

# Sense of Place: A Biophilic Tapestry

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The concepts of Biophilia—love of life, living systems and Biophilic Design—connecting people to nature through the design process are growing as they are now part of several major building certification programs intending to promote human health and wellbeing. Although Biophilic Design is a relatively new archetype that is identifying and organizing a framework for system-thinking, our ancestors designed and lived symbiotically with nature for thousands of years before the domination of global industrialization and modern technologies.

We, as a species, were a hunting and gathering culture enmeshed with nature for 99.8% of our evolution and retain sensitivities and biases to our communal and physical surroundings based on our bio-centric roots. Incorporating nature and natural systems & processes back into the built environment and our lives is the key to shifting how we design our world to be more balanced and

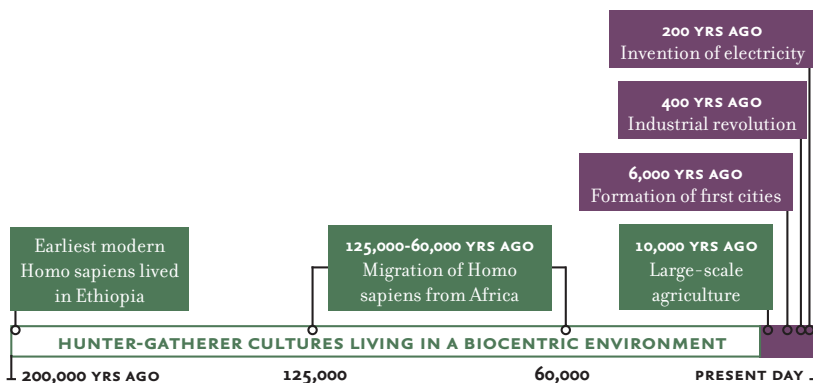
resilient. Fortunately, we have the creativity and technology to design and build a more mindful and harmonious ecology for both people and planet.

Biophilic Design is often understood as adding vegetation to the built environment via green roofs, walls and landscapes including bio-swales, rain gardens, parks and the restoration of degraded natural habitats. These biophilic constructs and efforts are vital to improving the health of our cities and the world. However, Biophilic Design encompasses much more—it is an intricate, colorful tapestry of symbiotic and synergistic connections between and within humanity and nature.

*“There is one timeless way of building. It is thousands of years old, and the same today as it has always been. The great traditional buildings of the past, the villages and tents and temples in which man feels at home, have always been made by people who are very close to the center of this way. And as you will see, this way will lead anyone who looks for it to buildings which are themselves as ancient in their form as the trees and hills, and as our faces are,”* – Christopher Alexander in *The Timeless Way of Building* 1979.

While biophilia and biocentric design are ancient, the Biophilic Design Framework pioneered by Dr. Stephen Kellert is relatively new and is intended to help designers, engineers, planners and developers put biophilia and ecology back into the driver’s seat of the design process, while coaxing technology into the back seat.

“The Practice of Biophilic Design” by Stephen Kellert (1943-2016) and Elizabeth Calabrese introduces a Biophilic Design Framework that



offers guidance for creating a new Biophilic Design Ecology. The Biophilic Principles that outline the overarching intent of biophilic design can be incorporated into any and all scales of design.

Let us consider the largest scale of all—global systems and processes. According to Walter Jehne of Healthy Soils Australia, to restore world health we must restore the Earth’s natural hydrological processes and regenerate the Earth’s soil carbon sponge. Re-balancing these primary systems is the practical way to drawdown “20 billion tonnes of carbon back into soils annually, to rehydrate bio-systems and safely cool climates.”

Regionally, how can we design with nature and natural systems & processes in mind to support this goal?

Restoring and promoting soil health is key. Didi Pershouse and the USDA-NRCS Soil Health Division offer strategies for fostering healthier soils: <http://soilcarboncoalition.org/learn>

- Keep living roots in the ground as long as possible
- Try not to disturb those underground structure with tillage.
- Use plant diversity to increase diversity in soil microorganisms, beneficial insects, and other species.
- Plan, monitor, and adapt your management with the whole water cycle in mind.
- Find ways to integrate and welcome a diversity of animals, birds, and insects into the system.
- Get to know the context of the land.

The hydrological and soil bio-systems act as the warp for weaving a healthier and more balanced global tapestry, they are the primary threads on the loom—a constant at all scales of design. Most other natural and human constructed systems are part of the weft, the secondary threads that weave across the warp including but not limited to food production, transportation, health,

economics, social & natural ecologies, education, waste and nutrient cycles. Biophilic design is about weaving these systems together mindfully to support both human and planetary wellbeing.

Now, what about Biophilic Design on a city scale? Keep in mind the above Principles of Biophilic Design. What are ways to connect people to nature, promote human health, fitness and wellbeing, encourage an emotional connection to place, and promote positive interactions between people & natural communities by utilizing ecologically connected, mutually reinforced and integrated design solutions?

One example is increasing the holistic integration of blue and green infrastructure—the warp—to support a weft with benefits fostering physical activity, mental health, food security, sense of place, abundant bio-diversity, social equity and resilience. Having such spaces and systems be pedagogical, that is, teaching by example about ecology and bio-system health is yet another rich element in the tapestry. Training those in need with skills for maintaining and creating these living infrastructures is yet another opportunity, because it promotes health, education and economics.

High rise towers can also become part of the biophilic tapestry if they respond to the climate and ecology like trees in a forest; filter water, make energy, breathe passively, purify air and promote human health and wellbeing for occupants and the surrounding communities. Each building big or small can be a utility of sorts, like a group of plantings in a meadow or forest. Using technology to support and strengthen the balance and health of natural systems & processes and social & natural ecologies is the key to designing a better world.

Principles of Biophilic Design are further supported by experiences and attributes of biophilic design that act as strategies and are yet another layer of color and texture in the biophilic tapestry.

The framework includes three experiences of nature; **1. Direct**, **2. Indirect** and **3. Space and Place**. The **Experiences of Biophilic Design** each possess specific attributes that are listed below then they are incorporated into the vignette story weaving a vibrant and soulful tapestry of **genus loci** or **sense of place**.

- **Direct Experience of Nature** is based on elements we need for survival and includes: natural daylight; fresh air; clean water; wild and domestic animals; plants; indigenous flora, fauna, natural landscapes, and ecosystems. weather; fire and hearth.

Each place on earth has a unique blend of local ecology, culture, and climate along with its particular geology and geography. These elements are intended to influence significantly the programming and design processes resulting in positive and practical biophilic design solutions. For example, rainwater and storm water can be integrated into systems that celebrate rain as it falls onto green roofs or cascades off of buildings into strategically placed rain gardens. The green roofs and rain gardens support indigenous flora and fauna. Vibrant colors, scents, and sounds of dynamic nature fill the air with its ever-changing self-organizing cacophony.

Children ride their bikes along the paths flanking the ribbons of rain gardens while others are searching for frogs and newts in the small ponds alongside tufts of indigenous wetland plants. Rainwater is harvested and used to irrigate the flowers and grasses in planters that attract pollinators, hummingbirds, and little creatures. Trellises covered in vines provide shade for building facades, windows and people while providing habits for insects and local and migrating birds. The tree canopies lining the streets and paths are like a green loosely woven afghan catching the summer breezes with their leaves, transpiring moisture into the air, while shading and cooling the streets below.

The alluring and soothing sounds of water are coming from an adjoining plaza where people are drawn to gather around a glorious fountain. Swinging benches and flower gardens encircle the

square. Many buildings look out over the fountain, their balconies and roof terraces interconnect physically and socially with the sights, sounds, and activities below. People pause to watch the sun setting over the western foothills, then gaze at the stars and warm their souls bonding around food, hearth, and fire as humanity has done for over half of a million years.

- **Indirect Experience of Nature** is nature and nature-inspired elements in an altered state and includes: cultural, ecological or meaningful images of nature; local and natural materials; natural colors; simulation of natural light and air; naturalistic shapes and forms; evoking nature; information richness; age, change and patina of time; natural geometries; and biomimicry.

Local artists built the fountain from the artifacts and materials including copper and salvaged stone collected from what had been a school the town's founder built over 200 years ago that was recently ravaged by fire. The fountain is both a celebration and a memorial to the town's rich history and reminds the community of their ability to come together to create something meaningful from ruins. Flags flutter overhead adorned with the school and town's historic colors and crest. Restaurants, pensions, apartments, shops and offices surround the plaza and their facades are a collection of local species of woods, brick and stone, capped with slate and copper cornices. These natural materials glow with a unique patina of time.

Modern pillars support an outdoor concert pavilion, reminiscent of old growth trees, broad and grounding at the base, adorned with mosaic tiles topped with bountiful sculptural capitals reaching over the stage like a majestic tree canopy. The surrounding colors and patterns are familiar and comprised of both neutral and rich earth tones with vibrant accent colors popping out of the palate as if they were ripe fruit and berries and rich flora and fauna. Ceiling fans keep the humid air moving with a gentle lull and the candle lights flicker and dance as the music plays softly into the night.

- **Experience of Space and Place** addresses our evolutionary response to the proportions and order

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Biophilia, if it exists, and I believe it exists, is the innately emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of ultimate human nature,”  
 –Wilson in the Biophilia Hypothesis (Kellert & Wilson 1993).



PRINCIPLES OF BIOPHILIC DESIGN  
(KELLERT & CALABRESE 2015)



Biophilic design fosters a repeated and sustained engagement with nature.



Biophilic design encourages ecologically connected and mutually reinforced and integrated design solutions.



Biophilic design encourages an emotional attachment to particular settings and places.



Biophilic design encourages positive interactions between people and nature that encourage an expanded sense of responsibility and stewardship for the human and nature communities.



Biophilic design focuses on human adaptations to the natural world that over evolutionary time have advanced people's health, fitness and wellbeing.

of space around us. Attributes include: prospect and refuge, organized complexity, integration of parts to wholes, transition spaces, mobility and wayfinding, and cultural and ecological attachment to place.

Some people are enjoying the festivities from balconies perched above the plaza. They lean their chairs back against a wall with their feet up on the railing, humming along with the music, spectating while feeling protected and at ease. The restaurants and cafes have opened their facades, doors, and windows onto the plaza; guests eat, drink and visit sitting in transition spaces where the protection offered by the inside merges with the outside, such as porches, colonnades and vine-covered pavilions. The flags and twinkle lights create an implied ceiling that evokes a sense of protection and intimacy. The diverse materials, colors, and patterns throughout the plaza and on the buildings are varied yet cohesive because of their order and complexity. A bell tower on the north side of the plaza makes finding this focal point more easily when wandering through town or down from the foothills. Even when the tower is not visible, the chiming of the bells lets its location be known. The spaces coalesce as a synchronistic whole with a timeless nature-like quality.

Since the town prioritized improving human and environmental health and wellbeing by integrating their blue and green infrastructures with buildings, neighborhoods, plazas, parks and a town-wide network of pathways along the storm water system, community members have been increasingly walking, bike riding and socializing. Instead of sitting in traffic, people are shifting their social and transportation patterns because these new spaces bring joy and ease to their lives.

Community members in need are being trained to manage the living infrastructures and are learning life skills that support both personal and ecological resiliency. Young adults are enthusiastic because urban farming and permaculture have become part of their science and math programs and they are getting more physical activity while learning complex system thinking and creative problem solving. Neighborhoods that were once food deserts now have appropriate infrastructure and support for community gardens, farm stands, and food co-operatives. The arts are flourishing because the town's shift in priorities also support the importance of quality of life, creativity and joy.

Pocket parks in dense neighborhoods are being created where neglected and dilapidated structures were torn down, and park terraces and pavilions are being built from salvaged materials by students learning local trades and crafts. Life satisfaction is on the rise, and the economy is strengthening as community members feel more grounded, included, empowered and resilient.

Like a tapestry, the myriad of biophilic design solutions can be simple or complex, affordable or expensive, woven, layered, and combined to create spaces and places that are rich, soulful and "timeless." We can indeed make wellbeing our design intent by allowing biophilia and ecology to drive the design process by weaving together nature's brilliance and our evolutionary biases to create and restore healthy habitats where both people and the planet can flourish and thrive. 