BASICS OF BIOPHILIC DESIGN

What is Biophilic Design?

Biophilic design is based on the biophilia hypothesis, also know as BET. This phrase was coined by author Edward O. Wilson in his 1984 book, *Biophilia*.

He defined biophilia as "the urge to affiliate with other forms of life". This can encompass many things, including humans and animals, but it generally refers to natural environments. Plants, trees, flowers, and the ocean all qualify!

Biophilic design is about incorporating nature into man-made environments, such as homes, businesses, and outdoor recreational spaces. Another facet involves creating comfortable, restorative places. When done well, it forges connections between people and their environments, which can result in feeling more grounded, present, and in the moment.

Nature is heavily integrated, but the core concept is about inspiring a mind-body-environment connection. This can generate a sense of oneness with the world and deep inner peace. It can also help people to feel more alive and invigorated, despite the stress of modern life.

Most people are surrounded by machines, electronics, and industrial elements every day. Biophilic design offers a respite that helps people feel more like, well, people! If you've ever felt like you were just a cog in a machine, going about daily life on autopilot, or addicted to technology, biophilic design is for you.
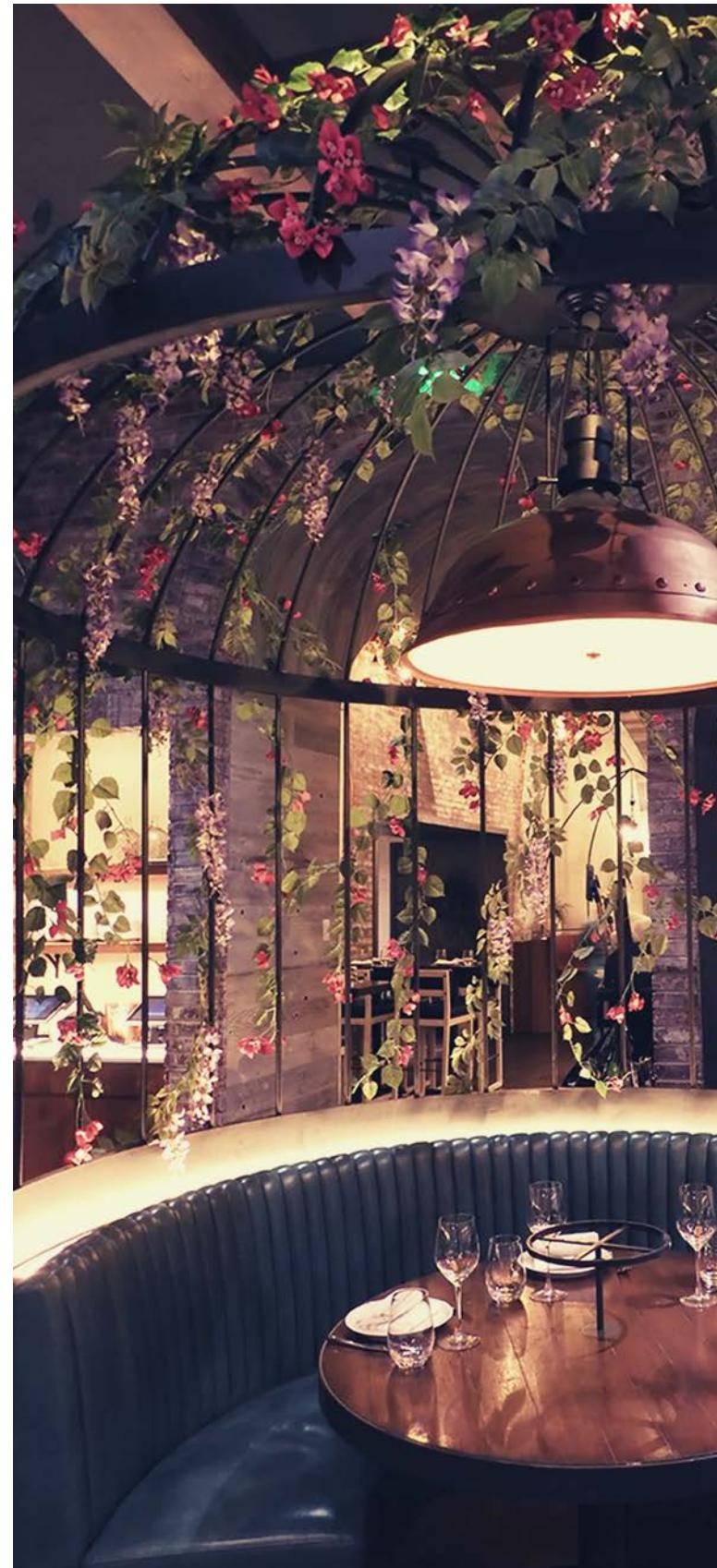
THREE DIMENSIONS OF BIOPHILIC DESIGN:

1. **Physical contact** with natural features

2. **Images and representations** of nature

3. The use of **spatial relationships**

Physical Contact: Direct Experience of Nature

- **Light:** Natural light is essential to most living things, and it has a dramatic impact on mood. Architecture can be designed to maximize exposure to natural light, or utilize shadows and reflections for ambiance.

    - *Examples*: Skylights, mirrors, sheer curtains, and atriums

- **Air:** People tend to prefer environments with fresh air flow. We experience temperature, smells, and humidity through the air; it has a big impact on mood.

    - *Examples*: Open-air amphitheaters, oscillating fans, and windows that open

- **Water:** You can create a multi-sensory environment using water. Sight, sound, scent, taste, and feel can all be experienced via water. Humans also have an innate connection to water, and tend to feel more relaxed and happy when it is utilized in design.

    - *Examples*: Water fountains, koi ponds, and pools

Water & Light: Dramatic fountains pair with replica topiaries and colorful lighting to create ambiance. (*Caesar's Palace Hotel and Casino - Las Vegas, Nevada*)

- **Plants:** This is an obvious - and very effective - way to connect to nature. Having greenery around can mean less stress, better air quality, and a truly comfortable environment. They also can be a conduit for experiencing scent, sight, and touch, which makes them another powerful sensory element.

    - *Examples*: Houseplants, green walls, and flower bouquets

- **Animals:** It can be a bit more challenging to incorporate animals into design, but people have found many ways to make it happen. Interaction with other species is known to have enormous beneficial effects.

    - *Examples*: Aquariums, butterfly gardens, and bird feeders

- **Weather:** This is usually visually observed via windows and outdoor spaces, but it can be recreated in innovative ways to bring the experience indoors.

    - *Examples*: Rain shower heads, air conditioning, and storm sound/white noise machines
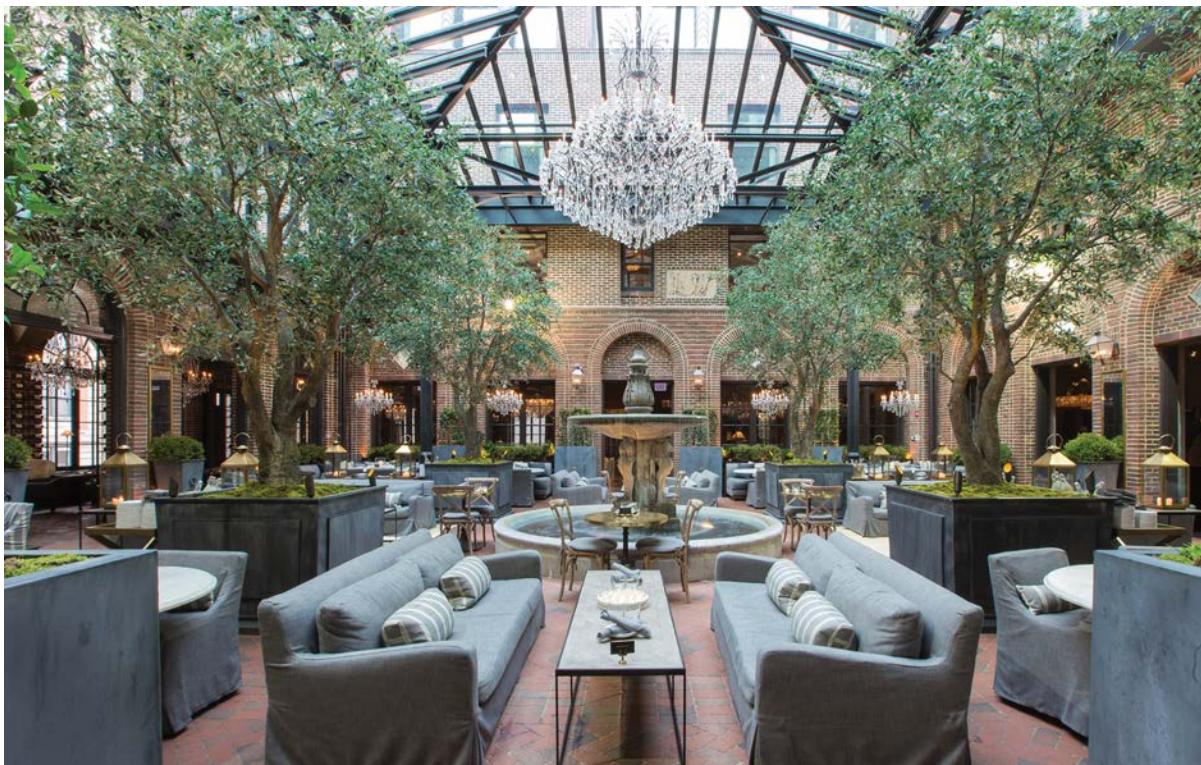
Weather & Natural Landscapes: Vaulted glass ceilings allow guests to dine in a refuge under sunshine or rainfall. They also present a perfect frame for seeing natural elements overhead. (*3 Arts Club at Restoration Hardware - Chicago, Illinois*)

- **Natural Landscapes:** These also tend to be visually observed, like an ocean view from a bedroom window, or a skylight that lets you see the stars at night. You can achieve this indoors or outdoors, though outdoors is more common.

    - *Examples*: Gardens, bay windows, and terrariums

- **Fire:** This is one of the more straightforward dimensions; the only complications can be safety concerns if proper precautions aren't put into place. This can also include representations of fire.

    - *Examples*: Fireplaces, outdoor fire pits, and candles

Fire: SUSHISAMBA restaurant features an iconic fabricated Oak Tree in their signature shade of orange. Vivid, colorful lights make this tree glow and evoke the warmth and hue of fire. (*SUSHISAMBA - London, England*)

Representations: Indirect Experience of Nature

- **Images of Nature:** Real interactions with nature have tremendous benefits, but you don't have to actually *be* in nature to experience them. Research has found that just looking at images of nature can have the same calming, soothing effects.

  - *Examples*: Photos, videos, paintings, sculptures, and other artwork that incorporates visions of nature

Natural Materials & Images of Nature: This artistic Mangrove Tree sculpture is composed of recycled natural wood tree branches on a galvanized steel core. (*"Escultura de Manglar"*)

- **Natural Materials:** If you're looking for a simple way to get started with biophilic design, natural materials are ideal. They connect us to nature via sight, touch, and sometimes smell.

  - *Examples*: Granite countertops, linen bedding, and leather couches

- **Natural Colors:** Earth tones are another quick and easy way to give your design biophilic appeal! This includes traditional brown earth tones as well as shades of blue, yellow, and green.

  - *Examples*: Sky blue curtains, moss green rugs, and sunny yellow paint hues

- **Simulations of Natural Light and Air:** Most buildings have at least a few spots that don't get sufficient natural light or air. This can be addressed using man-made options that recreate these elements.

  - *Examples*: Adjustable lamps, colorful bulbs, and open-air spaces

Simulations of Natural Light & Air: Casinos are known to be well-lit all the time, so guests always feel awake and invigorated. The addition of a smoke machine changes the air flow and sets the scene. (*Las Vegas Showgirls - Las Vegas, Nevada*)

- **Evoking Nature:** Many of the aforementioned facets evoke nature, but this one specifically refers to artistic, inspired, and imaginative takes on nature.

  - *Examples*: Stained glass windows, Oriental rugs, and landscape wall murals

Evoking Nature & Information Richness: This fabricated, artistic fantasy "Tree of Life" provides stunning colors and textures as a culturally specific focal point within a Mexican eatery.
(*Mi Vida Restaurante - Washington, D.C.*)

- **Naturalistic Shapes:** This tends to be an architectural element, with columns and patterns that echo what is found in nature. It can be represented by camouflaging man-made elements, or just using nature as inspiration for design.

  - *Examples*: Canopy beds, pebble shower/tub tiles, and raindrop chandeliers
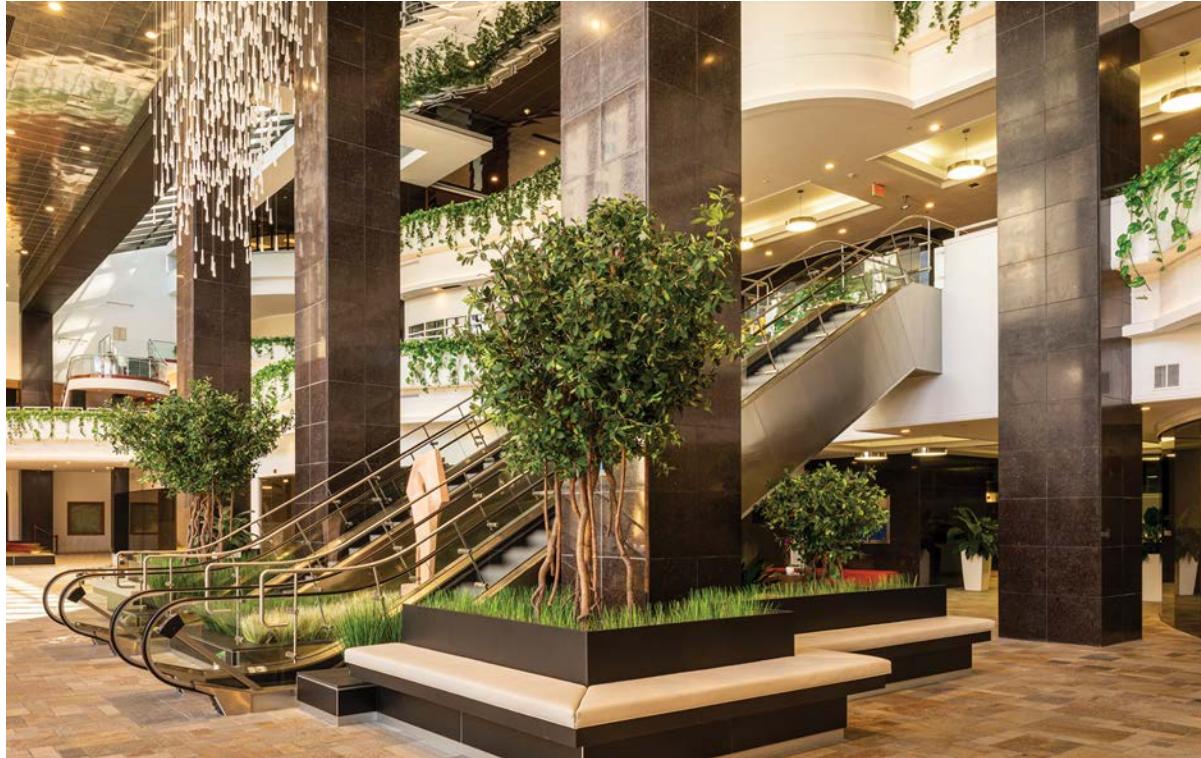
Natural Colors & Naturalistic Shapes: Shades of tan and green evoke nature inside this building lobby. Unique hanging chandelier lighting emulates the natural forms of raindrops or icicles. (*Datran Business Center - Miami, Florida*)

- **Information Richness:** This facet refers to a sensory-stimulating environment. Industrial designs often focus on clean lines, empty space, and limited palettes. In contrast, information richness is the idea of filling spaces with visually appealing colors, tactile patterns, and varied collections that attract and engage visitors.

  - *Examples*: Leaf pattern wallpaper, mosaic artwork, plant and succulent displays

- **Change and the Patina of Time:** The beauty of nature often comes from how it changes over the years. This effect can be captured or reproduced in design to give a feeling of permanence and stability.

  - *Examples*: Weathered wood floors, dried flowers, and smooth stone pathways

Change and the Patina of Time: Patented Treelusions™ fabricated trees feature interchangeable foliage that can be replaced in minutes to reflect seasons, holidays, or color schemes. (*Treelusions™ by International TreeScapes)*

- **Natural Geometries:** Certain shapes and patterns are often found in nature, such as spirals and fractals. Two well-known examples are the Golden Ratio and Fibonacci Sequence. When we replicate these forms, we are practicing biophilic design. Artists purposely work with fractals, geometric shapes, and Golden Ratios to appeal to the human eye and mind!

    - *Examples*: Spiral staircases, light refracting crystals, and geometric architecture

Simulations of Natural Light & Natural Geometries: Colorful lighting calls attention to the space, and fabricated Palm Trees provide a nature-inspired contrast to the geometric architecture. (*Matisse Beach Club - Perth, Australia*)

Natural Geometries: Spiral staircases are a prime example of design emulating natural shapes and patterns. (*"Escultura de Manglar" sculpture shown at right*)

- **Biomimicry:** This is the last facet of the Indirect Nature dimension, and it refers to using nature-made solutions in man-made structures. Many of the problems we encounter in life have already been solved by nature, so designers will employ similar solutions for man-made issues.

  - *Examples*: Pyramids, the application of shiny and matte finishes to deflect or absorb light, and windows designed to shatter on impact instead of split into large shards.
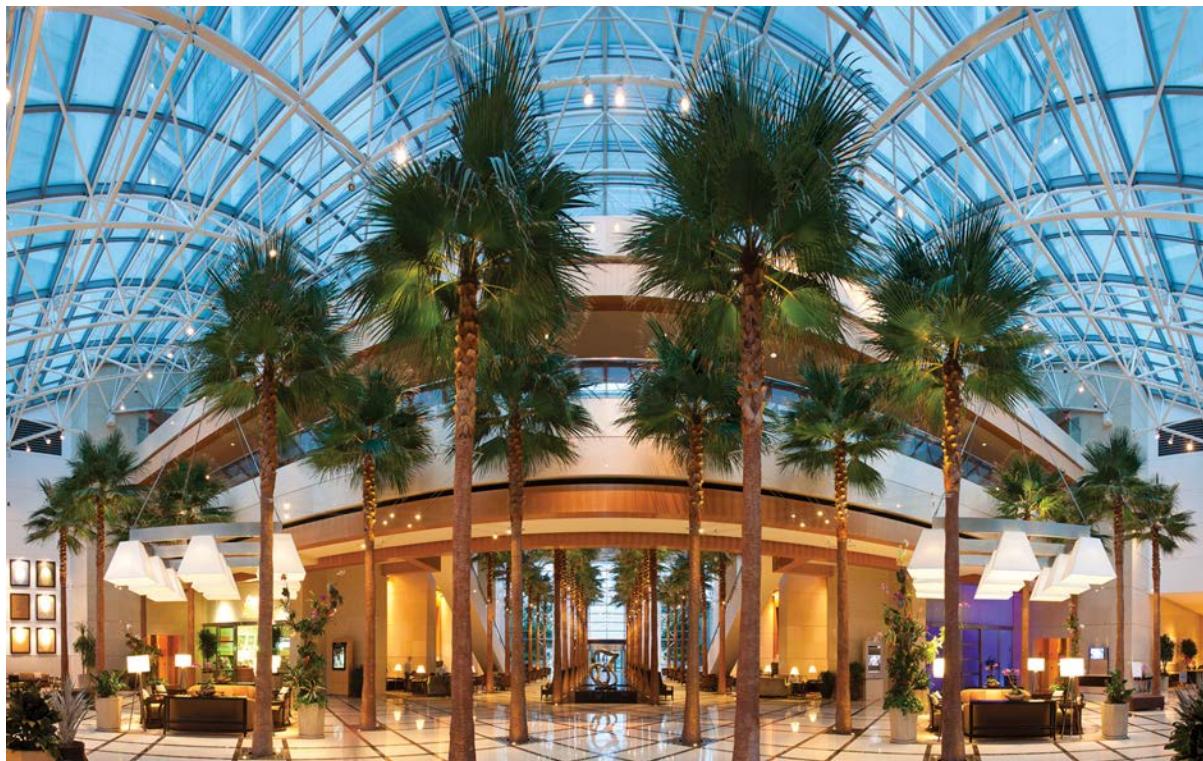
Biomimicry & Integration of Parts: A web of support beams frame the glass ceiling above, while evenly spaced preserved Palm Trees integrate perfectly with the pattern tiled floor.
(*The Diplomat Beach Resort - Hollywood, Florida*)

Spatial Relationships: Experience of Space and Place

- **Prospect and Refuge:** Prospect indicates a space that has a clear view and possibilities, with room to move about or discover what's around the corner. Refuge indicates a smaller, more enclosed space that provides a feeling of safety and shelter.

    - *Examples - Prospect*: Panoramic views, open floor plans, and glass walls

    - *Examples - Refuge*: Reading nooks, covered porches, and treehouses

Prospect and Refuge & Animals: Kids can climb to new heights or retreat within this Shuma custom vertical garden. Images of children and animals make the space even more appealing. (*iPic Theater - Delray Beach, Florida*)

- **Organized Complexity:** Humans prefer complexity, until the point that it becomes overwhelming or too demanding. When we integrate complexity with order, it becomes aesthetically satisfying.

 - *Examples*: Brick walls, patterned fabrics, and masonry grid photo frame

Organized Complexity: Multiple styles of faux flowers in a limited color palette make this floral green wall visually appealing. (*CATCH at Aria Resort & Casino - Las Vegas, Nevada*)

- **Integration of Parts:** Have you ever felt a sense of satisfaction from looking at a complete, organized set? It could be anything from a stocked spice cabinet to garden in full bloom. Most people are attracted to representations of many parts coming together holistically.

  - *Examples*: Full bookshelves, uniform flooring, and box hedges

- **Transitional Spaces:** We all appreciate knowing how to get from one point to another, and that's where transitional spaces come into play. These are just areas or structures that facilitate movement from one place to the next.

  - *Examples*: Hallways, pathways, courtyards, open lofts

Transitional Spaces & Attachment to Place: An outdoor walkway is denoted by this richly textured exterior tropical green wall. The design echoes the ocean and rolling waves associated with its location. (*Valdivia, Chile*)

- **Mobility:** This facet is very similar to the last one, but with a larger scope. Mobility refers to visible spaces that can be navigated, but also to the *ease* of navigation. A narrow hallway or steep staircase, for example, wouldn't qualify here.

  - *Examples*: Wheelchair accessible ramps, well lit hallways, and non-slip floors

Naturalistic Shapes & Mobility: A fabricated Black Oak Tree helps define accessible pathways, allows multiple seating options, and conceals structural columns.
(*Midland Centennial Library - Midland, Texas*)

- **Cultural and Ecological Attachment to Place:** There's a certain appeal to be found in places that are well-integrated with their environment. Adding environmentally and culturally appropriate design helps people connect to the natural world, and their own community.

    - *Examples*: Native landscaping and culturally relevant artwork

Natural Landscape & Attachment to Place: A replica Japanese Cherry Blossom Tree takes center stage on the *Memoirs of a Geisha* film set (*Hakone Estate & Gardens - Saratoga, CA*)

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