designs and discussions. The eleven comments placed in this category accounted for 9% of the total. Similar to the previous category in its base concept of expansion of awareness, understanding, and dialogue surrounding sustainability in building practice, the education category fits most appropriately into Guy and Farmer's eco-social logic of sustainability.

As one of the more popular talking points within the white papers and symposium discussions, health and healthy material selection became a popular category during the participation and feedback stage of the symposium. Included in the suggestions of the health category were to increase research on new measures of quality of life, expanding the conversation about health in the built environment, and the inclusion of more health professionals on the steering committees of systems like LEED. The health category contained eight suggestions; 7% of the total. With the focus of the health category being on the creation of healthy interactions between occupants and the built environment, it fits squarely within Guy and Farmer's eco-medical logic.

The ReGen tool was one of the more highly discussed topics during the symposium, yet only six participants entered comments directly discussing its use or adoption. These comments were simple and essentially all requested the funding and adoption of ReGen as a next generation sustainable and regenerative design process. As discussed previously, the ReGen tool encompasses several of the logics of sustainability proposed by Guy and Farmer. The ReGen tool embraces the localism of the eco-cultural, the performance measurement of the eco-technic, the healthy interactions of the eco-medical, the flexibility and participatory nature of the eco-social, the ecosystem function of the eco-centric, and the concern of form present in the eco-aesthetic.

The participatory stage of the symposium produced what we placed as five suggestions that would fit within a “Dynamic Systems” category. Within this category were suggestions that building components be considered part of larger systems ranging from the ecological to the cultural and social. Part of these suggestions is the assumption of an adaptive system that not only outlines the negative potential impacts, but to communicate the benefits of embracing a building culture that exists within the realm of other systems and not just on top of it. These suggestions address aspects of Guy and Farmer’s eco-centric, eco-cultural, and eco-social logics.

The last of our major categories defined from the suggestions provided is the recognition of local and global scale in green building rating and regulation. Several of the suggestions regard the graduation of LEED and other systems to a larger scale involving global input in an attempt to find global solutions. Others requested a more localized system based on regional inputs in the process and the formation of regional systems based on regional criteria. The main concern within this category is the recognition of scale in sustainability, something that Guy and Farmer discussed within

their eco-cultural logic of sustainability which focuses on the embrace of regionalism and finding localized solutions.

A series of subcategories were created for the suggestions that were not easily placed within any of the others already discussed. One person suggested that the USGBC needs to better facilitate the “falling in love” with the explanation that we will inherently protect what we love. While this suggestion does not reflect directly upon any of Guy and Farmer’s logics of sustainability, and in fact represents a rather abstract ideology, for how does this person suggest the USGBC go about facilitating a “falling in love?” Others suggested a greater emphasis needs to be placed on land use patterns and the facilitation/encouragement of greater density and grouping of LEED buildings. This represents something of a technical solution and would likely be placed by Guy and farmer within their eco-technic logic of sustainability. Two others suggested that the green building industry must embrace policy more in their approach and that government support is likely the key to realizing change in building practice. Also suggested within the policy subcategory is the removal of obstacles to green building such as regulations on rainwater collections and energy production. These ideas center on finding policy approaches to promoting sustainable building practice, a strategy not addressed explicitly by Guy and Farmer within their logics of sustainability. Perhaps this policy-oriented approach represents the same eco-political logic of sustainability discussed previously in response Leslie Moody’s white paper.

	<i>eco-technic</i>	<i>eco-centric</i>	<i>eco-aesthetic</i>	<i>eco-cultural</i>	<i>eco-medical</i>	<i>eco-social</i>	
Revamp LEED	●						
Performance Feedback Loops	●						
Expand Dialogue						●	
Education						●	
Health				●			
ReGen	●	●	●	●	●		
Dynamic Systems	●		●		●		
Local-Global			●				
Neighborhood			●				
Policy						●	<i>eco-political</i>
Food			●				
Infrastructure	●						
Love					●	●	<i>eco-holism</i>
Professional Development					●		
Research	●						
Training					●		
Transit	●						

Figure 12: Summary matrix of logics represented in participant feedback

The dominant logics of sustainability within the categories created in the content analysis of participant feedback were the eco-cultural, eco-technic, and eco-social logics. This suggests that participants felt after the symposium that the next step in sustainable and regenerative design will contain localized and regional solutions that recognize the importance of preserving cultural diversity in building practice and development. It also suggests on one side that the green building industry adopt more socially-oriented

approaches and on the other that it continue focusing on finding technical solutions to issues of sustainability. New categories within this stage reflected the previously formed “new” logics of the eco-politic and eco-holism.

Conclusion

The three stages of the symposium tell three different stories in terms of their direct analysis. The white papers suggested a broad range of topics relating to LEED, sustainability, and regenerative design. I feel that the big message coming out of the papers were that the LEED system cannot adequately serve the diverse needs of client, occupant, designer and site. With many modifications and shifts in focus are proposed, my analysis of the white papers provided a clearer view that what the panelists were really looking for was something along the lines of what Bob Berkebile had been working on with the Living Building Challenge and ReGen tool.

Within the actual discussion of the two-day symposium was a diversity of topics coming from professionals with a broad range of backgrounds. The major threads that I pulled from the discussions were that regenerative design is not possible without dynamic building and rating systems, that local knowledge should be shared and utilized, that we must find a way to embrace complexity within our rating systems and understanding of sustainability, and that health concerns are a valuable way to push change in building practice.

The participatory stage, as I have referred to it, was quite different than the previous stages because the participant were being asked to immediately respond to provide, “three things that we could do today to improve LEED as an assessment system.” I see this question as a little more slanted than I would hope in this this type of a symposium. What it suggests is that rather than seeking a solution that goes “Beyond” LEED as the name of the symposium suggests, we are rather asking the participants to find ways to simply make LEED better. I think that a focus on regenerative design would

have been beneficial and would have provided more telling suggestions as to where the green building industry should go, with or without LEED.

While the support for the ReGen tool was clear amongst the panelists and participants in the symposium, what was unclear to me was how exactly we get from LEED to ReGen. Members of the symposium discussion, include Bob Berkebile suggested that at this point it was a question of funding and that with the current economic climate the funds were going to be harder to appropriate than one would hope.

Overall, what I believe that the Beyond LEED symposium exposed is a deep desire present across professions to make sustainable and regenerative design not only “mainstream” but for it to become standard within the built environment. It surfaced that what we, as designers and policymakers need to do is rethink sustainability and accept McDonough and Braungart’s argument that “Being ‘Less Bad’ is no good” (McDonough 2002, p. 45). Cradle-to-Cradle got the regeneration wheels turning for me, as I believe it did for many others, perhaps even inspiring the formation of this symposium. The idea of upcycling and regeneration provides the fundamental steps toward the creation of some of the tools discussed in the symposium. Scot Horst, Bob Berkebile and Ray Cole all discussed the appropriation of funding toward a new tool appropriately named the ReGen tool. After the final discussion, Berkebile pointed the participants to look further into what the ReGen tool is and how it would function. Lucky for us, he has authored a paper on the concept and implementation of ReGen and after some digging I was able to find it.

ReGen essentially represents a design process that embraces all of the major points of discussion within the symposium. While he referred to it as a work in progress, Berkebile and his colleagues flesh it out clearly in their article titled *REGEN: toward a tool for regenerative thinking* (2012). The ReGen tool is described as a “journey of

discovery and a conversation about how a group can reconnect to itself and to place.” It is a concept that borrows from the living building concept and processes present in Biomimetic design and responds to the current state of green building rating as a system of static checklists. ReGen is a place-based system that will utilize information shared across disciplines and communities. The following are listed as tools that will support a continued and informed dialogue about place within the ReGen process:

- pull a team graphically between a focus on details and a focus at the larger system level, keeping a conversation active at both scales (eco-social)
- meet a group or individual where they have the most interest and guide them to the new things that connect to what they care about most (eco-social)
- pull from or add to open-source data revealing information about place that might otherwise take years to procure then save it for the next team in that region (eco-centric, eco-social and eco-cultural)
- invite participants and data from disciplines that do not typically interact with the building and planning industry (eco-cultural, eco-social)
- provide helpful resources to the experienced practitioner and yet invite the novice to explore and discover (eco-social)
- pose new questions and introduce new variables into the conversation (eco-technical)

The ReGen tool is more than just a collaborative design/building process, it also calls for a basic shift in consciousness and the fostering of a collective will “to work for the benefit of all life.” The following are tools that ReGen will use to foster such a collective will:

- include humans graphically and conceptually with (not separate from) other ‘fauna’ and among the systems of life (eco-centric, eco-holism)

- focus on a broad definition of quality of life for all life (eco-social, eco-medical)
- make connections and show synergies between the things that give life meaning and vitality and the things that support function(eco-centric, eco-technic, eco-holism)
- focus on positive (motivating) outcomes (eco-holism)
- encourage participants to focus on what they want to bring into being rather than on catastrophes to avoid (eco-social)
- prove what is possible by sharing example strategies and processes from similar projects that have gone before (eco-social)

The actual framework of the ReGen tool is based on the interaction of forces within the robust and resilient natural systems, high-performing constructed systems, prosperous economic systems and whole social systems. Within these systems are the next levels of the ReGen tool, the components of life itself. Contained within this level are 40 categories which initially include components such as “water, flora, fauna, energy systems, transportation systems, capital, employment, food, social justice, public health, etc.” (Svec 2012, p. 87). The concept behind the use of these components within the ReGen system is that a project team can input basic information about the location and scale of a project and the system will then populate each component with information relevant to the project type and location. The information is provided by performance feedback and networking efforts within the system that essentially “learn” from all other projects in the immediate area.

The ReGen tool represents a new way of embracing recent developments in networking and information sharing, energy production, social outreach, efficient building technology, health standards, ecologic function, market research, and systems thinking. It stems from a holistic view of the role of building as part of a culture,

ecosystem, society, and network. More than ten years ago, Simon Guy and Graham Farmer posited that there existed six distinct logics of sustainability, the eco-technic, eco-centric, eco-aesthetic, eco-cultural, eco-medical and eco-social. The past decade has seen the proliferation of green building projects around the world as rating systems such as LEED grew to find great success in the market. While elements of Guy and Foster's logics remain, I can say with confidence that the conversation about sustainability has changed. New logics have arisen out of the symposium; eco-political and eco-holism, representing on one hand the political pragmatism that will be necessary to affect change and on the other hand a theoretical embrace of complexity within building systems and communities. No longer concerned with "doing less bad" we are now conceptualizing the built environment as a productive space. While our specific individual ideas of sustainability may be able to be placed into categories as Guy and Farmer attempted, what we have done over the last decade and with the Beyond LEED symposium is open the conversation about sustainability beyond the designers, architects, and engineers. We have included community advocates and medical professionals in the dialogue and we; the designers, have seen that it is not simply an issue of finding technical solutions to the problem (eco-technic), but that sustainability is found in adaptation, flexibility, healthy interactions, open dialogue, the preservation of diversity, and yes, also through new technological innovation and discovery.

In this report I have attempted to define the frames of sustainability that are at play in discussions like the one that occurred at the Beyond LEED symposium. I applied those frames in my analysis on the individual panelist white papers submitted prior to the

	<i>eco-technic</i>	<i>eco-centric</i>	<i>eco-aesthetic</i>	<i>eco-cultural</i>	<i>eco-medical</i>	<i>eco-social</i>	<i>other</i>
Bob Berkebile	●			●	●		
Bill Browning	●	●					
Raymond Cole		●		●		●	
Reid Ewing	●			●			
Holley Henderson	●				●	●	
David Heymann			●				
Scot Horst	●			●	●	●	
Werner Lang	●						
Suzanna Wight Kelley		●	●			●	
Claudia Miller					●		
Leslie Moody	●						● <i>eco-political</i>
Danielle Pieranunzi				●		●	
Gail Vittori	●					●	

Figure 13: Matrix of logics employed in White Papers

symposium and found that most of the panelist utilized multiple frameworks in their analysis of the state of sustainable building practice. I have attempted to remain objective in my analysis through the use of these multiple frameworks in my review of the white papers, discussion, and post-

symposium content analysis. I have come back to Guy and Farmer’s multiple definitions of what “sustainability” is in each section of my analysis. Again, in an effort to maximize objectivity, a formal content analysis was performed as a form of inter-subjective reasoning with the aid of several of my colleagues who may not have shared my initial perspective.

	eco-technic	eco-centric	eco-aesthetic	eco-cultural	eco-medical	eco-social	other
What LEED Has Done	●						
Expanded Dialogue/Collaboration						●	
Performance Outcomes	●	●			●		
The Site in Context			●				
Ecologic/Ecosystem Services	●		●				
Systems Design/System Thinking	●				●	●	<i>eco-holism</i>
Inhabitation and Human Behavior/Experience	●	●		●	●		
Support Tools	●	●	●	●	●	●	

Figure 14: Matrix of logics employed in Content Analysis

	eco-technic	eco-centric	eco-aesthetic	eco-cultural	eco-medical	eco-social	other
Revamp LEED	●						
Performance Feedback Loops	●						
Expand Dialogue						●	
Education						●	
Health				●			
ReGen	●	●	●	●	●		
Dynamic Systems	●		●		●		
Local-Global			●				
Neighborhood			●				
Policy						●	<i>eco-political</i>
Food			●				
Infrastructure	●						
Love					●	●	<i>eco-holism</i>
Professional Development					●		
Research	●						
Training					●		
Transit	●						

Figure 15: Matrix of logics employed by respondents

		<i>eco-technic</i>	<i>eco-centric</i>	<i>eco-aesthetic</i>	<i>eco-cultural</i>	<i>eco-medical</i>	<i>eco-social</i>	<i>eco-political</i>	<i>eco-holism</i>
ReGen	●		●	●	●	●		●	

Figure 16: Matrix of logics employed by ReGen Tool

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