



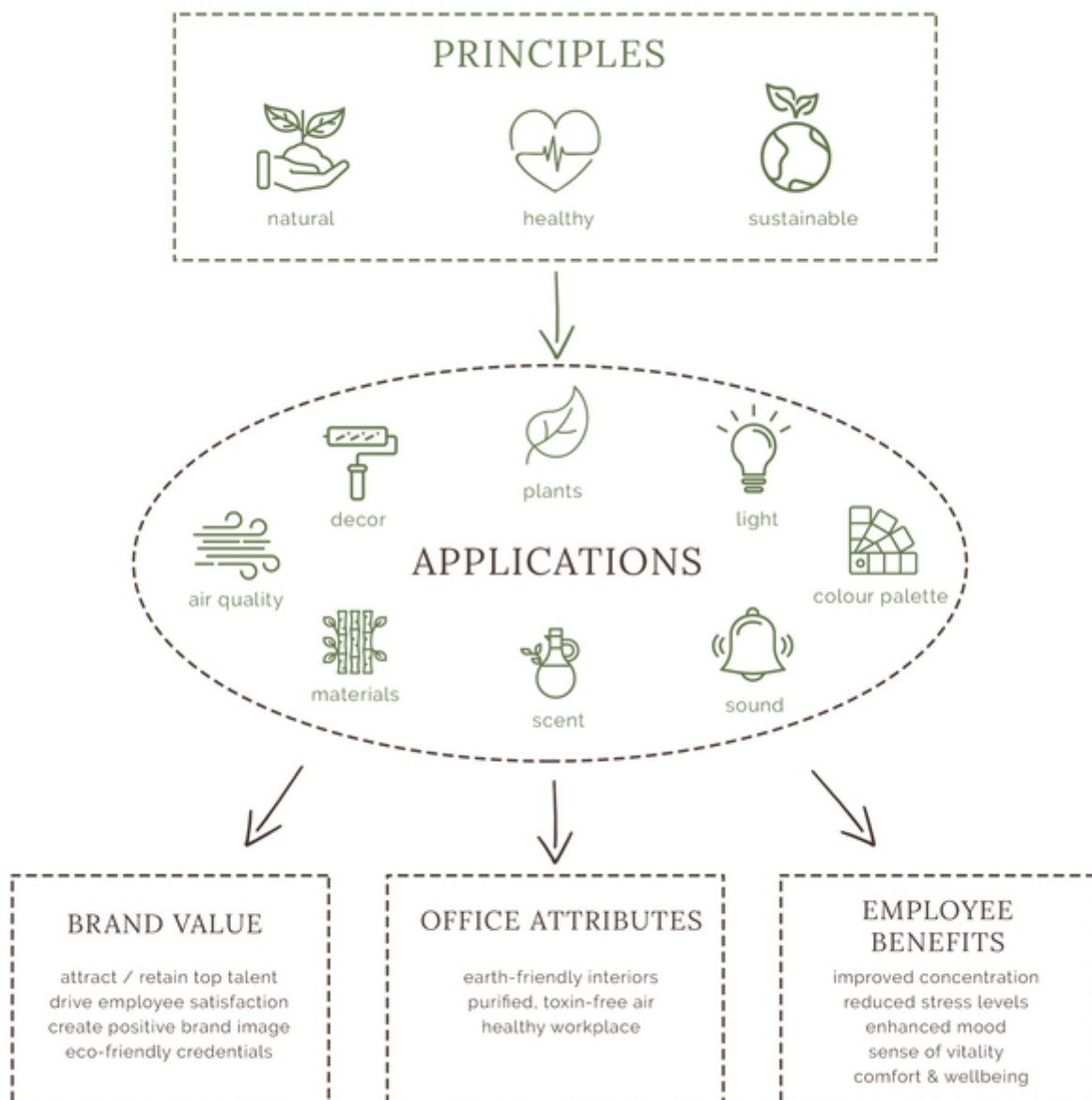
BENEFITS OF BIOPHILIC DESIGN IN OFFICES & COWORKING SPACES

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Biophilic design is a technique that respectfully harnesses the restorative, energizing properties of Mother Nature for physical and mental health benefits, so where better to implement this approach than in the workplace where many spend upwards of eight hours a day, five days a week?

Biofilico's method combines the three key 'principles' of healthy, natural and sustainable design implemented through eight 'applications' for a range of externally oriented attributes (for the company in question), internally oriented benefits (for the office workers) and value generation (for the brand).

Read on to discover the science behind this approach, what steps you can take to implement some of the basics, and four illustrative case studies.





1. DEFINITION

Offices with no natural light or views of nature; no living plants, stale indoor air and bland decor are pretty much guaranteed to have a negative impact on employee productivity in the short term and potentially damaging effects to the company's bottom line in the medium-term due to sick days and difficulties attracting or retaining top talent.

Fast-growth startups in Silicon Valley and innovative coworking spaces are both, in their own ways, leading the field when it comes to redefining what the workplace looks like today. By investing in a positive, healthy and appealing work environment they look to achieve stand-out in a crowded marketplace and maximize wellbeing for office workers while keeping an eye firmly on their own bottom line returns. For many, this means bringing the outside world in through biophilic design.

What is Biophilia?

We define biophilia as the innate human love of or need for a close connection with nature and other forms of natural life.

When applied to modern lifestyles, 'biophilic living' resembles less a primal, hunter-gatherer lifestyle and is more about the respectful integration of nature into our everyday lives, for our own health but also that of the planet.

What is Biophilic Design?

The last two centuries have seen a massive process of urbanization as entire populations transition from natural to heavily built environments with limited access to greenery, open spaces and wildlife. This represents a fundamental disconnect from our evolutionary past.

Biophilic design is an inherently modern response to this historically novel rupture from our previous levels of nature-connectedness. It attempts to reunite indoor and outdoor worlds through the sensitive use of natural materials, shapes, colors, scents and sounds.

The Biophilic Workplace

It's hard to overestimate the influence of tech giants such as Apple, Facebook, Google and Amazon on today's society. Their meteoric rise has been well charted, their market valuations scrutinized, their founders' stories narrated ad infinitum.

Now though, they are responsible for a new wave of sustainably designed, eco-friendly headquarters aimed at establishing an architectural identity for themselves, giving giant-sized physical expression to their stated belief in responsible business practices.

Biophilic design takes this architectural concept into interiors that not only respect the planet but also actively contribute to the mental and physical wellness of its users, while delivering long-term value for the brand,

By rethinking office design in this way, there is scope to improve staff happiness, productivity, and levels of mental wellbeing in the workplace, ultimately creating a scenario where both the company and employees prosper.

This type of 'triple bottom line' approach is where the magic lies in our opinion, and it is the key concept running through this entire document.

Amazon's Spheres

The Amazon building called the Spheres in Seattle is an excellent example of biophilic design. Home to 40,000 plants from 30 different countries, including a variety of living walls that account for over 4,000 square feet of vegetated surface, this giant 'recharge space' aims to connect employees and visitors with nature in an urban setting. With glass domes letting in an abundance of natural light that in turn sustains all the plants, this is a bold, innovative statement from the tech behemoth.





Amazon Spheres, Seattle

How To Do It Right

The key to maximizing the impact of biophilic design is adopting a cohesive, multi-sensory approach. It is about crafting an 'experience' just as much as an aesthetic and that requires joined-up thinking.

If the Spheres pumped a random radio station through on their sound system and served drinks in plastic cups we would all have to call them out on it, and rightly so!

If your office has limited natural light, harsh halogen ceiling bulbs, noise pollution from outside, poor air quality due to the traffic below and a severe lack of plants there is every chance of it having a negative impact on you and your co-workers' performance.

Well executed biophilic design therefore avoids dissonance between the visual, sonic, tactile and olfactory by aligning behind a consistent, natural approach that is defined upfront at the start of the project and then faithfully delivered in every detail, allowing for budget constraints and practicalities of course!

Improvements often come with a cost and to justify that cost, a finance department is going to want a pretty robust analysis. In its favour biophilic design touches on elements of HR, brand building and even Corporate Social Responsibility but, in the end, everyone wants to see the evidence. So let's dig into that now..

Recommended Reading: Author Richard Louv coined the term 'nature deficit disorder' in his book of 2005 entitled 'Last Child in the Woods'. He then went on to write 'Vitamin N - the essential guide to a nature-rich life', with the 'N' standing for Nature!



2. RESEARCH

Stress & Tension

Wallpapers and murals can be a great way to infuse an office or meeting room with color but a wall covering can also have a positive impact on the mood of its users, making it an example of what might be termed 'functional wellness design'.

A 1993 study by Dr. Roger Ulrich ([link](#)) focused on biophilic design applied to various settings, one of which was a windowless, hospital emergency room. They traded blank walls and artificial furnishings for a design that connected people with nature through potted plants, furnishings made from natural materials, and a colorful wall mural of plants and animals in a Savannah-like setting.

The result? A significant decrease in stress and aggressive behavior among patients. Not only did the results of this study give us a glimpse of the power of a nature connection, it showed that indirect or representational forms have an impact too.

Creativity, Productivity & Concentration

A seminal 2015 study undertaken by Professor of Organizational Psychology and Health Sir Cary Cooper entitled '[Biophilic Design in the Workplace](#)' ([link](#)) surveyed a sample of 3600 office workers across Europe and the Middle-East.

The results showed that office environments incorporating natural elements such as internal green spaces, natural light and an abundance of plants ensure higher levels of employee creativity, motivation, and wellbeing.

Workers in office environments with greenery and sunlight reported a 15% higher level of wellbeing.



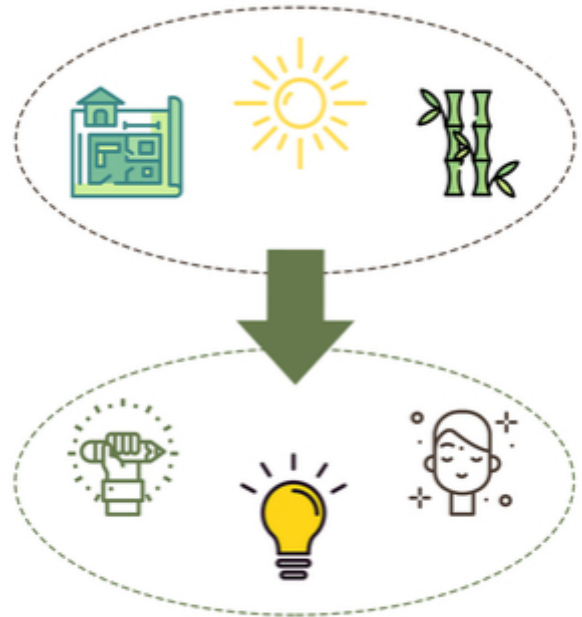
**15% higher
level of
wellbeing**

Another study by Professor Roger Ulrich at Chalmers University of Technology in Sweden showed that patients with windows looking onto nature required 8.5% less recovery time than those facing brick walls. How's that for a health benefit?

Motivation & Wellbeing

A recent study undertaken by Professor of Organizational Psychology and Health Sir Cary Cooper entitled 'Biophilic Design in the Workplace' surveyed a sample of 3600 office workers across Europe and the Middle-East.

The results showed that office environments incorporating natural elements such as internal green spaces, natural light and an abundance of plants ensure higher levels of employee creativity, motivation, and wellbeing.



Psychological Wellbeing

In an era filled with high-stress jobs and tech fatigue, recharge rooms are a growing trend in workplace wellness programs. Whether presented as somewhere for stretching and yoga, a quiet room for focused bursts of concentration and productivity, as a chill-out meditation space or even a games area, recharge rooms are somewhere for workers to – you guessed it—recharge their batteries during the workday.



www.wardianlondon.com

Vitamin Nature Recharge Room @ The Wardian

In January 2018 we were asked by leading residential property developer EcoWorld Ballymore to undertake a research project near its flagship Wardian London development to explore the impact of indoor environments maximized for Vitamin Nature on psychological wellbeing.

A waterfront greenhouse full of air purifying plants and an abundance of natural light in the business district of Canary Wharf was given an added boost of goodness through circadian lighting for the dark winter afternoons, pine forest aromatherapy, mindfulness books, our own acoustic music and nature sound playlists, a dehumidifier to boost air quality and improve thermal comfort and a range of other design details.

Over 100 local office workers spent time in the space, taking time out of their work schedule or arranging off-site meetings / brainstorming sessions there. Each of them completed a questionnaire upon arrival and departure. Coordinated by a team of experts from the University of Essex, the data explored stress levels, anxiety, negative mood state and nature-connectedness (a sign of vitality) upon arrival and departure. [See full research results here \(link\)](#).

74%

felt improvement
in mood

83%

felt more productive

87%

felt more creative

87%

felt lower stress
levels



www.wardianlondon.com

3. APPLICATIONS

Implementing Biophilic Design

01 Let There Be Life!

Luscious indoor plants add personality to any space and come with an array of health and wellness benefits to supercharge an interior with a double dose of 'Vitamin Nature'.

This can be as simple as a few large 'ZZ' or Sansevieria plants in natural terracotta pots or as expansive as a vertical garden wall.. and everything in between.

Why stop there though when there are terrariums and even aquascapes with living fish available as other creative ways to bring the outside world in?



In 1989, the NASA Clean Air Study ([link](#)) found that the power of plants went far beyond absorbing carbon dioxide and releasing oxygen; many filter harmful chemicals from the air, such as benzene, formaldehyde, and trichloroethylene—all commonly found in everyday objects such as furniture, paint and building material.

02 Purify the Air

Urban work environments come with their benefits in terms of convenience and group dynamics but one of the inarguable downfalls is the reduced indoor air quality.

Keep lungs happy and healthy by deploying an air purifier—preferably one with a HEPA filter. This helps restore air to its natural state by removing pollutants that off gas from furniture or, more likely, drift in from the streets outside.

Air-purifying plants combined with dedicated air purifiers ensure improved indoor air quality (IAQ) to reduce air-borne particle counts and remove other pollutants, helping to reduce allergies and promote cognitive function at the same time.

Incorporating plants and preserved moss helps but alone they will struggle to deliver the results required in heavily polluted urban areas. As a rule 6-8 plants per 25m² is a good average but if the space allows, add more!



03 Indirect Biophilia

When plants and other living elements are not feasible, look to what is termed 'indirect biophilia'. Photos, murals, and illustrations of nature, animals, and plants are a great way to ground your space in nature, plus these strategies have proven stress-reducing properties too when they suggest prospect and refuge especially.

Studies have shown [\(link\)](#) that even indirect biophilia—using elements that are merely representational—still holds an arsenal of benefits similar to direct biophilia.

04 Eco Materials

The materials you choose for an interior space will not only influence the final ambiance but also impact the users' health and wellness by reducing any harmful toxins present in the office.

Opting for materials that are natural and sustainable will help ensure that both a room's users and the planet stay healthy. Good materials to consider include FSC wood, bamboo, linen, cork, and ceramic.

Using organic materials not only gives a natural aesthetic, it also removes the risk of harmful chemicals finding their way into your office or coworking space such as those found in building materials, flooring and furniture—think benzene, formaldehyde, and trichloroethylene.



05 Light It Up

Implementing a circadian lighting system that follows the body's natural rhythm can help improve productivity by day and, eventually, sleep quality when workers return home in the evenings.

Lighting can essentially be used to skew relaxation or energy in your favor, it's just a matter of using the right hue at the right time.

Fill your office with natural light whenever possible, especially first thing in the morning, but when the sun's rays aren't available, deploy a lighting system that offers blue-white tones in the middle of the day, accompanied by warmer, more amber tones at sunrise and sunset.

06 Mimic Nature's Voice

Possibly one of the most soothing things about being immersed in nature is, if you're lucky, the soft chorus of birds, running water and rustling of leaves; from an evolutionary perspective these are signs of all being well in the world. A twig breaking or water splashing on the other hand might signal danger on the horizon.

The good news is that you can easily recreate these positive sensations of calm in a office or reception using nature sound playlists. It is a small detail but one that has an undeniable impact on our experience.

Remember too, by taking control of what is heard in any given space we are also removing the risk of dissonant sounds creeping in, or masking unwanted sounds that may cause low level stress in other words, such as traffic noise outside.



07 Harness Nature's Aromas

The subtle use of diffusers and scented candles can make a world of difference to a bathroom, bedroom or living room.

Keep it clean with organic wax and high quality essential oils such as forest inspired pine and cedar wood at bathtime, the citrus tang of lemon and bergamot in the morning, or the herbal goodness of peppermint and rosemary during the day to aid in mental clarity.

Bathrooms, private offices and meeting rooms are especially good locations for this strategy.

08 A Neutral Palette

An interior's color scheme is arguably one of the biggest influencers of mood and is certainly the one that most people will connect with first upon arrival. While bright tones can suggest energy, neutrals will help offices feel grounded in nature.

Assuming most spaces will start with something close to a blank canvas, add an extra layer of detail on top of that by using natural materials that come 'pre-loaded' with their own palette of browns, beiges, and greens.

Still looking for a pop of color? Try a splash of sunshine yellow or a bright sky blue as a way to mix things up.

CASE STUDY: AMAZON OFFICES BARCELONA, SPAIN



Housed in a new-build tower in Barcelona's dynamic tech hub of '@22', Amazon opted for a corporate office that treads a delicate balance between functionality, wow factor and elements of both biophilic and healthy design aimed at boosting employee wellness, whilst promoting the concept of a flexible workspace.

Highlights include a striking laser cut map of the city overlaid onto a giant preserved moss wall in an indoor-outdoor events space.

Fractal patterns are used repeatedly as glass privacy vinyls and in carpet choices as a way to break up the space, with a bright, energising colour palette.

Finally, an extensive rooftop space with artificial grass, picnic areas and sea views offers staff a place to unwind.



CASE STUDY: SECOND HOME COWORKING, LISBON, PORTUGAL



While Second Home has multiple locations across the UK and US, their Lisbon outpost designed by Spanish architects SelgasCano is truly a biophilic design haven with its abundance of natural light and over 1000 plants in simple terracotta pots.

When spending time there, it soon becomes clear that the plants are one part decor, one part privacy screens, one part air-purifiers! Regular visits from a local gardening company ensure they are all fed and watered each week, with any sick specimens tended to. This ongoing operational expense would be hard to do without - a point to consider when choosing such a large numbers of live plants into your own office or coworking space.

Organic, almost amorphous furniture made to the designers' specifications can be moved around on wheels, chairs are a mix of old and new, with vintage table lamps and lampshades giving the whole thing a wabi-sabi feel.

Until fairly recently, there was no air conditioning in the giant space, with a preference given to natural ventilation. The heat of Lisbon's summers eventually forced a change of strategy however, showing how even the best eco-friendly intentions sometimes have to bend to the demands of member comfort.

Finally, outdoor fitness classes and surf trips encourage community interaction, time in nature and an optional escape from work each week.



www.secondhome.io/lisboa

CASE STUDY: UNCOMMON COWORKING, LONDON, UK



Uncommon seem to have hit upon a magic formula with their premium, biophilic workspaces around London - arguably now one of the world's most competitive coworking markets.

Let's be clear, Uncommon do plants, many plants in some cases, but where they achieve standout is in their wider interpretation of biophilic design that extends into materials, colours and finishes. 'Bringing the outside in' is about more than hanging plants from the ceiling and this design team have gone further than most in delivering on that promise.

Large slabs of tree trunk with gnarly, organic edges become communal work tables while dark stone with deep contrast marbling is used as a striking front desk material.

This is an example of truly premium biophilic design, conveying a sense of quality and comfort whilst promoting a multi-sensory connection with nature during the work day.

Uncommon spaces are also big on mood lighting, curated playlists on the sound system and subtle aromatherapy to aid in concentration as well as yoga and fitness group classes for community building.



www.uncommon.co.uk

CASE STUDY: HERO HEADQUARTERS LENZBURG, SWITZERLAND



For much of 2019, Biofilico played the role of biophilic design consultant for organic food product corporation Hero Ag in Switzerland, collaborating with local design agency James Dyer-Smith, plant supplier Creaplant and general contractor Varia.

Our preserved moss wall at reception features a detailed mosaic of moss pixels that uses a random fractal pattern often found in nature. We used two different green moss pixels and a die-cut logo was then fitted into the centre of the backing section.

Making use of the round-shaped building's unique inner light well, we also worked on a ground-floor atrium garden intended to create a focal point, add intrigue and 'wow factor' to the visitor experience, while also reinforcing the connection between the corporate brand, nature and their strong environmental policy.

Other biophilic features by Biofilico include a green, eco-friendly 'quiet room' and a multi-sensory nature-themed bathroom, both intended to illustrate the positive impact to be gained from bringing the outside world in.

www.hero.ch

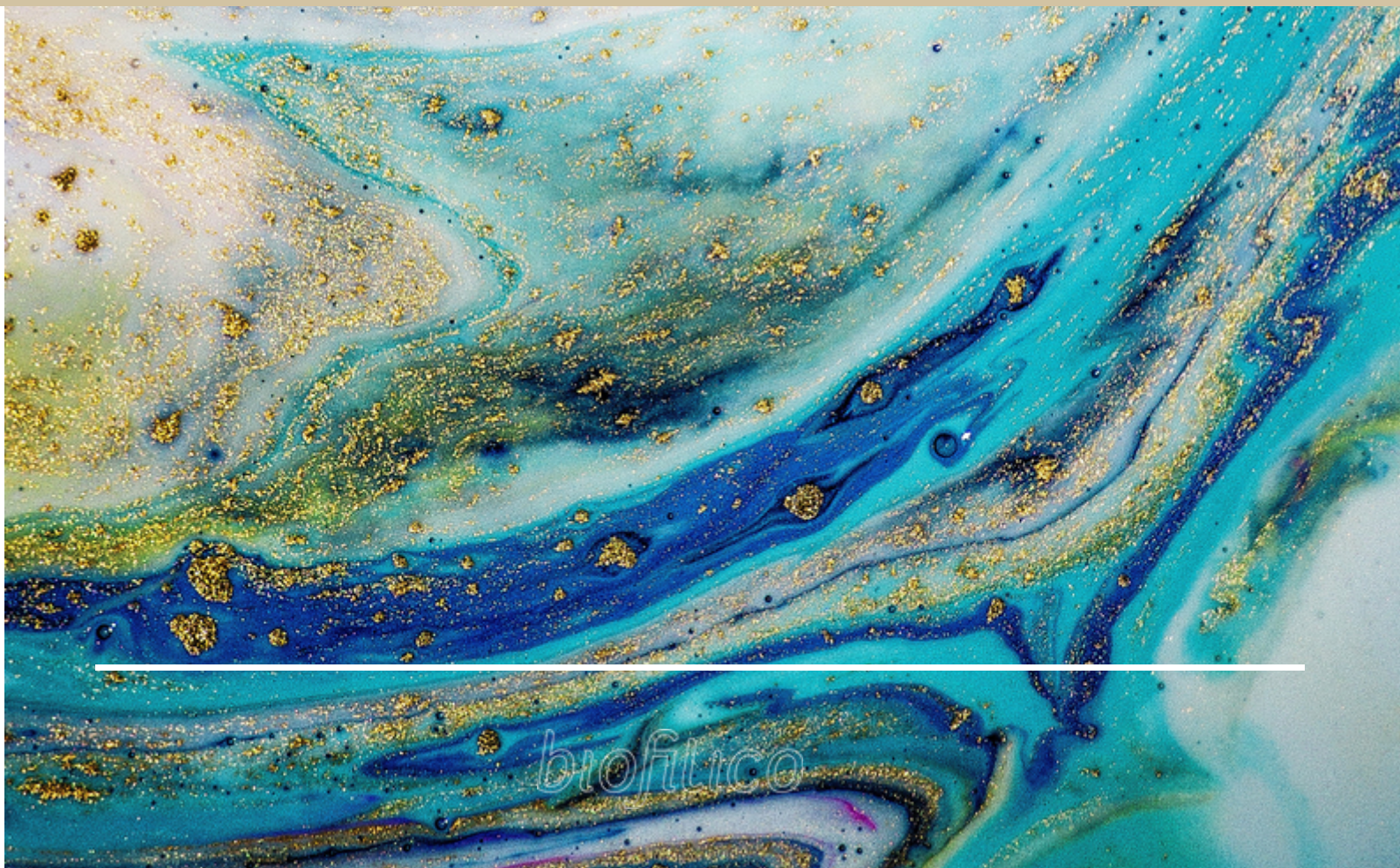




SUMMARY

The benefits of biophilic design in an office or coworking context are myriad and deliver value both for the users of the space in question and its owners. So whether you decide to explore this concept on a small scale by incorporating a few new potted plants as a first step or plan your entire office around biophilia, the result will be a tangible uplift in worker wellbeing.

To discuss how we can help with your office or coworking space email us at design@biofilico.com



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