

BIOPHILIC DESIGN: SNEAKING INTO THE STANDARDS



(<https://stok.com/wp-content/uploads/2019/05/biophilic-design-sneaking-standards.png>) “When nature inspires our architecture—not just how it looks but how buildings and communities actually function—we will have made great strides as a society.” –Rick Fedrizzi, International WELL Building Institute Chairman & CEO, U.S. Green Building Council Founding Chair

High performance building standards continue to move beyond guiding buildings to be “less bad” and more toward including restoration and regeneration in their frameworks. The incorporation of biophilic design in the standards is a central part of this shift. Biophilic design provides an open-ended multitude of possibilities that have positive effects on our health and well-being—inspired by evolutionary science and backed by many pivotal studies, which we discuss in more depth in our **previous post** (<https://stok.com/more-than-green-wall-science-behind-biophilic-design/>). In addition to being beneficial to our minds and bodies, biophilic design can also serve as a reminder that despite our man-made surroundings, we are innately connected to nature and must not forget our human responsibility to respect and live in harmonious balance with her.

Excitingly, biophilic design is now found in the rating systems of all three of the most recognized high performance building standards nationally: Living Building Challenge (LBC), WELL, and LEED. The way in which biophilic design shows up varies, but all promote the incorporation of biophilic principles based on the body of research that has been done to date on the subject.

Remember that even if your project is not pursuing any of these existing standards, they are still an excellent starting place to understand how to go about applying biophilic design in your project.

LIVING BUILDING CHALLENGE

The ILFI’s Living Building Challenge (LBC) is the strictest green building rating system in the world. It is a philosophy, an advocacy tool, and a building standard all in one, aiming to actively shift the industry and provide solutions to pressing social and environmental needs—all elegantly and with an intent on education and inspiration. Its organization is inspired by the principles of a flower (meeting its energy and water needs while rooted in one place; offering beauty; not made of harmful substances; and benefitting the ecosystem it’s a part of), and the result is a regenerative building. Compared to the other rating systems, LBC is the most robust in how biophilic design elements are required to be incorporated.

LBC is categorized into seven performance areas called Petals. Each Petal is made up of several Imperatives; all Imperatives are required to be met in order to achieve the full LBC certification. Biophilic Environment is one of the Imperatives in the Health and Happiness Petal, which is aimed at creating optimal conditions for health and productivity and enhancing human potential.

Specifically, **Biophilic Environment** (<https://living-future.org/lbc/health-happiness-petal/#09-biophilic-environment>) requires that the project team engage in a minimum one-day workshop that dives into all aspects of biophilic design as it relates to the project. The workshop must result in a Biophilic Framework and Biophilic Plan which will serve to ensure biophilic design is incorporated throughout all phases of the project. The Framework and Plan must lay out how the project will:

1. Incorporate nature through Environmental Features, Light and Space, and Natural Shapes and Forms;
2. Incorporate nature's patterns through Natural Patterns and Processes and Evolved Human-Nature relationships;
3. Connect to place, climate, and culture through Place-Based Relationships; and
4. Provide frequent human-nature interactions to connect the majority of occupants with nature directly.

The benefits of this holistic approach to incorporating biophilic design can be seen in ILFI's **Biophilic Design Case Studies** (<https://living-future.org/biophilic-design-case-studies/>) as well as in Amanda Sturgeon's book on **Creating Biophilic Buildings** (<https://living-future.org/product/creating-biophilic-buildings/>). The ILFI is continuing to develop tools and resources for helping projects effectively and meaningfully incorporate biophilic design into their projects. The following two resources are available for free to assist project teams in doing this:

1. **The Biophilic Design Guidebook** (https://living-future.org/wp-content/uploads/2018/06/18-0605_Biophilic-Design-Guidebook.pdf) includes an overview of biophilic design along with descriptions, outlines, and tips for how to incorporate biophilic elements.
2. **The Biophilic Design Initiative** (<https://living-future.org/biophilic-design/>) is a multi-faceted resource aimed at heightening awareness about biophilic design and sharing practices for how to actually achieve successful biophilic design on projects. It is a community of industry professionals and project practitioners.

Developing narratives early in the conception of a project is highly encouraged, as articulated plans lead to a higher likelihood that biophilic strategies will be meaningfully integrated into a project's design and help ensure they will not get value engineered out of the project.

The structure for LBC's Biophilic Environment was derived from Kellert, Heerwagen, and Mador's book, **Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life** (<https://www.wiley.com/en-us/Biophilic+Design%3A+The+Theory%2C+Science+and+Practice+of+Bringing+p-9780470163344>).

WELL BUILDING STANDARD (V1, V2)

The International WELL Building Institute's WELL Building Standard is the first building framework to focus entirely on human health and wellness, so it makes sense that biophilic design is a required aspect of WELL buildings. The WELL Features related to biophilic design are found in the Mind Concept.

WELL v1

WELL v1 includes two obvious Features related to biophilia: "89: Biophilia I – Qualitative" and "100: Biophilia II – Quantitative."

Feature 89, Qualitative (<https://standard.wellcertified.com/mind/biophilia-i-qualitative>), is required for all project types except Core & Shell projects. It requires the following, which are taken directly from the LBC's Biophilic Environment:

1. Nature Incorporation, which includes environmental elements, lighting, and space elements;
2. Pattern Incorporation that demonstrates how nature's patterns are shown throughout the design of the project; and
3. Nature Interaction within both the building and the project boundary external to the building.

The **Quantitative Feature** (<https://standard.wellcertified.com/mind/biophilia-ii-quantitative>) is optional for all project types and is prescriptive in its approach, requiring all three of the following:

1. Outdoor Biophilia: at least 25% of the project site must feature accessible landscape grounds or rooftop gardens and 70% of planting should include tree canopies.
2. Indoor Biophilia: at least 1% of floor area must be covered by potted plants or beds per floor, plus one living wall should be included per floor that covers a wall area that's at least 2% of the floor area.
3. Water Feature: at least one water feature should be included for every 100,000 square feet in projects larger than 100,000 square feet.

WELL v2

The Features above are not found in **v2** (<https://stok.com/well-v1-well-v2-key-considerations-for-your-projects-wellness-framework/>), but biophilic design is still incorporated in a similar way via Features M02, M07, and M09 in the Mind Concept:

1. **M02: Access to Nature covers** (<https://v2.wellcertified.com/v/en/mind/feature/2>) WELL v1's Qualitative Feature as a precondition;
2. **M07: Restorative Spaces** (<https://v2.wellcertified.com/v/en/mind/feature/7>) builds on the idea of nature as a healer, requiring both indoor and outdoor spaces on projects to provide relief for occupants; and
3. **M09: Enhanced Access to Nature** (<https://v2.wellcertified.com/v/en/mind/feature/9>) incorporates WELL v1's Quantitative Feature while adding additional measurable metrics, including exterior nature views available within a direct line of sight of at least 75% of seats and at least one green or blue space within 1,000 feet from the project that's available to all regular building occupants.

While these are the most obvious biophilic design Features found within WELL, there are Features scattered throughout the standard that cover topics squarely within what biophilic design research encompasses, including circadian lighting, daylighting, views access, thermal comfort, and beauty and design. There are many areas of parallel between WELL and the foundational frameworks of biophilic design in the built environment: 14 Patterns of Biophilic Design and Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life.

LEED V4 (BD+C, ID+C)

Derived from Terrapin Bright Green's **14 Patterns of Biophilic Design** (<https://www.terrapinbrightgreen.com/report/14-patterns/>), the USGBC's LEED v4 has introduced biophilic design into this decades-old yet constantly evolving standard through a **pilot credit** (<https://www.usgbc.org/node/11656182?return=/pilotcredits/Commercial-Interiors/v4>) for both BD+C and ID+C projects.

To achieve it, a project team must engage in an exploration that results in a biophilic design plan that includes an outline of quantifiable metrics and reasoning for how thresholds were determined. The plan must minimally include 5 distinct

design strategies that address at least one of the criteria laid out in Terrapin's 14 Patterns of Biophilic Design:

1. Nature in the space;
2. Nature analogues;
3. Nature of the space;
4. Place-based relationships; or
5. Human-nature interactions.

IN CLOSING

When thinking about ways to incorporate biophilic design into your project, any of these three options are excellent places to start. Thinking and talking about biophilic design early, and utilizing some of the processes, tools, and resources shared here will help ensure that biophilic design isn't just an afterthought and doesn't get eliminated from your project.

Encourage your project team to discover how biophilic design priorities can align with, broaden, or even define the project's goals. Biophilic design has the potential to be a primary design driver and give deep meaning to a project—if you allow it to!

And remember, you don't have to be pursuing an entire rating system certification in order to follow the outlines here.

Stay tuned for more on how to integrate nature's genius into your design. In the meantime, **reach out (<mailto:hello@stok.com>)** to discuss this human-nature connection in more depth with one of our team members.