

How Aesthetics and Success to Sustainable Architectural Design Rely on Landscape Systems

by Marielle Samayoa

Sustainable architecture is undeniably a controversial topic in present day. “Green building”, as commonly referred, has become a noticeable trend that clients and architects immediately aim for; whether it’s for the sake of helping the environment or reducing the client’s cost, to even aiding the architect’s reputation. New questions have arisen since sustainable architecture has become more attainable and desired. To what extent is anything really sustainable (unless its impact on the environment is net zero) and how are people defining this term as new types of green building emerge? The simplest and universal definition to sustainable architecture deals with “the creation of buildings for which only renewable resources are consumed throughout the process of design, construction and operation; including the manufacture and transportation of materials, components and construction equipment.”^[i] Nevertheless many architectural critics argue that the latter is not entirely true since it is missing a very important factor: aesthetics. One of these critics, Lance Hosey, former director of William McDonough + Partners and current chief of sustainability for RTKL, wrote two different articles, six years apart from each other, each with completely different points of view on aesthetic and sustainable architecture. In 2007, his article “*The Good, The Bad...*” published in Architect Magazine clearly states his concern for sustainable design not being beautiful and if “it’s not beautiful, it’s not sustainable.”^[ii] He doubts its applicability as he argues that the “accepted standards of sustainable design focus on the science of building and neglect the art of architecture.”^[iii] The LEED (Leadership in Energy and Environmental design) set general design standards to create sustainable buildings, nonetheless, there is no clear norm that deals with the handsomeness of buildings. In 2013 Lance Hosey’s earlier strong opinion is entirely dismissed in an article he published in the world-renowned online architectural database, ArchDaily. The title clearly hints his altered train of thought: “*Why Architects Must Lead On Sustainable Design*”. In this piece, Hosey challenges sustainability leader Hunter Lovins, who once said that the “building industry is dynamically conservative – it works hard to stay in the same place” and instead, urges the American Institute of Architects (AIA) to take full measure on moving forward and implementing new sustainable habits in the educational and professional fields. ^[iv] Surprisingly, he doesn’t reiterate on his former opinion on aesthetical approach and its importance on sustainability. Instead, Hosey argues that design awards and media attention “celebrate imagery over [sustainable] innovation” and insists on six new drastic steps that magazines, competitions and school programs must adopt to transform the profession into a fully sustainable one. ^[v] The reason behind Lance Hosey’s radical change of mind in this heated topic can be a debatable one, yet at this point, irrelevant. As an architecture student, I am too interested in the topic and I argue that there is a balance in Hosey’s opposing arguments on “Green Design” and its architectural approach: aesthetics in sustainable architecture can be obtained and should be implemented through the use of self-sustainable landscape architecture rather than relying solely on green gadgets and additive sustainable devices.

As Hosey claims sustainability to be a mainstream subject, several other professionals in the field have too their own opinions and research on the topic; as it becomes more typical, it also becomes more controversial. The way present day architects address sustainable design varies

on each firm's philosophy and the results are inevitably succumbed into a stream of critics and reviews. Geoff Manaugh, senior editor of Dwell Magazine, published an online article, "*Architectural Sustainability*", in his acclaimed architectural blog named "BLDG", about his school of thought on the matter:

Unless a "green" building actively remediates its local environment- for instance, scrubbing toxins from the air or absorbing carbon dioxide- that building is not "good" for the environment. It's simply *not as bad as* it could have been.[\[vi\]](#)

I personally agree with this statement but add that by integrating architecture with self-sustainable landscape systems that can remediate the local environment (for which the building is failing to do) can actually take effect. Trees, for instance, are commonly known to absorb carbon dioxide through photosynthesis, which as Manaugh explains, buildings are not capable of. He uses as an example the Castle House Tower by Hamiltons Architects (Figure 1) to demonstrate that the flashy sustainable measures, which are being taken by contemporary architects, are not the most appropriate ones to remediate the damage they are causing. Manaugh, unlike Hosey's current point of view, argues that modern day architects master the "art of ornamentalizing sustainability" by, for instance, adding wind turbines on the roof of a skyscraper like the Castle House Tower.[\[vii\]](#) As a result, the turbines and other flashy gizmos are what get the media attention but in reality, they are a drain to the original sustainable intentions; the structure of the building needs to be heavier to hold the turbines hence the amount of steel needed is greater, therefore the budget is high-priced, and the high risk that the blades could potentially fly off, and so on. Manaugh argues that "Wind, turbines, solar panels and other hi-tech green devices might get the media attention, but the smartest way to save energy may be to live in a Tudor house"; or simply by making "design decisions...in the process of constructing a building that will help lessen that buildings environmental impact", such as reducing the structure's embodied construction energy or cutting out track lighting and climate control on lobbies.[\[viii\]](#) I debate that these sustainable devices are most definitely helpful in soothing a certain amount of environmental damage but that the smartest way of saving energy while simultaneously aiding the ambient is by conjoining architecture and landscape in a cognitive and aesthetical manner.

Natural systems have the ability to interconnect urban fabric while they ameliorate the air, filtrate water, fertilize soils, control natural ventilation and light sources, and provide for recreational and interesting spaces. The ecosystem is a complex structure and it must be studied for each specific proposed site before it becomes implemented with the appointed architectural design. I personally find fascination in the latter; despite each site varying in location, orientation, climate, occupancy, etc., ecological systems can easily adapt and help create unique identities and aesthetical appeal to the buildings or architectural projects proposed for the site.

Lloyd Alter, an architect, developer, inventor and prefab promoter, in his article titled "*Why is So Much Green Architecture So Ugly?*" agrees with Manaugh as he states that "The field of architecture is experiencing a design crisis...-as if design itself were an obnoxious carbon-emitter" and that architects are adjusting strictly to banal LEED guideless to produce a design that "looks as though the developers simply forgot to design the place", as is the case with the Olympic Village project in Vancouver.[\[ix\]](#) (Figure 2) Alter, however, recognizes one building

that managed to surpass the “awkward stage” of green architecture and is proof that a settled career and several years of design experience are no obstacles to achieving aesthetical sustainable design.[\[x\]](#) According to him, it is Renzo Piano, an Italian starchitect of the Twenty First Century, who has addressed these issues and successfully solved them (at least recently) in a sustainable-aesthetical manner as seen in his highly acclaimed building for the California Academy for Sciences in San Francisco (Figure 3). This project is a great example of landscape systems integrated with architectural design to attain sustainable performance, aesthetics and value. The building contains “green gadgets” such as solar panels, radiant floors, louvre-fenestration systems to ventilate, just to name a few; but what I believe is one of its best attributes is the green rooftop canopy that effortlessly works to provide the best self-sustainable results to the building’s impact. The soil on the roof landscape acts as natural insulation to the interior spaces and retains approximately 3.6 million gallons of rainwater from running off and flooding nearby areas.[\[xi\]](#) The green slopes act as a natural ventilation flow for the plaza, while the skylights work as light sources and main components to heating and cooling the interior spaces. It is without a doubt an impeccable example of how a simple roof with native plants can aid the building’s interior functions. The architect strived to create a beautiful and unique energy efficient structure that is well-recognized by the Academy itself:

Renzo Piano’s masterstroke of design lies in making the park’s environment such a visible part of the building itself. The rooftop’s seven undulating green hillocks pay homage to the iconic topography of San Francisco and blur the boundary between building and parkland.[\[xii\]](#)

The building complies with the highest rating to LEED standards, and therefore serves as evidence against Hosey’s argument (2007 article) in which he states that form, space, and image cannot be obtained when adopting a “rating system as the only benchmark for judging the quality of a building.”[\[xiii\]](#) I, however, insist that even though the building followed a set of guidelines to be sustainable, it promotes innovation due to its integration with landscape systems. It could safely be said that despite the museum’s amazing interior spaces (Figure 4), many would agree that what has become the building’s most iconic “green” feature derives from the exterior condition, in which the roof’s green systems evidently conform part of the architectural design and create a handsome sustainably-efficient building.

Unlike Lloyd Alter and his search for specific cases in which sustainable architecture has proven to succeed, Michael Mehaffy and Nikos Salingaros, both planners and builders, focused on several other cases in which it has failed. Their article, “*Why Green Often Isn’t*”, demonstrates how green buildings at post-occupancy tests have proven to be less or even worse sustainable than what their design concept and proposal had claimed.[\[xiv\]](#) The typical approach to “widespread use of expansive curtain-wall glass assemblies and large, ‘deep-plan’ designs that put most usable space far from exterior walls, [forced] greater reliance on artificial light and ventilation systems” rather than help the buildings’ overall performance.[\[xv\]](#) I admit to concur with Mehaffy and Salingaros when they say that the problem with sustainable architecture is that it doesn’t question the building type and therefore “green” components are “bolted-on” the design without any consideration of its actual effects.[\[xvi\]](#) They introduce an interesting phenomenon occurring with green design known as “Jevons’ Paradox”, in which increasing efficiency may lower cost but increases demand as the rate of consumption is higher, resulting in the wiping out of the initial savings.[\[xvii\]](#) As a result, there is no gain from the sustainable

elements that were ever considered as part of the architectural design. Again, I propose that by integrating landscape systems, the rate of consumption can be handled by natural plants and natural earth activity. For instance, the simple addition to turf grass near buildings' entries, rooftops, interior gardens, etc. can reduce carbon footprint. A recent North Carolina State University study has diagnosed the potential that turf grass has to sequester as much as one quart of carbon as an average sized tree does. [\[xviii\]](#) Integrating green components to architecture addresses Hosey's concern for an architect's lack of spirit in image, space and form: adding green natural elements to architecture enhances user spaces, provides for recreational value and is inevitably easier on the eye. Other natural landscape tactics such as careful tree placement near sustainable ventilation systems can help control windbreaks and provide the building with natural shadow. The integration of strategic landscaping techniques with architecture makes aesthetical sustainability to be a solvable issue that deals with Mehaffy's and Salingaro's urge to look into the "concept of energy more broadly, including embodied energy and other factors" to understand how ecosystems can work with architecture. [\[xix\]](#)

Further examples that contain landscape and architectural systems that deal aesthetically with sustainable design are the Tianjin Qiaoyuan Park in Tianjin, China and the High Line Park in New York City. Tianjin Qiaoyuan Wetland Park (Figure 5) by Turenscape is an incredible project that deals with resilient architecture and remediating former damaged land into a self-sustaining landscape park. Its design is composed of a series of "Adaptation Palettes" containing native plant species and accumulating urban storm water acting in their natural behaviors. Twenty-one pond cavities were dug into a range of 10-40 meters in diameter and 1-5 meters in depth to accumulate storm water and purify it into wetlands. [\[xx\]](#) Additionally, the water helps control the saline-alkali soil from the area while the former garbage was pushed in mounds below ground or in a few instances, left above ground, depending on the pond that sits on top and its pH level. [\[xxi\]](#) The park sits between a major transited road and a new addition of architectural projects that take advantage of these landscape systems. No green devices and complicated sustainable gizmos are used in this project, and the results have been outstanding: the soil has been remediated from its wasteful-past, water is filtrated through the wetlands and bio-swales to be reused as irrigation systems, and its aesthetical appeal relieves Tianjin's neighboring busy skyline. (Figure 6) Similarly, the High Line Park in New York City (Figure 7) by Field Operations, deals with remediating an old abandoned railway site. The High Line has proven to be a successful sustainable ecological facility that has ameliorated its neighboring modern architectural housing projections by "reducing heat island effect, improving storm water management, enhancing local air quality, and increasing physical and psychological comfort." [\[xxii\]](#) Its elevated parkways provide for a secluded yet integrated recreational space for the users within one of the world's busiest cities. As Manaugh stated, these parks "swing away from energy efficiency and toward biological [ecological] sustainability and quality of life", which at the end are what make sustainability beautiful and most importantly, successful. [\[xxiii\]](#)

In conclusion, sustainability in architectural design will be an ongoing controversial topic until architects and users manage to find a balance between the systems' uses and architectural intent. Luckily, many architects feel an urge to address these issues even though their green building design, as Alter would say, is not there yet "but its getting close." [\[xxiv\]](#) It is evident that the casual link between aesthetics and sustainability needs to be solidified and the best way to do so is by integrating landscape systems to architectural design. The question now relies on the

different ways that architects can approach ecology and architecture as technology continues to evolve and dominate activity and human interaction with spaces. Urban self-sustainable parks, as seen in Tianjin, are a great solution to ameliorating crowded urban space and architectural waste, while providing character and beauty to its surroundings. Rehabilitating the environment to aid architectural function is definitely starting to blur the boundaries between landscape and architecture; but I urge architectural designers to truly study each specific scenario in which ecology and its natural systems can perfectly conform part of their own system's design, and help not only its functions but also the surrounding area in which it stands and what many humans call home. An anonymous commenter in Manaugh's online blog BLDG agrees with my argument, and expresses it just as I would too say: "I picture a city, or a building, interacting with the ecosystems to the degree that an artificial heart engages its natural host body. The things we build should tap into the environment."

FIGURES

Figure 1



<http://assets.inhabitat.com/wp-content/blogs.dir/1/files/castle2.jpg>

Figure 2



<http://www.treehugger.com/sustainable-product-design/why-is-so-much-green-architecture-so-ugly.html>

Figure 3



<http://www.jaunted.com/story/2008/6/26/115829/587/travel/Green+Travel%3A+Newer,+Earthier+California+Academy+of+Sciences>

Figure 4



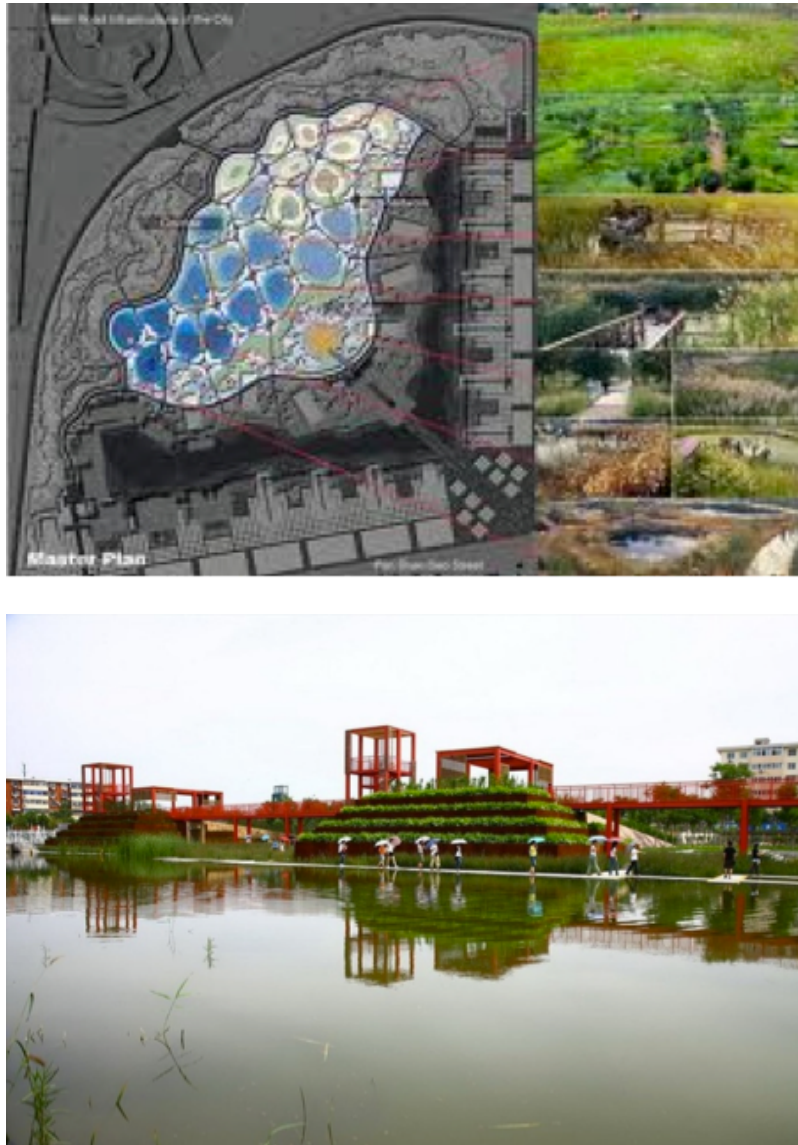
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Figure 5



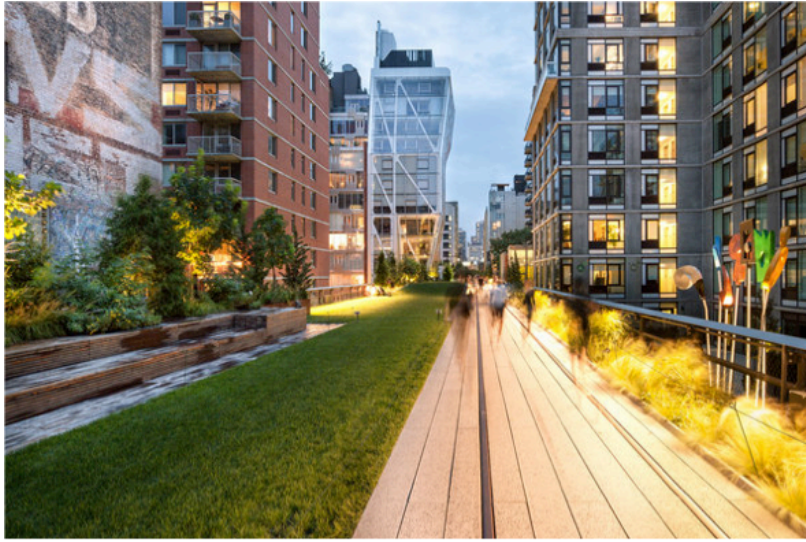
www.europaconcorsi.com

Figure 6



www.turenscape.com

Figure 7



http://www.nytimes.com/2012/08/02/garden/close-quarters-on-the-high-line.html?_r=0

ENDNOTES

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[xv] Ibid

[xvi] Ibid

[xvii] Ibid

[xviii] Saito, Allison. "Turfgrass can reduce carbon footprint." *Lawn&Landscape*, November, 2010. Accessed March, 2014. <http://www.lawnandlandscape.com/ll-111810-Turfgrass-reduce-carbon.aspx>.

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