

DAY TRUE

iQ



BIOPHILIA

Biophilic Design

Biophilia – Definitions:

'Bio': 'nature' – all things governed by natural forces.

'Philia': love – the Ancient Greek name for the type of love that represents deep emotional connection.

'Biophilia': the word we use to reference an innate human affiliation for other living organisms and living systems.

Biophilic design: design working in harmony with nature to promote human health and wellbeing.

Biophilia includes: our connections with and responses to:

- time of day, seasons of the year, prevailing light and weather conditions
- colour, light and shade
- what we see, hear, smell, and touch
- the feelings and emotions that these elements provoke or soothe within us.

The benefits of biophilic design include: the physiological (the body), the psychological (the mind), and the cognitive (intellectual processing).

Theories and Scientific Evidence

There are a variety of theories and scientifically explored understandings that help to explain the basic principles and benefits of Biophilic design.

A deeply rooted relationship to natural environments forms part of human history – natural connections are as much a part of the human evolutionary process as our desire and instinct to behave as social beings.

We are attuned to nature because its rhythms chime with our own, and we have learned an instinctive understanding of its language. We are exhilarated, refreshed, and comforted when the natural world around us feels as if it is thriving within its environment, and when it feels 'at home' or 'at one' with where we are and what we can experience.

Attention Restoration Theory

"The enjoyment of scenery employs the mind without fatigue and yet exercises it, tranquilises it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system" ~Frederick Law Olmstead, Landscape architect, 1865

Spending time in, with, or around nature is not only something we enjoy, but also improves cognitive function and focus.





Colour Theories

i. Ecological Valence

“We seek colours that are reminiscent of nature when it is thriving”

Some simple examples of our responses to colour include: the calming, relaxing effect of the colour blue as it reminds of a clear sky or clean water; the restorative feeling of green as it connects us to the colour of healthy vegetation; the warm, welcoming feelings of sunshine and happiness evoked by the colour yellow, and the energising and exciting idea of a ripe fruit recalled by the colour red.

ii. Blue Space and Green Space Theories

There is growing evidence to suggest that human health and wellbeing are improved by having access to blue (aquatic) and green (nature rich) spaces – access can be indirect, incidental, or intentionally provided. Access to natural spaces has also been found to have the beneficial effect of making people more aware of and involved in promoting the health and wellbeing of the planet.

Circadian Rhythms

“During everyday life, a feeling of comfort can be achieved if our rhythms are synchronised with those of the environment” ~Yoshifumi Miyazaki

Circadian rhythms are the rhythms that govern our day and night, and they adjust accordingly to daylight and darkness. These rhythms are fundamental to our wellbeing and are regulated according to the time of day, the seasons of the year, and to prevailing weather and light conditions. The effects of them manage our alertness and sleepiness, our endocrine systems (hormonal regulation systems), our appetites and digestive systems, and our body temperature.

Biophilic design considers the lighting changes that arise naturally in a space and adds in those that can be contrived artificially to achieve specifically desired effects during the course of a day. These understandings and adjustments can help accentuate or enhance the energising, awakening and uplifting properties of a space at the beginning of the day, and the calming, relaxing, soothing, and cosying effects required for a restorative night's sleep.

Pattern Language

“... Biophilia is not a single instinct but a complex of learning rules that can be teased apart and analysed individually. The feelings moulded by the learning rules fall along several emotional spectra:

- from attraction to aversion,
- from awe to indifference,
- from peacefulness to fear-driven anxiety.” ~Edward O Wilson,

The Biophilia Hypothesis

Biophilic design involves the application of a pattern language – the language is descriptive rather than prescriptive – the creativity of the designer is a necessary element in its application. There are fourteen patterns that can be applied in Biophilic design, divided among three categories: Nature in the Space, Natural Analogues, Nature of the Space.

*Formalised design language and any unattributed quotes from: “Creating Positive Spaces using Biophilic Design” (June 2018), written and produced in collaboration with Interface Inc by Oliver Heath Design. More information available via the following link: <https://www.oliverheath.com/case-studies/biophilic-design-guide/>

The 14 patterns of Biophilic Design

A. Nature in the Space

1. Visual Connection with Nature
 - views outside or inside involving biodiversity, living systems, natural processes
2. Non-Visual Connection with Nature
 - sounds, touch, smell, taste – mindfulness
3. Non-Rhythmic Sensory Stimuli
 - “objects and materials in consistent, unpredictable motion”
 - Swaying and rippling movement, peripheral effects, glazed or reflective surfaces
4. Thermal Airflow and Variability
 - “changes in air temperature, humidity, airflow across the skin, and surface temperatures that mimic natural environments”
 - cross ventilation, natural systems, heat-absorbing surfaces, running water
5. Presence of Water
 - “...seeing, hearing or touching water”
 - Images of water, colour blue, bouncing light, water features, access to rainfall

6. Dynamic and Diffuse Light
 - “varying intensities of light and shadow that change over time to mimic natural patterns and cycles”
 - planting, reflective surfaces, windows and skylights, angled light, adjustable blinds, glass doors and walls
7. Connections with Natural Systems
 - “awareness of natural processes such as seasons and temporal changes”
 - views of sky and weather, patination

B. Natural Analogues

8. Biomorphic Forms & Patterns
 - “contoured, patterned, textured or numerical arrangements that mimic nature”
 - Shapes, furniture, avoiding straight lines, installations and sculptures, spirals, fractals, Fibonacci sequencing (golden ratios)
9. Material Connection with Nature
 - “Materials and elements from nature that reflect local ecology/geology to create a sense of place”
 - authenticity, natural materials, local/vernacular (stones, clay, ceramics, wood)

10. Complexity and Order
 - “Rich sensory information that adheres to a spatial hierarchy similar to nature”
 - The decorative, the structural, the visually nourishing, the scaled

C. Nature of the Space

11. Prospect/
12. /Refuge
 - “... a space designed to have a sense of refuge and prospect with plenty of living elements in (or references to them) can make us feel less stressed and more productive.”
13. Mystery
 - “The promise of more information using partially obscured views to entice an individual to go further into the environment”
14. Risk/Peril
 - “Identifiable threat to create tension, coupled with reliable safeguard”
 - thrilling, irresistible, fear-inducing, exhilarating