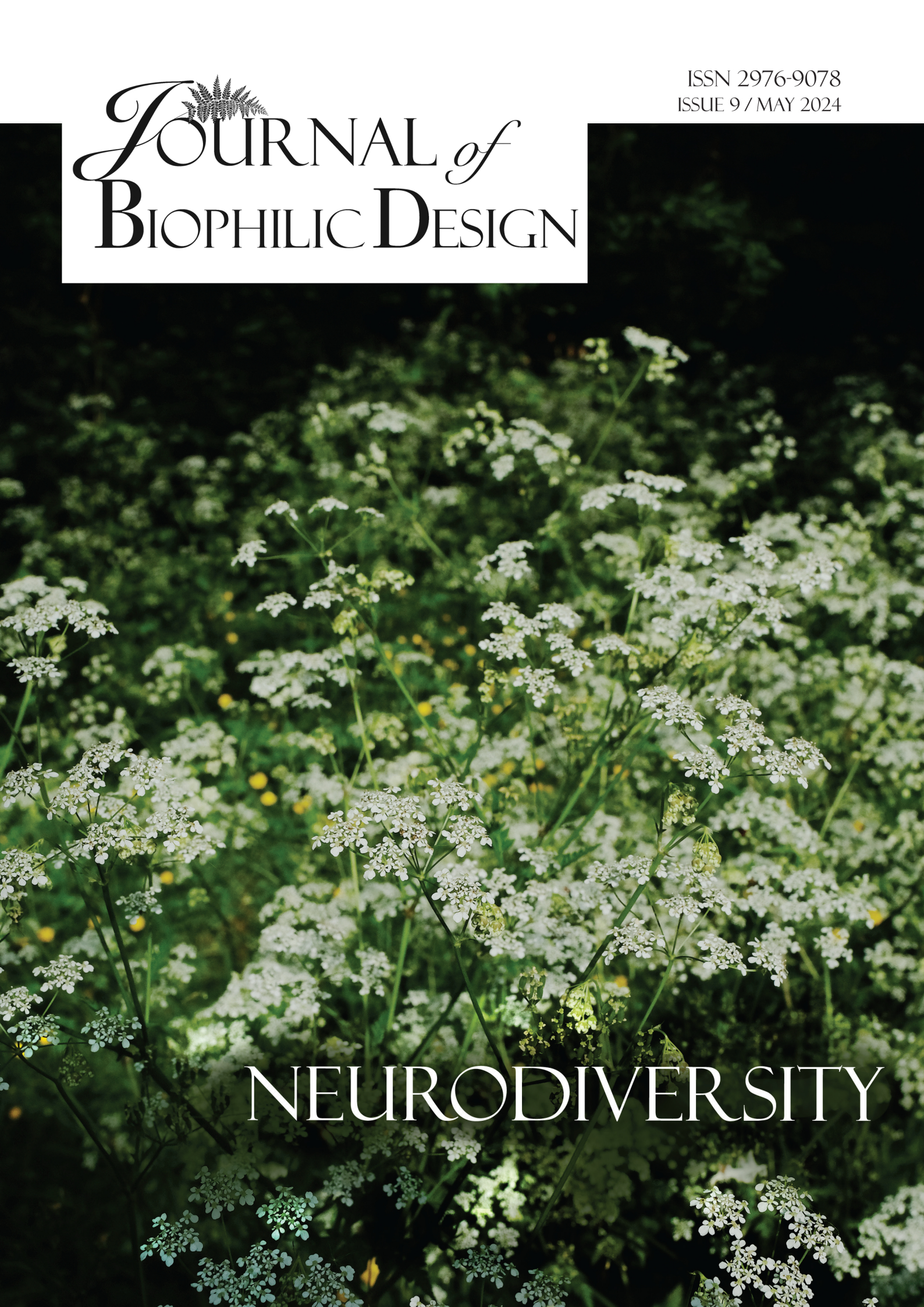


The background of the journal cover is a dense, close-up photograph of a flowering plant, likely a species of wild carrot or similar umbellifer. The plant features numerous thin, green stems rising from a base, each topped with a large, flat-topped cluster of tiny, white flowers. The foliage is lush and green, with some stems showing small, yellowish-green buds or developing seed pods. The lighting is soft and natural, highlighting the delicate structure of the flowers and the vibrant green of the leaves. The overall composition is a full-page photograph that serves as the backdrop for the journal's title and issue information.

JOURNAL *of* BIOPHILIC DESIGN

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NEURODIVERSITY

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Coming up ...

ISSUE 10, July / August 2024 – ENVIRONMENT
ISSUE 11, September / October 2024 – LEISURE/HOTELS
ISSUE 12, November / December 2024 – RETAIL
ISSUE 13, January / February 2025 – CHILDHOOD
ISSUE 14, March / April 2025 – THIRD AGE
ISSUE 15, May / June 2025 – LIGHT
ISSUE 16, July / August 2025 – SOUND
ISSUE 17, September / October 2025 – ARCHITECTURE
ISSUE 18, November / December 2025 – INTERIOR DESIGN

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WELCOME

Welcome to the ninth edition of The Journal of Biophilic Design.

Each edition of the Journal of Biophilic Design is a platform for everyone to have their voice, and it is especially clear in this one. There are design examples to inspire and spark debate, personal stories from designers who design from their own understanding of how different we all are having embraced their own neurodiversity. There are stories of individuals who connect with nature to support their sensory overload or to stimulate it in a different way.

We have an interview with Chris Packham, who is known to many as a dynamo supporting life in the natural world. Chris is also neurodiverse and has presented programmes helping raise awareness of other people's challenges too. I would encourage you to turn to "An Evening with Chris Packham Exploring the Intersection between Nature Conservation and Neurodiversity" to get a real understanding how neurodiversity impacts day-to-day interactions and work, but also how it can also help set us apart and makes us exceptional at what we do.

There are articles on light, outdoor respite areas, interior design, architecture, ADHD, dementia, children and learning spaces, forest retreat centres, Japan, Nooks, waterscaping cities, Cob building, rainbows and also how to unlock your brain's full potential through nature's wonders. Each article explores just how biophilic design and nature connection offers respite, inspiration and space for people to "be" the best versions of themselves.

We also look at the new PAS standard 6463:2022 – Design for the Mind – Neurodiversity and the built environment: "Neurodiversity is the term used to describe the variation in neurocognitive profiles across the whole population, and the guidance in this PAS is about us all". It also states that Biophilic Design is key to supporting neurodiversity. 'Each one of us has a unique set of different connections with our billions of nerve cells. This means that the way we interact with our environment can vary from person to person. It is dynamic and might change over time.'

If we take one thing from this issue, is that neurodiversity does not refer to just one difference. The term recognises the variety in the way we speak, think, move, act, and communicate; that human brains are diverse and vary from one to the next.

This issue is a celebration of how Biophilic Design includes that all important access to nature, natural lighting, tactile surface materials and sensory feedback, better acoustics, better and more natural air flow, considered colours, planting, views of nature, and much more.

If we design Biophilically, we will create spaces that are better for everyone.

Vanessa Champion PhD, AMRSPH
Editor and Founder

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HIGHLIGHTS

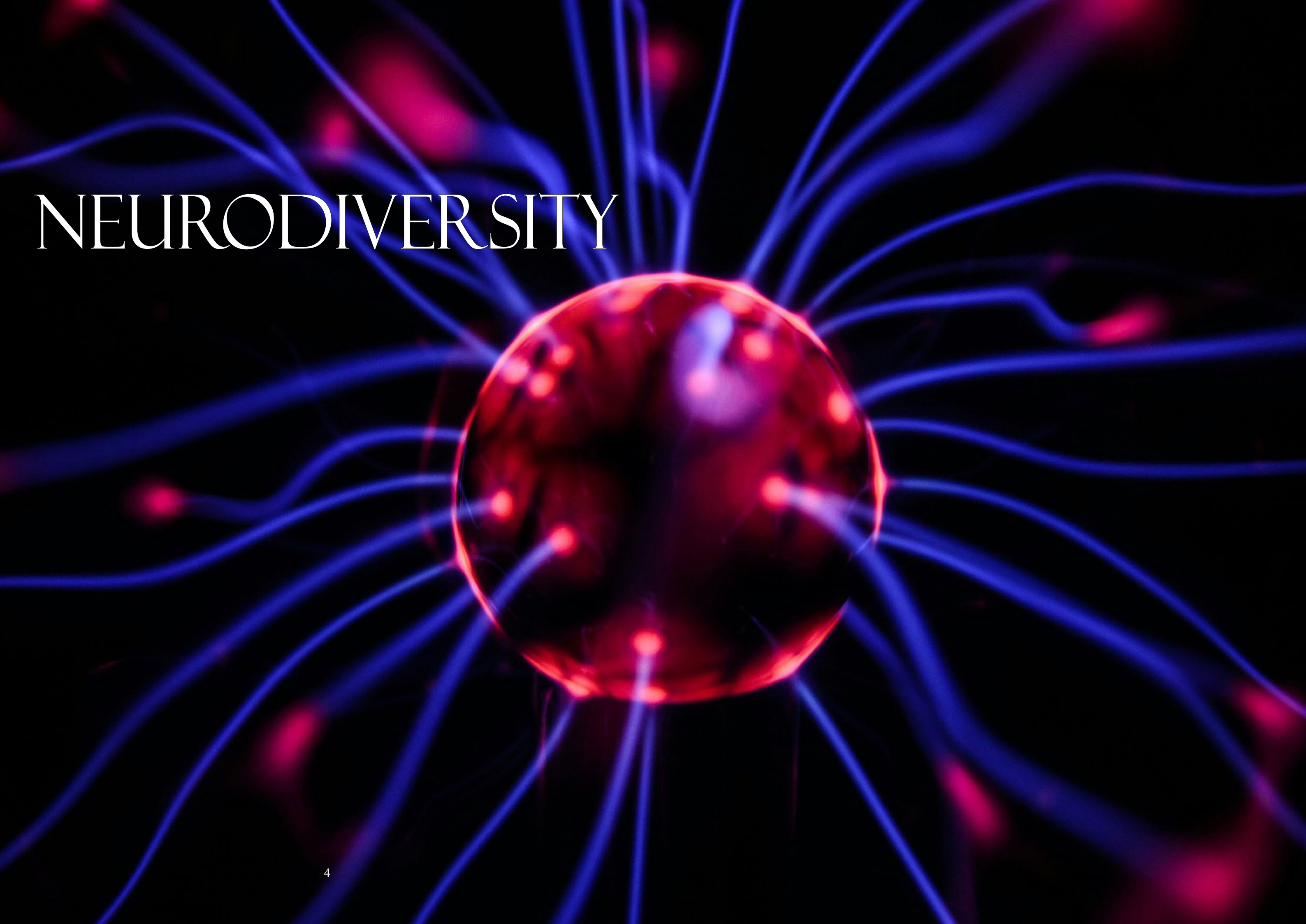
Each edition of The Journal of Biophilic Design has regular sections. We highlight them here so you can navigate your way around the Journal. If you would like to contribute to a future edition, please do contact our editor we would love to feature your research and case studies.

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Details of our contributors can be found on our website. Each edition of The Journal of Biophilic Design is published every other month. Next issue's focus is **Environment**.

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If you would like to sponsor the Journal please contact us. Future editions will focus on Wellbeing, Neurodiversity, Environment, Leisure, Retail, Childhood, Third Age, Light, Sound.



NEURODIVERSITY

Examining connection to nature through a neurodiversity paradigm lens

“Research has less often considered diverse groups when exploring how people experience connection to nature. Here we explore understanding and perspectives.”

Dr Samantha Friedman

E. O. Wilson’s biophilia hypothesis (1984), the theory which underpins the practice of biophilic design, suggests that humans have an innate predisposition to connect with nature. This human-nature relationship has captured the interest of researchers across a range of disciplines and inspired studies across many domains; this includes examining connection to nature in children (e.g., Chawla, 2020), exploring how connection to nature dips in adolescence (e.g., Richardson et al., 2019), and finding associations between connection to nature and pro-environmental thoughts and feelings across the life course (e.g., Liu et al., 2022), amongst many other areas of study.

In exploring how people experience

connection to nature, research has less often considered diverse groups; in fact, a primary criticism of research in the field of ecopsychology (the intersection of psychology and ecology) is the limited perspectives considered. Typically, participants of research on people’s experiences in and relationships with nature tend to be able-bodied, Western, white, and predominately male (e.g., Dickinson, 2013; Jones & Segal, 2018). To counter this, many researchers are interested in drawing upon the voices and lived experiences of more diverse groups of people. In my own research, I explore how neurodivergent people perceive that nature benefits (or does not benefit) their wellbeing and supports flourishing (broadly defined). In particular, I often focus on autistic people’s experiences in nature.

In a recent survey study of autistic adults living in the UK, my co-authors and I sought to understand how the group of participants defined and experienced connection to nature (Friedman et al., under review). In addition to seeking to add more diversity to the available literature on human-nature relationships, we also aimed to introduce a critical autism studies lens to ecopsychology research. This means that rather than viewing autism (or other forms of neurodivergence or disability) as something ‘wrong’ that needs to be fixed, changed, or cured, we consider autism to be a form of natural variation in how human brains function (Walker, 2014). Autistic people might still need support, however, especially given the many ways that society is not set up to be accessible for autistic people. This perspective on autism (often called the neurodiversity paradigm) does not mean that autistic people should be denied needed support (den Houting, 2019).

Taking this perspective, we developed findings to reflect how this group of autistic participants defined and experienced connection to nature to hopefully contribute to a re-defining of the concept ‘connection to nature’ that is inclusive of diverse perspectives. First, many of the participants felt that connection to nature was, in part, defined by how nature benefitted them and the ways that they benefitted nature. Some of these benefits included feeling a sense of belonging and an opportunity to engage in sensory-supportive environments. Many of the participants wrote about how their autistic identity was central to their relationship with nature, with some suggesting that their

being autistic meant they were able to connect with nature more deeply. Participants also described how they accessed nature through various different means, including green spaces, animals, audio recordings, photos, and videos.

Second, our group of autistic participants noted that their relationships with nature were sometimes similar to a spiritual or religious connection. Some participants described how a close relationship with nature allowed them to feel connections to their ancestors or to cycles of nature throughout history. For many of the participants, it was difficult to describe their relationship with nature because they felt inherently intertwined with nature such that describing they couldn’t easily separate out the ‘nature’ and the ‘self’. This echoes Wilson’s beliefs that humans are innately driven to connect with nature, as described in the biophilia hypothesis.

Finally, our third finding reflected the fact that while connection to nature is often viewed as a universally positive relationship, there are some negative elements, too. Many of the participants described increased feelings of anxiety or grief related to environmental degradation. Some participants also wrote about examples of nature which are seen as undesirable, like malaria or earthquakes, and highlighted that these, too, are part of what it means to feel close to nature. Of course, there were also some participants who reported that connection to nature did not mean anything to them. This reflects how varied the relationships (or lack thereof) with nature were in this group of autistic adults in the UK.



These findings can inform biophilic design and justify its use, helping to further our aims to integrate autistic people's perspectives into how nature-related terms are conceptualised and put into practice. The autistic people who participated in our study connected to nature and preferred to experience nature in many different ways. Thus, biophilic design should also reflect the variation in how people relate to nature by ensuring that conceptualisations of nature are not unnecessarily limited to only traditional representations. Practitioners of biophilic design should consider the diverse ways that people experience and define nature and reflect this diversity in their designs. Additionally, biophilic design could be used to explore the spiritual, religious, and ancestral elements of having a close relationship with nature, again broadening the ways that nature might be represented. Finally, practitioners of biophilic design can thoughtfully consider both the positive and negative sides to connection to nature to ensure a more realistic representation of human-nature relationships.

<https://www.ed.ac.uk/profile/dr-samantha-friedman>

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Taking the Holistic Approach to Neuroinclusive Workspaces

— CASE STUDY —

Nuria Muñoz

The journey towards neuroinclusive workspaces begins with a holistic understanding of the project context, from the client's brand identity to the unique characteristics of the physical space itself. We need to improve traditional space dynamics through a combination of sensory considerations, biophilic elements, and user-centered design principles.

A COLLABORATIVE PARTNERSHIP: FROM CONCEPT TO CREATION

The transformative journey towards neuroinclusive design often begins with a collaborative partnership between the design firm and the client. For my design company, Habitarmonia, our project with an adventure and outdoor products company based in Munich, Germany represented an opportunity to reimagine traditional workspace paradigms. From the outset, we engaged in extensive consultations with the company's management team, fostering open dialogue and collaboration to ensure a shared vision for project success. As part of this collaboration process, we also conducted workshops with business owners, providing them with

insights into biophilic design principles and emphasizing the multidisciplinary nature of creating neuroinclusive spaces. By raising awareness and understanding, we empowered stakeholders to play an active role in shaping the future of their workspace.

UNDERSTANDING THE CONTEXT

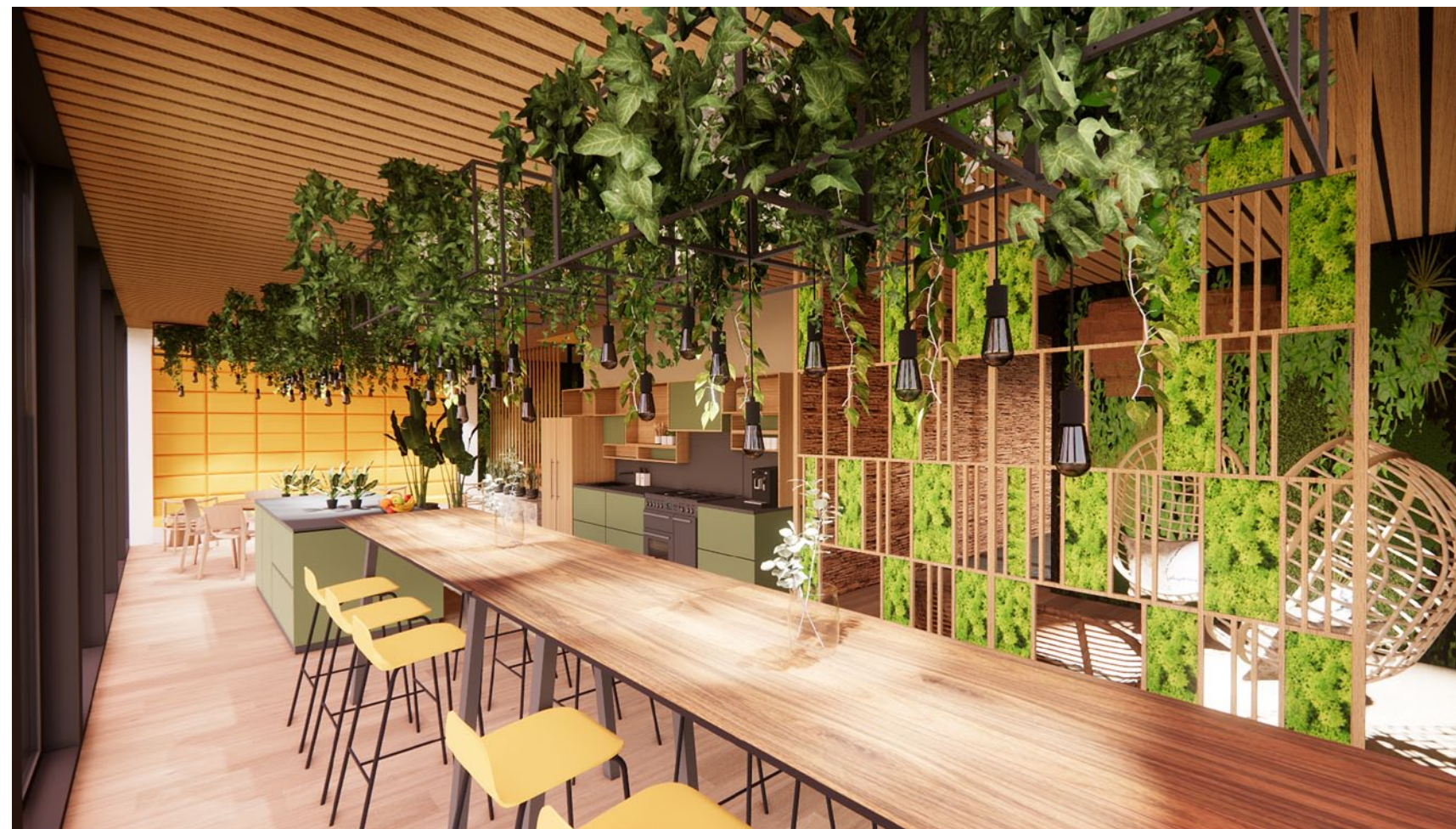
A central aspect of our approach is the recognition that effective workspace design must be deeply rooted in the client's brand identity and mission. In the case of the adventure and outdoor products company we delved into the details of the company's ethos, business vision, and strategies, gaining an understanding of what the brand represents. With the goal of creating a neuroinclusive workspace aligned with the values of this company, we analysed the geographical context of the headquarters, taking into account factors such as the city's vitality, mountain views, and accessibility. By integrating elements that reflected the company's commitment to sustainability and outdoor adventure, we ensured that the workspace embodied the essence of the brand, while promoting inclusion and well-being.

EMPOWERING NEURODIVERSITY: DESIGNING WITH EMPATHY AND UNDERSTANDING

A central aspect of Habitarmonia's philosophy is the belief that neuroinclusion is not just a design principle, but a fundamental human right. **By actively involving neurodivergent individuals in the design process and prioritizing their needs and preferences, we ensured that the headquarters of the Adventure and Outdoor Company truly represented diverse perspectives and experiences, resulting in a workspace that allowed each person to thrive.** From adjustable furniture to sensory rooms and customized lighting options.

INTEGRATION OF BIOPHILIC DESIGN ELEMENTS: ELEVATING THE WORKSPACE EXPERIENCE

The integration of biophilic design elements was a central pillar of our approach. Drawing from a comprehensive set of recommendations, we incorporated these elements to create a workspace that not only fostered neuroinclusion but also promoted well-being and connectivity with the natural world. Habitarmonia strategically incorporated plants and natural materials such as wood and stone throughout the workspace. From reclaimed wood floors to stone-clad walls, all materials were carefully selected to evoke a sense of warmth, authenticity, and connection with the natural world. These tactile elements serve as a tangible reminder to inspire commitment to sustainability and well-being, fostering a sense of rootedness and comfort among occupants.





SENSORY CONSIDERATIONS: CREATING SPACES FOR COMFORT AND ENGAGEMENT

A focal point of neuroinclusive design is the consideration of sensory stimuli within the workspace. Our design strategy prioritized lighting, circadian rhythms, and colour psychology to create environments conducive to neurodiversity. By implementing a wide range of lighting options, including task lighting, ambient lighting, and LED accents, we catered to individual preferences and promoted a sense of comfort and engagement. Additionally, the use of natural materials such as cork and wood, along with eco-friendly practices such as moss walls and clay paint, contributed to creating a tactile and visually pleasing environment. The incorporation of outdoor elements, such as views of the surrounding nature and strategically placed vegetation, fosters a deep connection with the natural world.

MAXIMIZING NATURAL LIGHT: ILLUMINATING THE WORKSPACE ABUNDANTLY

The recommendation to maximize natural light served as a guiding

principle in our design process, as we sought to harness the benefits of natural light to improve visual comfort and support circadian rhythms. By utilizing the existing windows of the building, we flooded the workspace with natural light, blurring the boundaries between indoors and outdoors. The result was a bright environment that not only reduced dependence on artificial lighting but also fostered a deep connection with the surrounding landscape.

ACCESS TO VIEWS: HARNESSING THE BEAUTY OF THE SURROUNDINGS

Incorporating views of vegetation and landscapes was another key recommendation that informed our design decisions. By strategically placing workstations and common areas with views of the picturesque surroundings of the Munich neighbourhood of Bogenhausen, Habitarmonia offered occupants opportunities for relaxation, stress reduction, and cognitive recovery. The panoramic views served as a constant reminder of the beauty of nature, inspiring creativity and fostering a sense of calm amidst the bustling urban environment.

INTEGRATION OF BIOMIMETIC ELEMENTS: THE AESTHETICS OF NATURE

To increase visual interest and evoke positive emotional responses, Habitarmonia also incorporated biomimetic elements inspired by nature. Organic shapes and fractal patterns were introduced in architectural details, furniture design, and decorative elements throughout the workspace. These nature-inspired motifs not only added aesthetic appeal but also contributed to a sense of harmony and balance, creating an environment that was inherently welcoming and familiar.

INTEGRATION OF LIVING SYSTEMS: NURTURING A SENSE OF VITALITY

The inclusion of indoor plants was crucial to improving air quality, increasing well-being, and fostering a sense of connection with nature, in accordance with the recommendation to integrate living systems. We selected a range of plant species, from air-purifying ferns to cascading ivies, that infused vitality and life into the workspace. The presence of vegetation not only contributed to creating a healthier indoor environment but also created opportunities for biophilic interactions, as occupants cared for and tended to their botanical companions.

OPTIMIZATION OF THERMAL FACTORS: CREATING COMFORTABLE ENVIRONMENTS

Creating conditions that mirrored natural environments, with variable temperatures and airflow, was essential to fostering comfort and well-being for occupants, as recommended. Habitarmonia implemented state-of-the-art HVAC systems throughout the workspace. By maintaining pleasant temperatures and

ensuring adequate ventilation, we created environments conducive to productivity, creativity, and overall well-being.

INCORPORATION OF SOUNDSCAPES: ENHANCING THE AMBIANCE

To create a relaxing and soothing environment, we used natural sounds such as flowing water and birdsong, in accordance with the recommendation to incorporate soundscapes. Whether through strategically placed speakers in restorative areas emitting sounds of nature or the gentle rustle of leaves outside, the environment was enriched with auditory signals from the natural world. These immersive soundscapes provided a sense of tranquillity and immersion, inviting occupants to escape the stress of modern life and find solace in nature's embrace.

By incorporating these recommendations into the design of the Adventure and Outdoor Company headquarters, we enhanced the workspace experience, fostering neuroinclusion, well-being, and connectivity with the natural world. By embracing the principles of biophilic design and prioritizing sensory considerations, we created a workspace that not only met the diverse needs of its occupants but also inspired creativity, collaboration, and personal growth. As organizations worldwide recognize the transformative potential of biophilic design.

Habitarmonia, is a design firm based in Spain, and is committed to improving traditional space dynamics through a combination of sensory considerations, biophilic elements, and user-centred design principles.

www.habitarmonia.com
www.habitarmonia-academy.com



Creators of Playful Worlds

In conversation with House of Kin

Riverside Nursery

Riverside designed by House of Kin is a unique nursery that preserves the character of the original church building, whilst combining clean aesthetics, soft colours, and simple lines with interactive touches. **It was the Greater London winner of the 2023 BIID Interior Design Awards.**

House of Kin created a vibrant, holistic design which provides a calm and inspiring learning and play space. The judges felt that the clever and contemporary design achieved a harmonious environment that resonates with children, parents, and teachers, fulfilling their educational and emotional needs. The project's emphasis on sustainable design for the next generation, includes the selection of environmentally friendly materials, such as cork, flooring made from wood waste and a fish-scale wall design with tiles made from recycled plastic bottles. The judges felt that the design showed great imagination and thoughtfulness,

commenting that the design creates a joyful, creative experience which arouses curiosity and encourages play, making it the perfect environment for children to learn and grow.

Where is the project based?

Riverside Nursery is based in Twickenham, West London, next to the River Thames.

What was the brief?

The brief was quite simple. To create a minimalist, design-lead environment that felt homely but that was also super hard wearing.

How did you come up with the design?

Our approach with most commercial projects, and especially a business that exists with multiple sites, is initially to create an Interior Design Brand Book for the business overall. This creative “bible” sits as the anchor point for all future decisions, from paint colours to light fittings and everything in between!





With a brand name of “Riverside” we naturally enough landed in a very comfortable place for us, bringing nature led design front and centre!

In the midst of the 2nd lock down in the Covid pandemic, the idea of creating an indoor environment in an old church that lacked space or daylight was initially a large challenge. The space also lacked an outdoor area.

For us, some of the biggest design wins came from removing most internal walls and creating a free-flowing space. As this was formerly a church in its initial design and construction, it benefitted from having huge, beautiful windows that suddenly flooded our two newly formed classrooms, with daylight and access to openable windows to let fresh air flow through the space. Another big decision early on was to prioritise movement and space for gross motor skill development in the classrooms, creating play structures built out of wood, cork, natural rope and fabric.

Could you go into more detail about specific sustainable elements of the project? E.g. materials, suppliers, sourcing, co-designing.

Classrooms in nursery and childcare settings are frequently filled with off the shelf plastified offerings that are incredibly hard wearing but not amazing from a sustainability perspective or from a place of original design. Luckily for us this client, Amy, has a passion for design and a love for sustainability. This really

let us explore an incredible array of materials and products that let us create a truly unique learning environment that really stood out from the competition. Bespoke furniture made almost entirely from plywood gave an instant feel of outdoor texture. The tiles of the feature fish scale wall are made from recycled plastic bottles, the flooring is made from wood waste, and the reception desk and surrounding walls are clad in cork.

Why is sustainability important to you?

For us at House of Kin sustainability is something we try to weave into projects as seamlessly as possible, no matter the client or the project. I think it's an easy thing to prioritise when our main clients are children. The weight of literally designing for the humans of the future could easily weigh heavy on you, but we find it an incredible moment for inspiration.

What does the client think of the project?

We were so lucky to have such a trusting client that gave us a relatively free reign to create something truly unique to bring as an offering to a busy pre-school environment. You have to be grateful for moments like that. The proof was also in the pudding when we watched the children and parents come into their newly renovated nursery on the first day back – their faces said it all – one parent even cried.

<https://www.houseofkin.co.uk>

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BIOPHILIC DESIGN FOR DEMENTIA FRIENDLY SPACES

“A well-designed public space has the ability to bring people and communities together, alleviate the impacts of the climate crisis and boost wellbeing.”

Angeli Ganoo-Fletcher

As the UK's population ages, landscape architects must focus on leveraging public realm's potential to combat the effects of cognitive and sensory decline by creating green spaces that empower people with dementia to lead active, healthy and enjoyable lives.

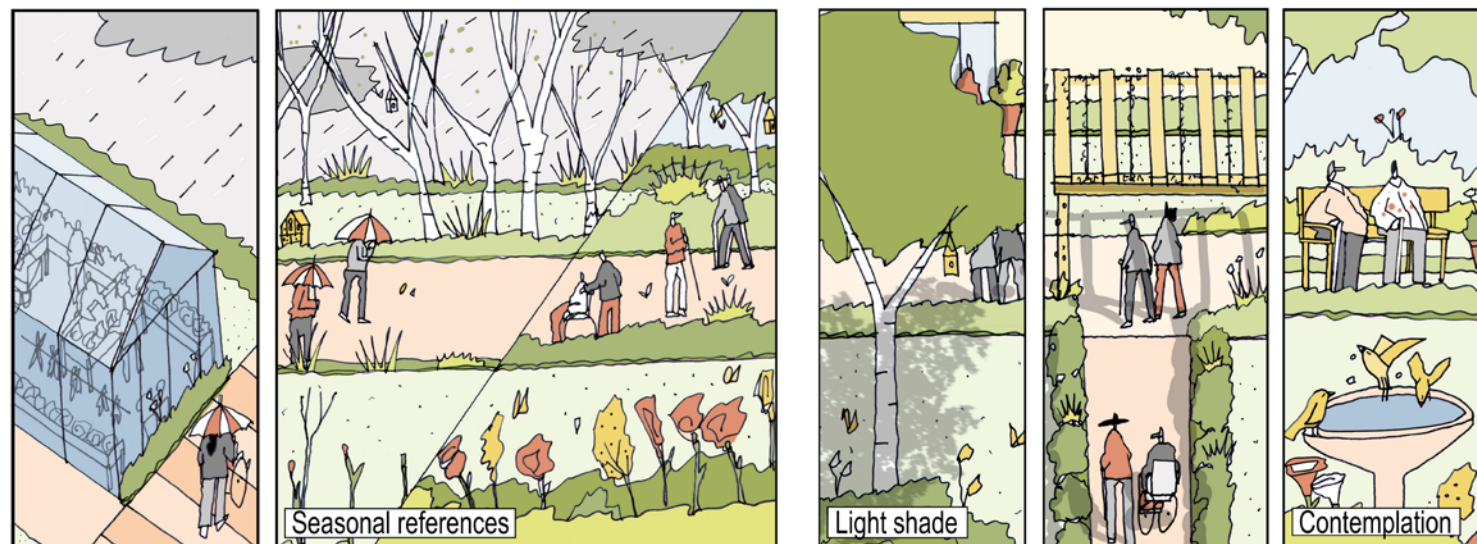
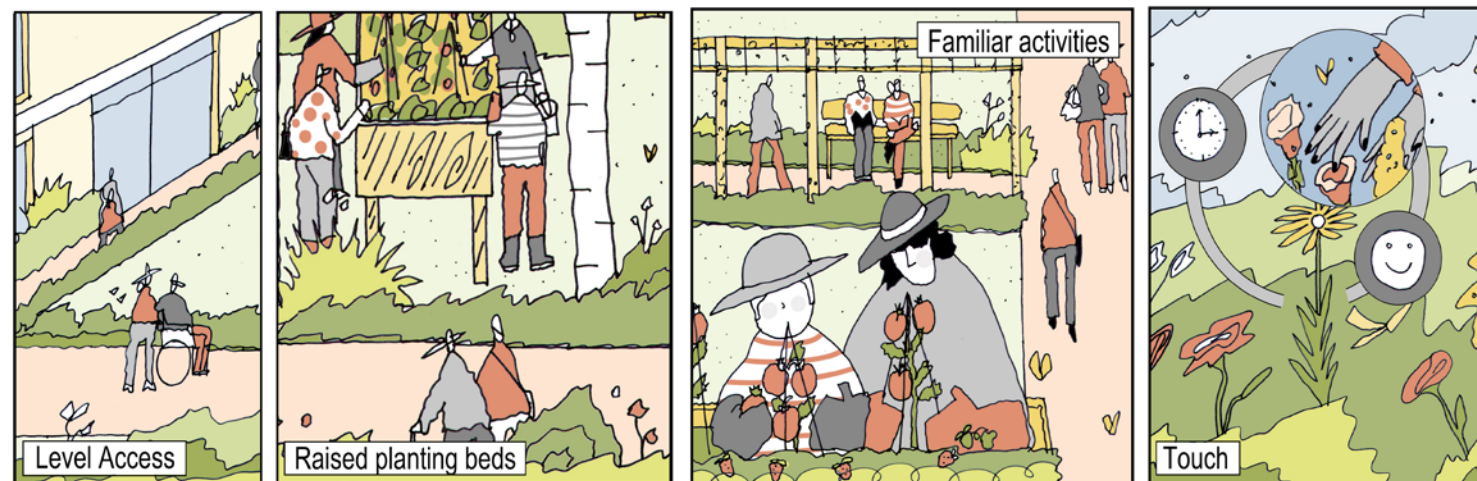
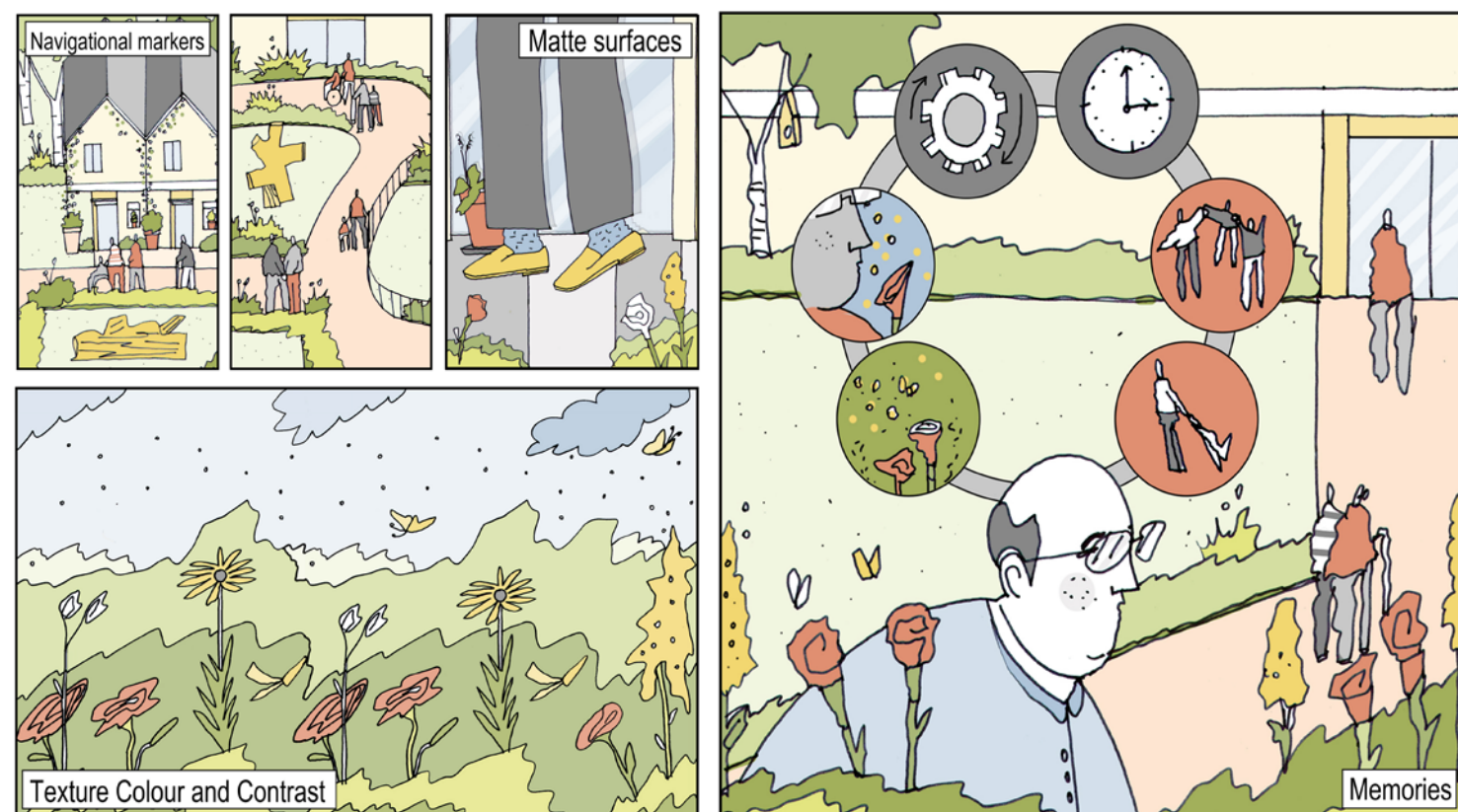
The University of Stirling and the King's Fund have conducted significant research on how the built environment, including landscape design, impacts people with dementia. Forming design principles that we can draw from to make public realm easier to navigate, more engaging and safer.

Dr Wendy Mitchell, best-selling author and dementia research champion, said

that she ‘treats dementia as a game. It throws me a challenge and I solve it to try and keep one step ahead... that's what dementia is about, a life of adapting.’ A well-planned garden should also be adaptable to allow for a range of activities and events. It's important that we still retain the qualities that make green spaces joyful, engaging and mood-boosting.

A well-planned garden space is not just visually attractive but can also provide holistic treatment benefits. There's opportunity to explore physical exercise, which can help with tension and feelings of aggression, as well as private spaces for thought, reflection and exposure to vitamin D for health benefits.

A DAY INTO A ... Dementia Friendly Garden





A few constraints were identified in the space following an evaluation. Firstly, the already small size of the available space is surrounded by a secure timber fence and underground services run along the building edge with a recessed manhole cover, limiting the already small space further. Furthermore, emergency access is required, including accessing the garden within the patients' beds.

On the other hand, the garden is secure, overlooked and level which provides a great opportunity for a safe outdoor space. The garden benefits from a well-developed woodland background giving the feeling of a wider landscape and encouraging the relationship between people and nature.

Taking these constraints and opportunities into consideration, the final design offers a simple layout with a central green area and spaces to sit, engage and rest. It includes tables with wheelchair accessibility, a growing area, a flexible terrace, a covered pergola and a selection of landscape features so patients can engage with and explore the garden. The garden allows for the patients to enjoy gardening and connect with the wildlife as well as opportunities to sit with the bird boxes and bug hotels made by the Bridge for Heroes and decorated by West Norfolk Carers Dementia Café.

The planting strategy places the senses front and centre to provide a sensory experience for the patients to help stimulate memories and cognitive activity.

The West Dereham Garden is the result of an outstanding collaboration between PRP and the Queen Elizabeth Hospital King's Lynn NHS Foundation Trust. The Trust aimed to create a serene, dementia-friendly garden for all patients, staff and carers to enjoy. The Ward was designed in a way to avoid the clinical atmosphere frequently found in care homes and instead incorporated a memory wall, local photographs and a day room which opens directly to the garden serving as a cohesive natural expansion of the ward.

The upkeep of the space is contributed to by patients, in order to empower them with a sense of ownership and stewardship over the local natural environment, ultimately contributing to a holistic treatment plan in combination

with medical assistance. Furthermore, their contact with the natural world around the Ward can aid in creating a superior quality of life and a stronger sense of community among the patients.

PRP held a series of co-production exercises with the Trust and local people impacted by dementia, such as members of Kings Lynn Dementia Café (run by the Trust's charity partner West Norfolk Carers) and Carer's Voice in order to develop a truly reflective brief. We then developed multiple concept sketches incorporating different ideas for the space's layout and uses, while enhancing the garden's existing features and ensuring that the final outcome would answer the needs of the people that will be using the space – a key part of PRP's design ethos and of inclusive design.



Designed as a miniature wildlife haven to support local biodiversity through its design, the garden includes native and evergreen species as well as flowering plants for pollinators and seeds for small mammals and birds. The tree species selected also offer wildlife benefits with edibles, berries for wildlife and bark habitat. A wildflower meadow is also proposed on the perimeter of the garden along with additional trees. These environmental features aid in creating a relationship between the patients and nature, giving life that flows transitionally both inside and outside the Ward.

A set of Design Principles were thought up to guide the design of Dementia-friendly outdoor spaces and

support the emotional and physical wellbeing of the patients, creating a connection to the space through the local ecosystems and landscapes. These principles are foundational at PRP when designing gardens and open spaces for Later Living, Extra Care and specialised Care schemes:

- Access, movement and orientation
- Memory and mental mapping
- Sensory stimulation
- Shelter and shade

The following are six elements of biophilic design which, incorporated with PRP's Design Principles can help create a successful, relaxed, holistic relationship between people and nature, providing extensive health and lifestyle benefits:

- Environmental features
- Natural shapes and forms
- Natural patterns and processes
- Light and space
- Place-based relationships
- Evolved human-nature relationships

As we look into the future of landscape design, well-designed landscaped spaces will play an increasingly important role in promoting health and wellbeing for all people, not just those with dementia. By encouraging a biophilic, nature focused design strategy we're helping to create inclusive spaces for everyone to enjoy and connect with nature. This not only aids people through increased quality of life, improved physical and mental health and cognitive functionality but also our planet.

Angeli Ganoo-Fletcher is PRP's director of Landscape and oversees the landscape and placemaking portfolio for the PRP studios. With over 25 years of experience, she is responsible for managing the landscape team, covering all aspects of landscape procurement from feasibility stages to design development, implementation, and delivery of large-scale residential and commercial landscapes as well as the intimate landscape required within the care industry. She sits on a couple of Design Review Panels namely the Kingston Placemaking Design Review Panel as well as the Frame Royal Borough of Greenwich Design Review Panel. As a chartered landscape architect, Angeli integrates environmental and social values into external spatial design and arrangement. This approach aims to enhance people's lives and the environments they inhabit.

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BIOPHILIC DESIGN – TRANSITION INTO STANDARDS

“The British Standard Institute’s PAS 6463 “Design for the Mind – Neurodiversity and the Built Environment” has reference to Biophilic Design. Technical author of the Standard shares with us why and how Biophilic Design is important part of this design specification.”

Jean Hewitt

The understanding and application of Biophilic design principles has increased very significantly in the last few years and there are numerous authoritative texts and sources of information and specific project examples.

To date, that information and application has been voluntary, and demand and designer led, rather than imposed by any formal requirement or incorporated into more formal guidance generally. The inclusion in the WELL standards is widely welcomed but until recently there has been little mention in standardisation internationally or in the UK.

However, I feel this is about to change and is not something to be feared. The British Standard Institute’s PAS 6463 “Design for the Mind - Neurodiversity and the Built Environment” was published in 2022 and includes a short section plus numerous mentions of the

significant impact that biophilic design can have on building users.

PAS 6463 had a two-year period of development with me as BSI’s appointed technical author and a wonderful steering group of experts appointed by the British Standards Institute. A PAS is a fast-track standardisation document, which defines good practice for a product, service or process and it is created in response to either urgent market needs or specific industry requirements. In this case, the initial work was undertaken during the pandemic which perhaps led to wider thinking on wellbeing and the role nature has to play in our lives. In this case, PAS 6463 has been a great vehicle to fast track long awaited guidance to improve the built environment for a significant part of the population and benefit the wellbeing of the population at large.



Front cover:
(Copyright Buro Happold)

PAS stands for Publicly Available Specification, but the content is not prescriptive – it is full of considerations around different user needs and design principles rather than specifying exactly how designs should appear or measure. Furthermore, it can be applied to any environment, outside and in, and is not targeting buildings that are focused on specialist care and/or supported living.

Like any standard, the content of a PAS has to reach full consensus among stakeholders regarding its technical content, it must not conflict with or duplicate existing standards and must complement any relevant legislation. The primary purpose of a PAS is to create a standard to meet industry needs, bridging the gap between informal guidance and formal standards. Typically, a PAS has a two-year period for evaluation.

The focus of PAS 6463 is to encourage the design and management of the built environment to be sensory friendly, reducing the risk of a bombardment on the senses triggering sensory overload for the many people who experience hypersensitivity from one or more of the senses, particularly visual, auditory, smell, touch, and proprioception. Whilst a sizeable proportion of people with diagnosed neurodivergent traits experience hypersensitivity, it is not an exclusive club – everyone welcomes calmer environments at times or, at the very least, the option to move to a calmer setting when things get too much. PAS 6463 is therefore about offering choice and control to users, and somewhere to

go to recalibrate when things become too much. Biophilic design principles are very much part of this, as such interventions provide a more calming environment which particularly helps people experiencing anxiety in any form and has a preventative effect.

So, if it's not prescriptive, why bother putting it into a standard?

Firstly, despite our innate connection with nature, there are many designers who either simply do not consider the importance of connecting with nature inside a building or feel that not every building warrants such considerations. In some building it may be dismissed as too difficult, (such a buildings where planting is not permitted), but every environment can benefit from even small interventions, and biomimicry can be appropriate in some situations. Including biophilic design in a standard is a reminder to designers and facility managers that this should be considered for all buildings.

Secondly, the inclusion within a standard raises the perceived importance as it will inevitably be taken more seriously than many other forms of guidance. The reason standards are so well respected is that they have been developed by industry experts with objectivity and consensus (for the PAS it had public consultation before publication with over 4000 comments actioned on the first draft). The rigorous processes in place eliminate much of the potential for negative impact and maximise the opportunity for success.

PAS 6463 Content on Biophilia and Biophilic Design

PAS 6463 contains much guidance on elements or features to avoid in order to reduce the potential for discomfort, anxiety or sensory overload for people who have sensory sensitivity (which can be to one or multiple senses). There are three overriding principles, which I call the three “C’s”: Clarity, Control and Calm. A key consideration is to create places where everyone can survive or even flourish and our innate connection with nature is a key resource we can all use to make even the busiest environments feel better. PAS 6463 therefore touches on the benefits of biophilia and biophilic design in multiple places throughout its content which help with the calm aspect. Just a few examples from the PAS6463 are given below:

- Designs that offer visual clarity and simplicity;
- Introducing planting where possible, but in an uncluttered way;
- Applying the golden ratio to replicate proportions found in nature;
- Using fractal patterns rather than linear;
- Giving users of the environment access or views of nature;
- Designing lighting that is more closely aligned to daylight;

The objective was to plant a seed that will encourage designers to become more informed about the significant role biophilia can have and always consider how this can be introduced into projects in a variety of ways, alongside many other measures to reduce negatives impacts from buildings and urban spaces.

By introducing biophilic design into design standards, mandatory or

voluntary, the importance of biophilia is acknowledged and given emphasis which we hope will strongly encourage designers to explore ways that can work in various building types.

PAS 6463 is free to download at the current time and the uptake and level of interest has been extraordinarily high, driven no doubt by the many individuals who have been negatively impacted by how we design buildings and urban environments. The standard is being taught, referenced, and applied in both the UK and internationally.

[Neurodiversity & the Built Environment – PAS 6463:2022 | BSI \(bsigroup.com\)](#)

Spreading understanding about biophilic design

Good understanding around the application of biophilic design is still not entirely mainstream, and whilst this allows designers to interpret and apply as appropriate in the same way as other design elements with no two buildings being exactly alike, it can also lead to some applications that are unsuccessful.

At the current time, very few academic design courses include inclusive design for all user needs or give any depth to how to introduce biophilia or it's transformative effect on a space. This too is beginning to change with some university courses for built environment professionals including a module on biophilia and inclusion (an example being UCL's highly successful MSc programme at the Bartlett: “Health, Wellbeing and Sustainable Buildings” which is in its 6th year and has modules focusing on inclusive design and biophilia.

What next?

There are opportunities to include biophilic design principles in other standards as they emerge for revision, and perhaps to consider if there should be a standard purely on this topic – that is something I would love to explore personally as I have learned first-hand how much difference a standard can make to design development through my role on PAS6463.

Jean Hewitt, Inclusive environments specialist at Buro Happold and technical author of PAS 6463.

<https://www.burohappold.com/people/jean-hewitt/>

<https://www.ucl.ac.uk/bartlett/environmental-design/jean-hewitt>

Contents (snapshot from BSI PAS 6463 BSI):

1 Scope.....	9 Mechanical, electrical, plumbing (MEP).....
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3 Terms, definitions and abbreviated terms	11 Light, lighting and reflection
4 Developing the brief.....	12 Surface finishes
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Icon used in standard for biophilia: (Copyright Buro Happold)



PAS 6463 collection of icons: (Copyright Buro Happold)



The three C's: (Copyright Buro Happold)



How do we Design in a more Neurodiverse Light

“As humans we all have our own ways of thinking due to the infinite circumstances under which our brains are formed. Whilst most of us think along ‘neurotypical’ lines, there is a growing awareness around another style of thinking classed as ‘neurodivergent’. It refers to how a person’s brain may process, learn, or behave in a different manner from what is considered ‘typical.’”

Guy Kornetzki, Associate Lighting Designer, Nulty

In the world of lighting design, where we design for the people that inhabit a space, neurodiversity is a consideration that has not been given the attention it deserves. Light has an unrivalled emotional power. We use it to animate our interior schemes, build interest, and encourage interaction in the knowledge that people tend to prefer visually stimulating settings to dull and muted ones. Consequently, we have seen a rise in dynamic lighting; pattern projections, colour-changing light, and pixel-controlled illumination effects are often used to add movement and drama to a scheme. For many people, these environments are a welcome source of intrigue and fun, but for some, it can be sensory overload. Research tells us that people who view the world through a neurodiverse lens may be more sensitive to these types of environments and that certain types of lighting can confuse, distract, and distress. They may even affect a person’s ability to function in a way that impacts upon their wellbeing.

The lighting designer’s primary reference is the people that occupy our schemes, so designing for neurodiversity makes complete sense, but it has its challenges. No matter how good our intentions are, it’s impossible to design for everyone because there are too many variations. Some people find it disorienting to be in spaces with a high contrast between light and shadow. We are learning more about how high illuminance levels are a common issue amongst people with ADHD, and how long, continuous linear lights may prove distressing to those with dementia.

So, how do we cater for everyone? Can we? If we strip our concepts back to the essentials, we run the risk of creating an unimaginative and monotonous space. We know this isn’t good for us either. Conversely, if we design to maximise visual impact, it may prove overwhelming to certain people. There must be a balance.

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A truly inclusive design will find a way to incorporate both approaches to create an appealing lighting scheme that doesn't distract or cause discomfort. We know that a neurodivergent person is more likely to be hypersensitive to visual aspects such as light, glare, flicker, and patterns, so it's imperative to find ways to mitigate these elements and build in visual respite for those that need it. Our schemes should offer a mix of lighting elements across different spaces. We

need quiet and muted visual areas to counteract those where high visual stimuli are necessary but might prove overwhelming. Areas that require high illuminance should be supplemented with low level lighting environments. We need to avoid using contrasting patterns and colours and employ gradual changes between light scenes. Finally, we need to prioritise control and give people the ability to adjust light levels to suit their personal requirements.



It is likely that we will see a greater level of personalisation in our spaces in response to people's varying requirements. It is a design approach that we should be aiming for in the workplace sector, where occupants will benefit from having more control over the light levels around their own desk – cue a return to the traditional desk lamp. Or alternatively in an education setting, where young people may benefit from a classroom that is half brightly illuminated and half subdued. Perhaps we might even be able to incorporate dedicated areas where the lighting is appropriately tailored and considered.

Designing for neurodiversity is an important movement that we all need to get behind, so it's great to see that the British Standards Institution (BSI) has published **PAS 6463 Design for the mind – neurodiversity and the**

built environment. Spearheaded by Jean Hewitt, a senior member of the inclusive design team at consultant engineering firm Buro Happold, it is the first publicly available specification that outlines the need for control and clarity of space when designing for neurodiversity. The guidance provides detailed advice on lighting design, quality of light and colour temperature, and represents a concerted effort to raise awareness about this topic and define a best practice approach.

It's not going to be easy to find a balance between design and inclusivity and we won't find a solution overnight. But if we start now, take the time to build our knowledge, and steadily adapt our designs to make them more inclusive for all, then it's a step in the right direction. Our society will be a much better place for it.

<https://www.nultylighting.co.uk>



The Importance of Light

“From the moment we wake up to the second we close our eyes to sleep, light affects our cognitive process.”

Frankie Boyle

Light is the most influential force that we have on this planet, both psychologically and biologically.

In biological terms, the engine of our bodies is fuelled by food and built by light.

When we receive light through the eye, only 10% of that light gets converted into vision. The rest of it gets to work maintaining the rest of our cognitive processes including memory, hormones, heart rate, digestive system, and motivation.

As primal beings we have evolved to need natural light. In our modern-day world, we need to use biophilic design to reflect the natural world, allowing us to tune into our circadian rhythm and continue this evolution.

A lot of public buildings still use lighting with a Colour Rendering Index (CRI) of 70 when we should be using a CRI of 90 or above as it contains higher wavelengths, meaning more clear and brighter vision for our cognitive processing systems to feed off.





Artificial light was developed 180 years ago as a tool to allow us to see when the sun goes down. Since then, as a population we have developed our understanding of the positive impacts that food, water, and exercise has on our overall health and wellbeing. What we have failed to educate people in, is the importance of the temperatures and intensities of light at different times of the day as an integral ingredient to positive human behaviour.

We are all fascinated by human behaviour, it stems from seeing and perceiving the world around us through our senses. **I was born with a speech and language disorder, along with the people's favourite of ADHD and Dyslexia. I think it's safe to say that language was not my language.**

However, I am a big believer that if you take one sense away your other senses grow stronger and my sense for vision, which translates into light heightened. **Light is a language that everybody speaks whether they are aware of it or not.**

Fast forward 30 years and I have developed my understanding of the psychological and biological effects of light. My mission is to educate everyone on the importance of light to our health and wellbeing. A huge element of this is using intelligent lighting to reflect the time of day by adjusting the temperature and position of lights in our homes and public buildings.

Frankie Boyle is an Artist,
Creative Technical Director
and Speaker

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Bridging Nature, Art, and Community

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Biophilic Design's Influence on Neurodiverse Creativity and Social Impact

IDr. Mars Sambo, PIID

Since the second quarter of 2022, ISHIKAWASAMBO has teamed up with Kapukapu Kawawa, a non-profit organization based in the Tsuzuki-ku ward of Yokohama's Kanagawa Prefecture. This collaboration serves as a fundamental component of their social entrepreneurship initiative, Makers' Day! a bi-monthly community event aimed at raising awareness of local businesses within the community. The studio, renowned for its architecture, interior design, and art production across various media, plays a pivotal role in transforming the artwork of Kapukapu's resident artists into a range of products, amplifying community engagement and awareness for all participating groups.

As society increasingly recognizes the importance of inclusivity and holistic well-being, the role of nature-inspired elements in fostering creativity, self-expression, and social change among neurodiverse individuals becomes apparent. Biophilic Design principles offer significant benefits in this regard, particularly in art therapy spaces. By seamlessly integrating natural elements into therapy environments, Biophilic Design provides sensory comfort, stimulates creativity, and enhances emotional regulation. (1)

ISHIKAWASAMBO's Yokohama headquarters exemplifies the transformative impact of Biophilic Design. Situated within a spacious corner lot enveloped by dense foliage and a meticulously crafted landscape designed by the architect's late father, the studio's ever-changing architecture and interior design reflect a commitment to biophilic principles. Once known as Urban Clinic, the space is now dubbed Urban 2.0, exuding tradition and transformation. The studio's grounds feature seasonal décor provided by the family's artists, including the architect's late grandfather, a potter turned medical doctor to avoid being drafted into the Second World War. His creations now adorn the studio and the house on the second level, serving as both everyday dining ware and rotating seasonal décor. The ones not used are displayed on the shelves and table the architect and interior designer made by hand 3 years ago for a trade booth in Tokyo. Additionally, the architect's sister, an ikebana artist, frequently visits to style the studio and home according to the season – further enriching the biophilic environment and enhancing the overall ambiance of the space.





Art therapy provides a structured yet flexible environment for neurodivergent individuals to explore and express their inner world through various artistic mediums. This therapeutic approach enables them to communicate thoughts, emotions, and experiences that may be challenging to articulate otherwise. (2) In the case of Kapukapu, their facilities in Tsuzuki-ku include an atelier near the river and a cage adjacent to Kawawacho station. While the café setting may be overstimulating due to its proximity to the train station, crosswalk, and mall, the garden views offer a respite, allowing resident artists to appreciate the beauty of nature and find focus. Conversely, the atelier offers a more serene environment with its private vegetable garden and suburban location, providing easier access to nature and the river. With larger windows overlooking gardens and neighbouring farms, the atelier fosters a relaxing atmosphere conducive to artistic creation, allowing artists to immerse themselves fully in their work.

Biophilic Design principles offer significant benefits for neurodivergent individuals in the context of art therapy. Given varying heightened sensitivities, sensory comfort is paramount. By integrating elements like natural light, soothing textures, and calming materials within therapy spaces, their comfort and relaxation are greatly enhanced. Tuning into fractal fluency (3) in the materials, patterns, and visual connections to nature stimulates creativity and inspiration thereby fostering a deeper

artistic expression. Emotional regulation is facilitated by features such as water elements, organic forms, and dynamic natural lighting, which enhances mood and promotes a sense of calm. Encouraging engagement with nature through views of the outdoors or indoor plants not only enhances mood but also cultivates a deeper sense of well-being and connection to the natural world. {4}

Ever since Kapukapu joined the Makers' Day! event, they have been stationed at the entrance lobby of the studio. The large windows let natural light in, giving a warm glow to the art featured. As the area was previously the waiting area of the clinic, the materials used are already in subdued earth tones, with large comfortable sofas and wooden display furniture available to assist with visual merchandise. This integration of natural light, calming materials, and soothing earth tones not only enhances the ambiance of the space but also contributes to the sensory comfort and emotional well-being of the neurodivergent individuals of Kapukapu.

Understanding neurodiversity and its relationship with creativity is a nuanced exploration of the vast spectrum of neurodiverse conditions and their potential impact on self-expression. Neurodiversity encompasses a wide array of cognitive differences, including autism, ADHD, dyslexia, and more, each offering unique perspectives and strengths. (5)





Creativity serves as a therapeutic tool for neurodivergent individuals who may struggle with verbal communication or processing emotions. Engaging in creative expression is accessible and empowering. (6) This releases dopamine which is associated with feelings of pleasure and satisfaction. A sense of accomplishment, self-worth, and overall happiness bolsters mental resilience and combats symptoms of anxiety, depression, and stress commonly experienced. Creative pursuits promote the development of problem-solving skills, flexible thinking, and innovation that fosters a sense of agency and empowerment in one's life circumstances.

A poignant example of this empowerment started to occur when ISHIKAWASAMBO facilitated Kapukapu's art sales, garnering buyers and attention from broader communities which then inspired confidence and self-esteem among the artists.

Interdisciplinary collaboration between art therapists, designers, neurodiversity specialists, and entrepreneurs is paramount in creating effective art therapy spaces for neurodiverse individuals. By bringing together diverse perspectives and expertise, these professionals can develop innovative solutions that address the complex needs of neurodivergent populations. Art therapists provide insights into therapeutic techniques and approaches, ensuring that therapy spaces are conducive to healing and self-expression. Designers contribute their knowledge of spatial design and aesthetics, creating

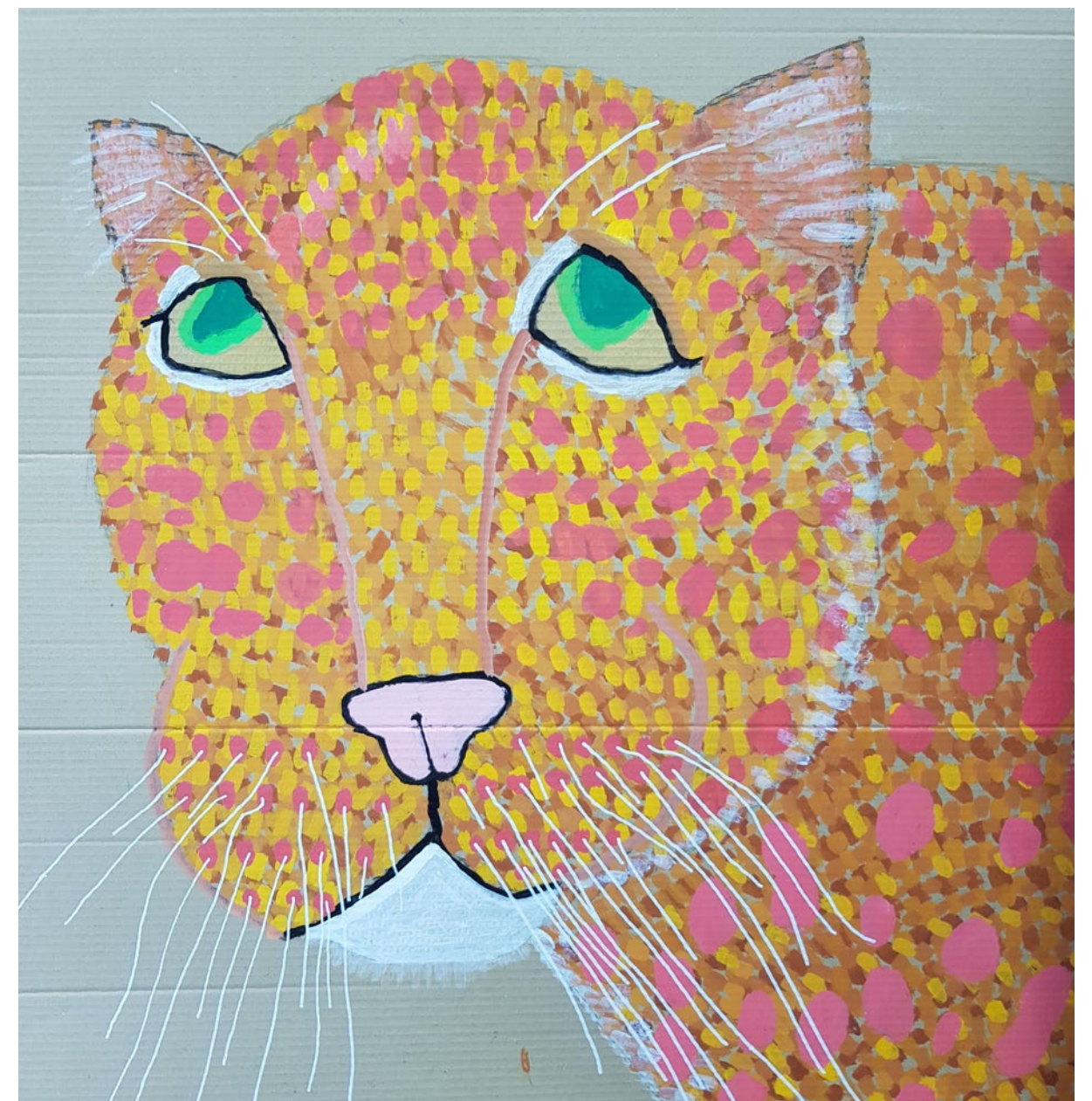
environments that are both functional and visually appealing. Neurodiversity specialists offer valuable insights into the specific challenges and strengths of neurodiverse individuals, ensuring that therapy spaces are inclusive and accommodating. Additionally, entrepreneurs can provide support, drive innovation, and advocate for increased access to art therapy services. Through collaborative research and dialogue, interdisciplinary teams can develop holistic and sustainable solutions that promote the well-being and empowerment of neurodiverse individuals.

Despite the promising potential of Biophilic Design in enhancing neurodiverse creativity and social impact, several challenges and future directions should be considered. Firstly, there is a need for more research to further understand the specific needs and preferences of neurodivergent individuals in art therapy spaces. This includes exploring the effectiveness of different biophilic design elements and their impact on sensory experiences, emotional regulation, and overall well-being. Additionally, there is a need for greater accessibility and affordability of biophilic design interventions, particularly in healthcare settings and community spaces servicing neurodiverse populations. Collaboration between researchers, practitioners, policymakers, and community members will be essential in addressing these challenges and advancing the field of Biophilic design for neurodiverse individuals.

<https://en.ishikawasambo.com>

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The Intersection of Neurodiversity and Biophilic Design

“In the contemporary discourse on environmental sustainability and architectural innovation, biophilic design has emerged as a beacon of holistic integration, reconnecting human spaces with the natural world.

This philosophy, rooted in the essence of bringing outdoor elements indoors, not only revitalises our physical environments but also echoes a profound parallel with the principles of neurodiversity in the workplace.”

Josh Goodison

Just as maintaining the vitality of green elements within biophilic designs poses an ongoing challenge, so does nurturing the diverse spectrum of human minds in our professional environments. Nature’s inherent dynamism – with seasons changing, plants growing, and ecosystems evolving – mirrors the fluidity and expansiveness of neurodivergent individuals. Both realms require a departure from static norms in order to truly flourish.

The crux of biophilic design lies in its adaptability, creating spaces that evolve with the natural rhythms of growth and decay. This adaptability is equally critical when fostering an inclusive workplace for neurodivergent individuals. Static architectural and organisational norms

fall short in accommodating the rich array of cognitive Operating Systems. Like the ecosystems embraced by biophilic design, neurodiverse teams thrive in environments that are flexible, responsive, and open to evolution.

In densely populated urban settings, where space is at a premium, biophilic design innovates to introduce natural elements without sacrificing valuable real estate. This mirrors the challenge of embedding neurodiversity support and initiatives within existing organisational structures. Innovations such as vertical gardens and rooftop green spaces parallel strategies like flexible work arrangements, support without the requirement of disclosure, and tailored situational solutions.



The movement towards environmental consciousness and the incorporation of biophilic elements is not just about reshaping our physical surroundings but about reevaluating our relationship with the natural world and its impact on productivity, efficiency and wellbeing. Similarly, advancing neurodiversity support and awareness in the workplace is not solely about making accommodations for a disability, but about fundamentally rethinking our perceptions of the value in natural diversity of thought.

As we navigate these challenges, they transform from obstacles into stepping stones toward a more inclusive, dynamic, and sustainable future.

The journey involves reshaping not only our physical environments but also our cultural landscapes, one green space and one neurodivergent talent at a time.

In conclusion, the principles of biophilic design and neurodiversity are intrinsically linked by the shared values of growth, adaptability, and sustainability.

By embracing these principles, we cultivate spaces – both environmental and organisational – that thrive on diversity and innovation, fostering a healthier planet and a more inclusive society.

<https://neurobridge.co.uk>

WE ALL NEED A NOOK

*“Inclusive design is not an inconvenient additional cost.
It’s a necessity to unlocking full human potential.”*

David O’Coimin

The process of product ideation can have all manner of genesis. They say necessity is the mother of invention. In the case of the Nook which I created, it was a combination of frustration and empathy.

I’m a typical ADHD mind. I’m a sensory seeker, an extrovert. I hop from one thing to another with ease and my creativity and energy are huge assets. I am also a disaster when it comes to focus, and I am a nightmare to share an office space with. We all know someone like me.

Things that I’d only vaguely classified as useful for putting people into categories of ‘like me’ and ‘not like me’, were fully illuminated and blossomed into more rounded understandings of the whats and whys of how people’s minds operate in beautifully different ways, and how they need different things in order to thrive.

Moreover, I came to realise that the world of work in particular, and the built environment in general, is not created, and nor does it evolve, with quiet minds in, er, mind.

Building operators create empty boxes for their tenants to populate. Designers create open prairies for collaboration. Facilities arrange space for factory-like order and efficiency.

As a space develops, in workspace as in life, the squeakiest wheel gets the oil. And the squeaking is done by the noisy ones, not the quiet ones. We need a table tennis table, a bar, more music, communal eating areas, a shared common room.

No one thinks about a library or putting the noisy pool table somewhere that’s not disturbing. Rarely is a thought spared for the easily overstimulated or for how noise and disturbance ruin focus and destroy a person’s sense of safety.

My hunger for knowledge led me to an epiphanic book, called ‘Quiet’ by Susan Cain. Subtitle: *The Power of Introverts In a World That Can’t Stop Talking*. It’s fair to say that I now see myself as pre and post that book.



It is with all of this one-sided thinking in mind, this sort of one-size-misfits-all approach, that I came up with the notion of a sustainable, easy to install, retro-fitable and hyper flexible space which would be: quiet inside, without isolating the occupant; which would be simple and accessible rather than high design and aloof; which would create a sense of psychological safety, borrowing from nature – a sort of refuge, from which the user could prospect over the environment, without having to leave it. Somewhere for good focus, for recharge, for deeper connections between colleagues and fundamentally a space where people could shed the anxieties of the open space in the spotlight for a moment.

Without realising it, I had instinctively created a more inclusive space. I had added a natural ingredient to an unnatural landscape. The den. The hideaway. The Nook.

Fast forward to today and you can now find Nooks in every type of workspace from corporate HQ to high street travel agent, in charities (helped by grants and refurbished Nooks) and libraries, in Museums and Football Stadia, in classrooms and university boulevards, in Hospitals and even a Broadway theatre.

To me this highlights a valuable principle which uncovers an opportunity we are missing – designing with neuroinclusive needs in mind creates solutions which are sorely needed, and which make the world better for all.







Nook is now certified as a Sensory Support Space for Autistic people and used clinically within Autism Centres in the US and in the NHS in the UK.

I will close with an anecdote from a recent conversation with a Museum Director. The Museum works with organisations who help neurodivergent people gain the skills to get into full time employment. One of the people sent to the Museum to train, wore ear defenders all the time. When he sat in the Nook, not only did he take them off, to the shock of those who had gotten to know him, but even more startling, he left them off when he got out and went about dealing with the work, the staff and the public. When asked how come, he told his handler that knowing the Nook was there if he needed it, made him feel safe.

Everyday thousands of people are made to feel safer, seen, more powerful and given a sense of belonging due to inclusive designs like Nook.

If we could design our world to feel kinder, with spaces for quiet moments, protection, and recharge - using principles of universal design, biophilia, trauma informed design and design for the mind - we could unlock the potential we are currently suppressing and make our way out of the darkness of the crisis we face. We are going to need all of our minds, doing our best work, in order to do so. Inclusive design is not an inconvenient additional cost. It's a necessity to unlocking full human potential.

<http://nookpod.com>

“Discusses the burgeoning understanding of neurodiversity in a workplace context, and the impact biophilic design can have in mitigating the challenges neurodiverse individuals can encounter there.”

Over the last few years, our understanding and cultural acceptance of neurodiversity have advanced rapidly. The natural variations in human neurological traits seen in conditions such as Autism Spectrum Condition (ASC), Attention Deficit Hyperactivity Disorder (ADHD) and dyslexia have become far more widely acknowledged and better understood.

As the challenges and strengths of such ‘differently-wired’ brains come to be recognised, so too does the need to design spaces which accommodate the diverse needs of all individuals everywhere, not least in our offices and working environments.

Conversations about neurodiversity have found fertile ground in this space, where ergonomics and human factors professionals have always championed the importance of recognising and accommodating the needs of the individual.

As Guy Osmond, Founder and MD of Osmond Ergonomics, puts it: “We have long understood the connection between our environment and our physical and psychological wellbeing, making the case that people must be accommodated as individuals. We are now seeing this recognition taken to the next level as we consider differences of the mind and ways of thinking, and the range of ways in which people experience and interact with their environments and others.”



One topic that has particular significance in this regard is biophilic design. Tapping into our innate connection with the natural world and harnessing its restorative qualities not only enhances the wellbeing of all occupants, but also holds particular promise for supporting neurodivergent individuals in workplace settings.

The journey so far

The language of ‘neurodiversity’ first started to emerge in the late 1990s (LeFevre-Levy et al, 2023) but it is only in the past few years that awareness has really permeated the public consciousness. We now know that up to one in five of us has one or more forms of neurodivergence according to some estimates (DCEG Staff, 2022).

Guy Osmond believes the pandemic

“was a catalyst for conversations around mental health”, which in turn “gave a green light to bring other hitherto unspoken issues to the table: topics such as the menopause and neurodiversity. By bringing any one of them into the conversation, the others shift into focus too,” he explains.

“The shift to homeworking and then hybrid working, as a result of Covid, was another important trigger”, adds Guy. “At home, people could control their working environment to suit themselves. That experience has thrown into relief the challenges and shortcomings of the office environment, especially for neurodivergent individuals. For those with sensory or processing differences, the ‘traditional office’, which might be loud, brightly lit, and filled with visual noise, can be a place not just of distraction, but of sensory overload.”

Workplace challenges

Harsh lighting and constant noise, as seen in many open-plan offices, can be stressful under any circumstances, but often especially so for neurodivergent individuals due to heightened sensorial perceptions. They might also face discomfort with standardised ways of learning and socialising, and difficulties regulating their moods.

The demand of dealing with this kind of

environment and the increased cognitive load can take a real toll, leading to more anxiety, fatigue and, in some cases, potential behavioural changes and poor mental health. (BSI, 2022). The British Council for Offices (BCO)'s 2022 research report: *Designing for Neurodiversity*, linked poor office design with increased occurrences of burnout among neurodivergent individuals, who appear more likely to develop the syndrome especially as they often mask or suppress symptoms in order to fit in.



Neurodivergent strengths

On the flip side, as the challenges of neurodivergent traits receive wider recognition, we are also becoming aware of the unique strengths that neurodiversity brings. These include enriching the workplace, providing new perspectives and boosting innovation. For example, the ability of some people with autism to observe and recall detail, recognise patterns, spot illogical processes, or focus single-mindedly on a task have all been linked to business benefits (Krzeminska et al, 2019). Some have noted the association between ADHD, creativity and entrepreneurial success.

Research also suggests that dyslexics may have a greater affinity towards holistic information processing, which allows them to make connections more easily and see the bigger picture (LeFevre-Levy et al, 2023). In certain fields, neurodiverse teams have been found to be 30 per cent more productive than others (Harvard Business Review, 2017). In fact, such is the interest in the benefits of working with such differently-wired brains, that a number of well-known companies, including Microsoft, Goldman Sachs, Google and JP Morgan Chase, have started programmes to recruit and employ neurodivergent workers, claiming several benefits, including increased organisational performance (LeFevre-Levy et al, 2023).

Adds Guy: “Truly valuing different minds means creating neuroinclusive environments which do not disable them, minimising and managing stressors so that all individuals have the same opportunity to be successful and happy at work. Biophilic design could be a key to unlocking that potential.”

Biophilic design for neurodiversity

As the *Designing for Neurodiversity* report sets out, certain spaces can be disabling due to their poor design and lack of consideration for the diverse needs of users. It highlights the fact that neurodivergent individuals, while each of their experiences is unique – are often negatively impacted by light and noise pollution and other sensory sensitivities.

Their guiding principles for designing with neurodiversity in mind include ensuring that office spaces provide their occupiers with a sense of psychological safety, be intuitive, and be diverse and agile in their arrangements, taking account of thermal, auditory, visual and olfactory needs. For example, private sound insulated pods or rooms could be offered and lighting should be adjustable.

Specifically, incorporating elements of biophilic design can be a powerful tool in addressing these concerns “allowing individuals to readjust their sensory and social control over their environment.” (Hutson & Hutson, 2023).

Adds Guy: “We know that harnessing our innate connection with nature has been shown to have significant benefits for our physical and mental health - everything from our stress levels to our productivity. “But even if you can’t give employees time in nature, incorporating plants, natural light, water features, and calming visual stimuli - organic materials, natural textures and patterns, photos and paintings drawn from nature - has the power to trigger the restorative qualities of the natural world.”

Research into the benefits is compelling – linking biophilic design with a 15% boost to wellbeing, 6% greater productivity, 15% higher creativity, reduced negative emotions and stress, enhanced cognitive functioning, improved employee engagement, retention and productivity. On top of all this, health benefits include a 60% reduction in bacterial colonies, a 24% decrease in headaches, and a reduction in eye irritation by more than half. (Hutson & Hutson, 2023).

Adds Guy: “Biophilic design can support neurodivergent individuals in particular, by offering opportunities for sensory modulation and self-regulation. For example, spaces that incorporate elements such as greenery walls or indoor gardens provide a sensory break or an alternative stimulus, helping someone refocus their attention or manage stress.”

The multisensory and multimodal qualities of biophilic design are actually better for everyone, adds Guy: “*With more inclusive design, people do not have to change to fit the demands of their environment. Rather the environment, with its flexible spaces and biophilic elements, flexes to accommodate their various sensorial preferences, their shifting needs for privacy and interaction and for stimulation and for calm.*

“*Spaces like this are better for everyone – neurotypical and neurodivergent alike. Good design for neurodivergence is essentially just good design for human beings!*”

Guy Osmond, Founder and MD of Osmond Ergonomics, a leader in workplace wellbeing solutions for more than three decades.

<https://ergonomics.co.uk>

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NORSK NATURE RETREAT

Set in the hilly lake region north of Drammen fjord in Norway this retreat uses innovative design and construction to cause minimal cost to the pristine landscape, giving its users maximum exposure to a natural environment.

Stephen Melvin

The site lies in beautiful unspoilt landscape of trees, lake, and rugged terrain with an open southerly view. The approach passes a narrow gorge and requires wild river crossings depending on the level of the river. The tranquil lake setting lined with tall pine trees complements the dramatic craggy approach.

The rentable units are in a remote location and provide a back-to-nature experience complete with sustainable materials and technology. The interior spaces and their relationship to the surroundings are designed to calm, enabling users to unwind, restore and rejuvenate without compromising rural identity and the natural world. The client's aspiration is to enable others to benefit from reconnection with nature and tranquillity and to demonstrate we can, once again, live with nature without harming it. In the 21C, social media,

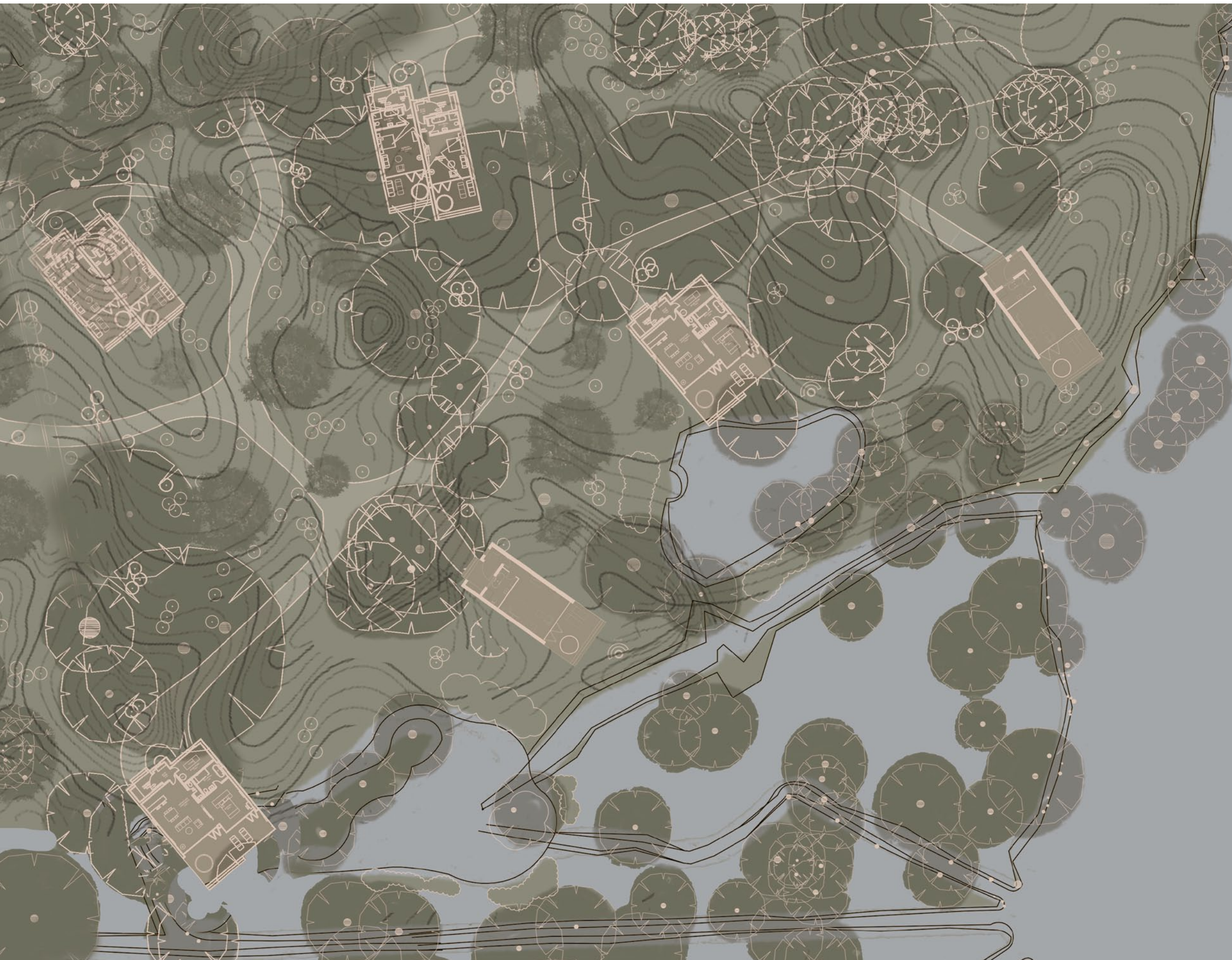
technology, AI, etc, are forcing people to disconnect. Norsk Retreat aims to help awaken the awareness that has been lost through industrialisation, reconnecting self, and the environment, with a sense of calm and exhilaration.

The simple cabin form echoes the surrounding peaks and lakeside coniferous forest shapes. The architecture celebrates the intention to unify construction with the natural characteristics of this place. The siting ensures all the cabins face downslope towards the lake with its views and find their individual position following the contours in the land. The front of the cabins is raised on a minimal system of timber and steel flitch connectors, 'tree columns', that distribute loads to the ground, and where the terrain allows the rear of the cabin sits on rocky outcrops. Overall, this ensures the building footprints touch the ground lightly.









A 'fabric first' approach with airtight construction to 'passivhaus standard' will ensure optimum energy performance and low carbon footprint. The proximity of a ski resort with chair and snow mobiles will also enable mobility impaired guests to enjoy the remote location. The timber frame and timber cladding materials are easy to transport and assemble using locally sourced Norwegian supplies. The roof and walls come from a unique cross laminated timber (CLT) cassette product called 'Tewo-Thermowood'. This provides a sandwich: timber externally and ISO insulation internally. This is manufactured 15 miles from the site's location.

Power will be generated by a micro hydro-electric generator using the existing dam at the head of the lake and heat by ground source heat pump using coils to recover thermal mass from the bed of the lake. Wastewater will be recycled with a biotreatment plant, thereby reusing natural resources that are impacted by the construction. Surface water will be filtered through 'raingardens' surrounding the cabins and discharged back into the watercourse.

www.atelier-architects.co.uk



AN EVENING WITH CHRIS PACKHAM: EXPLORING THE INTERSECTIONS BETWEEN ANIMAL WELFARE, CONSERVATION AND AUTISM

On Tuesday 2nd April 2024 Glen Cousquer (lecturer in Conservation Medicine and One Health and Chair of the Vet School's, Mental Health and Wellbeing Committee) hosted Chris Packham as part of the University of Edinburgh's second live event to mark this year's Autism Awareness month. Chris is a legend in the world of animal welfare and wildlife conservation, having dedicated much of his life to championing the causes that have always been dear to his heart. The [list of charities](#) he is currently President or Vice President of include the Royal Society for the Prevention of Cruelty to Animals (RSPCA), the Royal Society for the Protection of Birds (RSPB), the Bat Conservation Trust (BCT) and the Wildfowl and Wetlands Trust (WWT). He is also a patron of Compassion in World Farming and has been a longstanding friend of Scotland's leading animal welfare charity, OneKind, whose remarkable [archives](#) are held in the University of Edinburgh library.

Chris is also an Ambassador for the UK's [National Autistic Society](#) and one of the most eloquent and inspiring champions of autism awareness. Chris shared his own diagnosis with autism as part of the powerful BBC documentary series "[Inside Our Autistic Minds](#)". In February of 2023, Caroline Stevens, Chief Executive of the National Autistic Society, congratulated Chris on this brilliant and deeply moving series, which shares the stories of four autistic people, Flo, Murray, Anton, Ethan and their families:

"We've received an overwhelming response on our social media channels from autistic people and their families who saw their experiences reflected in the programme, but also from viewers who have learned more about autism through watching it. This is why autistic representation on our TV screens is so important to increase understanding of autism."



Almost everyone has heard of autism now, but too few people appreciate what it's like to be autistic, both the different perspectives, passions and skills autistic people can have, and how hard life can be without the right support.

This is slowly changing as more people in the public eye, and from a range of backgrounds, talk openly about being

autistic, and as representation continues to improve, including through documentaries like Inside Our Autistic Minds."

Chris kindly agreed to be interviewed about the intersections between autism, compassion, conservation and animal welfare. What follows are just some of the many highlights from what was an inspiring conversation.



Chris Packham:

My initial schooling was in the 1960s, secondary schooling through the 70s, then sixth form and then into the early 80s at university. My fascination and desire to understand how life works and to experience first-hand as much of that diversity of life as possible, gradually became compromised by my awareness that I needed to not just love it, but look after it. And so, my interest in conservation started to grow from the late 70s.

Growing up in the 60s and 70s, autism was not known broadly outside of perhaps a medical community. Certainly, my parents, teachers and lecturers had no idea what was going on. It was very clear that I was struggling in some regards, but able in others and I didn't have a great time from about the age of 13 to when things got better. But through the latter part of secondary school, sixth form and at university, I had a really bad, tough time.

I had a very different university experience to most students. I didn't speak to anyone for three years. I went to every lecture. I loved every lecture, and I worked furiously hard at my undergraduate degree ... but the mechanism I'd evolved at that point to get through that education was not to engage with people of my own age. Because I found that led to all sorts of unfortunate complications. And then eventually, after, several quite significant mental health difficulties, it was only in my 40s and at the end of three years of quite intense therapy that I finally got my diagnosis.

So, I've been aware of the fact that I was probably autistic from the 1990s when a healthcare professional pointed out that I seemed to manifest quite a few of the traits. And then in 2017, having written a book some years before, which I finally published, which exposed, I suppose, what was diagnosed at that point as Asperger's syndrome and then later I made a TV programme. I've subsequently made a couple more about autism. We have to be very clear that autism isn't a mental health condition it's a neurodiverse condition. But it does lead in 70% of autistic people to mental health difficulties, and I think there are pretty obvious reasons why that is. You would have heard the expression "If you've met one autistic person, you've met one autistic person". We are on a spectrum of that condition, and it varies greatly between us.

Glen also chatted to Chris about animal rights.

Chris:

For me the idea of taking another animal's life solely for pleasure is a complete anathema, that's why I struggle with more complex issues like trophy hunting. I just hate the waste of life. Basically, life is so precious to every single Organism... But you know the struggle for life when you understand how fortunate life is to be here. How fortunate we are..., for all the lucky hoops that life tumbled through to give rise to humanity, we ought to just respect it totally.

I've always had, I would say, an aggravated sense of injustice. I've never liked people getting away with things which were either definitively wrong or I thought were wrong. I tend to live in a pretty much a black and white world. You know when people say I feel half dead, I always sort of wince at that. You know, there's not half much anything in my life. I don't half love anything or half dislike anything. It's pretty crystal clear. I think that my mother used to say I was the most tactless boy in the world. Bear in mind this was obviously pre any understanding of my condition, so if people ask me questions, they would always get straight answers. Sometimes not what they either expected or wanted, and I think again that is part of our character.

We are from our perspective, clear thinking and clear speaking and equally determined, very determined as you know. I'm very task-centric; I often say "if you want your floor swept, I'm probably one of the best people for the job" ... because in order to sweep a floor the job needs to be done properly. I will make sure I've got the right tools, assessed the best way to do it in the optimal amount of time to maximize the cleanliness and then I will set about it. And when I finished, there'll be no dust on it, because if I leave a piece of dust, the floor is not clean and therefore I failed my task and I apply that in slightly more complex ways to issues like raptor persecution. You know, I have a short tenure to impact in some small way those issues for positive outcomes. So, I've got to get on with it and that again, that energy I think has never been dulled. In fact, it's increased. I do see it as necessary to tell the truth because it

sometimes could be the spark that initiates a conversation, either broadly or personally.

Glen:

There's a sense in much of what you've written that, that there are many things that you care about very deeply and there's a lot of big feeling in a lot of your writing and one of my favourite bits of your writing - and this probably comes from my work in environmental education - is your account of that encounter with the Sparrow Hawk.

"He thinks he sees gunmetal and orange, a mesh of rust on cream. He thinks he hears the slicing of air... maybe glimpses the diamond flash from an eye. He doesn't see legs or feet and he feels a rush, but before he can react, before gravity sets his falling foot to earth, it's gone, bent around the bank in a flaring blur and gone just the fading rattle of a Blackbird hanging in the glade and then gone. Immediately, nothing of this instant is tangible. There's so little to recall that he imagines that he imagined it. It's more of a feeling than anything real. Just a fleeting sense that some pulse of life had singed the air. He felt for some fraction of a second a bird fly through him and in that moment, he learns more of that bird than he'll ever learn in a lifetime of loving it."

Glen went on to extol the richness in the way Chris Packham describes the ways of knowing that he brings to the page and beyond because it feels very relevant to how we need to educate future generations about the living world, about the trust that we can have in our experiential knowledge, in our ways, of relating and engaging.

I'd like to revisit neurodiversity and bullying in particular with the look to the future. I think you know that in primary and secondary and also in tertiary education, there's good work happening, but I think our systems are still set up for what some people describe as a more neurotypical sector of society. I feel very uncomfortable about that distinction because it implies a "normal" which I think is part of the part of the problem. But I'm wondering what sort of future you hope you would hope to see in all parts of our education systems, such that we're much more understanding of, inclusive toward and supportive of the flourishing of people, whatever their neurotype.

Chris:

We need to make sure that society can shape itself to embrace all of those people and allow them to have a fulfilling, productive and positive life experience. And there's no reason why they shouldn't. Neurodiverse people have a lot to offer, and that's been proven historically. The issues that we face. There is a 13 week wait for diagnosis in England, sometimes it's running into years. Now the number of people who are waiting for diagnosis in the UK's is exceeding 150,000. I don't think that a diagnosis is a panacea. It doesn't solve all issues instantaneously because quite clearly what you require in the aftermath is support and that support needs to come from a range of sources. But I think, particularly for young people, had I been able to understand why I was different when I was 13 or 14, then that would have been a good grounding point going forwards. Also, if the knowledge wasn't available to my parents, then how would they have been able to adapt my physical, temporal, and emotional experience so that it reduced anxiety and conflict?

And that's why we need it acknowledged that these conditions are so implicitly important. But equally, investment, and I think that we're living in a time where we've seen our National Health Service brutalised. If we just focus on mental health aspects, including autism spectrum disorder, then it's clearly underfunded. There's a lack of healthcare professionals and it's certainly a lack of support after diagnosis.

There's an enormous breadth of interest and capability in educational establishments. I go to some state schools, which are frankly amazing, and they have a dedicated core team of staff that do remarkable things for the neurodiverse pupils at the school. Very often, those things are inexpensive and easy to implement.

More significant advances that are being made in universities. And I've had the privilege of working at Lincoln University and looking at how that environment can be transformed to better suit neurodiverse students. Sometimes simple changes. We canvassed all the students and we started with the physical spaces and how they could be adapted and so forth. So, I think we're making significant progress. There's no doubt about that.

Questions were then taken from the floor and the conversation continued. Many things were discussed, including how news of nature devastation impacts and drives us forward to action, but for the topic and theme of this issue of the JBD, we highlight one other questions in particular.



Glen:

We get a sense that you find the will and the resources to keep on going. I know that you know you've got your two poodles, Sid and Nancy, and that you live in a beautiful part of the country you have access to woodland, which is one of your go-tos for rejuvenating yourself, just like students on the campus here in Edinburgh. One of the things we've been exploring this last year is the possibility of restoring some of the campus and to create more biodiverse areas that will have positive benefits for student wellbeing. The biodiversity crisis and the mental health crisis are actually quite closely connected in many ways, but what do you think we should be seeing in terms of learning priorities.

Chris:

I think that typically we present solutions as monumental. I think that what we have to accept is nature plays a role in every moment of our lives, just as we breathe. And we need to learn to be able to utilize that to maximum effect. So, we should eat well, we should exercise in nature and we should be encouraged to explore nature for the sake of exploration.

Now, if nothing more and certainly when it comes to sculpting healthy landscapes, we know full well how they are so enormously beneficial to us both on a physiological and a psychological level. Being in woodland I find comfortable. I like the fact that it's a structured environment that's complex and not so keen on beaches and grasslands because I can see to the end of them if I can't see through the trees. There could be something interesting behind them. There could be something dangerous behind them. There's that tension there, and that tension

goes back, I think, almost to our primal roots. And when you think about the fairy tales, it was always the wolves and bandits in the woods. There's no doubt that in the past, the giant forests of Europe, where many of those fairy tales rose, were dangerous places. But there's always that tension between wanting to experience getting lost in nature but you don't have to lose yourself physically. You can lose yourself in your connections with it.

So very often, if I'm really stressed out when I go for my daily walk in the woods with Sid and Nancy [his dogs], I won't just experience that environment. I will focus on one tiny part of that environment and look very specifically or listen or feel or smell or touch very specifically. That part of that environment and I think that has been proven again through research to enhance our connection to nature. If you just go out and say, well, I'm not going to look at the colour of leaves, I'm just going to listen to birdsong. It doesn't matter what bird it is, I'm just going to listen to the song the way that the notes move the way that they interact. If they're interacting, the differences between them and the volume, so every aspect of that and then sometimes you go out try to find as many different species of moss as I can. I don't need to identify them. I've got an app which I could probably do it. I'm not interested giving names. I'm just going to feel them.

Science has shown us that nature is a great source of calm, solace, and respite. Being a student, for instance, can be highly stressful, you've got all sorts of things going on, not least your exams. So having a space where you can go and whether you're conscious of it or not doesn't matter. But if you can go there and be and be calm and even for a few minutes, we know that there are enormous advantages to that.

We've got to step up. I think that we're in a desperate crisis and I think that we have so many of the potential solutions, we're just not implementing them rapidly enough. So, we all have to challenge and stretch ourselves at this critical point in our species

history. I'm both pessimistic and optimistic at the same time, but I think unfortunately sometimes we must trip over before we fix the pavement. But tripping over this time is going to be really difficult. So, driving people to focus on prevention rather than cure has to be our mission.

Glen:

You're touching lots of people in many, many ways, Chris, you're doing wonderful work. So, thank you very much indeed for everything you do.

<https://www.research.ed.ac.uk/en/persons/glen-cousquer/>

Swallowtail Butterfly photo by Glen Cousquer



A close-up photograph of two purple crocus flowers in bloom, set against a soft-focus background of green grass and a bright, hazy sun. The sun is positioned in the upper left, creating a warm, golden glow and lens flare effects across the scene. The flowers have delicate, layered petals and prominent yellow-orange centers. The overall mood is peaceful and natural.

THE SCIENCE BEHIND BIOPHILIC DESIGN

Design choices can cause discomfort...

“To design for diverse needs, for human-centric ways of working, and to enable people to feel well at work, we need ways of capturing rich, qualitative data that unveils everyday experiences. Research that uses visual, creative methodologies provide useful ways bring this to the fore and can highlight the sensory aspects of workplace, and how people’s bodies and minds are impacted by the design and functionality of place.”

Dr Harriet Shortt

In previous articles, I have mentioned the Post-Occupancy Evaluation research project I led, focusing on user experiences of a large university building – see www.myuwebbsview.com for full details. In this project we used participant-led photography as a central method to generate visual and text-based data from staff, students, and visitors. Amongst many findings, we found that both large and small design choices can cause physical discomfort and pain, for a variety of reasons.

For example, while the outside terrace on level 6 of the building affords a physical opportunity to go outside, and the internal glass partitioning barriers support a light and transparent feel to the building, views through the glass can, for some, invoke a sense of vertigo. Several participants in our study noted a ‘horrible vertigo-inducing feeling’. Indeed, vertigo was reported in the dataset on a number of occasions and in some cases was so severe as to affect the route an individual was able to take around the building.

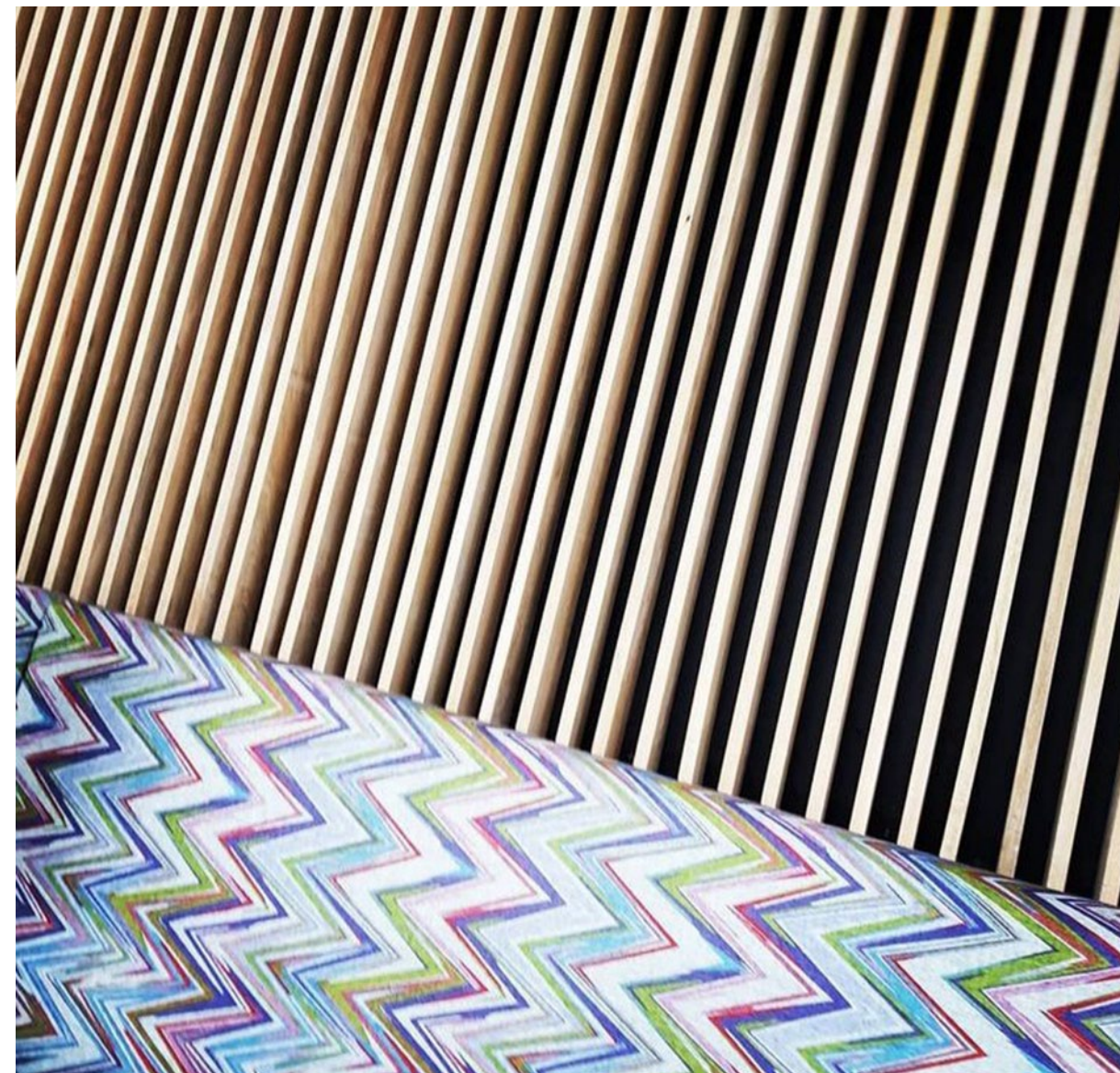


Building users regularly reported how beautiful and impressive the building is and a large feature of this ‘wow’ factor was the glass and the strong bisecting lines. But this was not without its drawbacks - glare and reflections made teaching physically difficult for some, and induced headaches in others. Indeed, headaches were a theme that ran through user experiences of both fabric choices in the building, as well as the internal cladding. Participants talked about the negative health consequence of the buildings’ design features, such as the ‘migraine inducing’ stripes on the walls, and furniture of the atrium seating, and the way light bounces off these surfaces. One participant explained:

‘So, the café, with that stripy cladding, and because the sun really reflects on those panels, it can create some sort of visual illusion... it’s like it’s moving... it has triggered one of my migraines previously... and can trigger epilepsy.’

Relatedly, the striped pavements outside the building also caused a sense of disorientation in some users:

‘... this path! And this, it is such a trip hazard! I wear varifocals and even in broad daylight it’s difficult to see properly. For anyone with visual issues and in low light/ wintry weather, this could be dangerous.’



In Maslin’s book ‘Designing Mind-Friendly Environments’ (2022), he discusses some of the very experiences noted above. He notes how lighting and patterns (on fabric or pathways), and other sensory stimuli can cause visual stress and can trigger migraines and epilepsy in some. This visual noise and its impact suggest we must make careful choices with regards to surface finishes and patterns we use in and on buildings. Optical illusions and high-frequency patterns can play tricks on the mind and as such negatively impact those with, for example, diminishing sight or those living with dementia. Maslin also notes how windows, bridges, floors, and stairways can induce vertigo, and as such designers must provide a visual means of reassurance to reduce this feeling.

These brief highlights from the everyday stories from the everyday users of this building serve to show that design choices, however small, can have a real impact on those experiencing a place and that to be truly inclusive in our design choices, we must see through the eyes of a wide variety of people. In asking those who live in, work in, and use a building to capture images of their everyday lives, we’re able to capture these nuanced elements of their encounters that reflect how patterns, views, surfaces, and lighting play an important sensory role in the place they inhabit.

<https://people.uwe.ac.uk/Person/HarrietShortt>

www.harrietshortt.wordpress.com

INCLUSIVE BIOPHILIC DESIGN: PLACEMAKING FOR DIVERSITY OF NEUROTYPES

James and Piper Hutson

“By embracing the innate human affinity for nature, biophilic design stands as a powerful tool in fostering environments that bolster neurological health and well-being, paving the way for a more inclusive and empathetic approach to architectural design.”

Abstract

Biophilic design, traditionally focused on enhancing neurotypical well-being, has often overlooked the needs of a broader range of neurotypes, particularly those with neurodivergent conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Conditions (ASC). This article aims to bridge this gap, emphasizing the importance of inclusive spaces that cater to diverse neurotypes. It explores the potential of biophilic design principles to be tailored to specific cognitive and sensory sensitivities. For ADHD, elements like plants and flowing water can enhance focus, while environments with sensory modulation, such as textured walls and variable lighting, can alleviate sensory overload for individuals with Autism. Additionally, these strategies can benefit those with other neurological conditions, including traumatic brain injury and PTSD, by reducing stress, fostering connections, and enhancing cognitive function. The article advocates for a broader approach to biophilic design, urging architects and designers to embrace neurodiversity and create environments that support well-being and inclusivity for all, transcending traditional design paradigms.

Introduction

The integration of biophilic design within environmental architecture and artistic installations presents a confluence of artistic creativity and scientific inquiry. This interdisciplinary exploration, particularly relevant to academics, practicing artists, and interior designers, examines the psychological and sensory impacts of biophilic elements in designed spaces. Installations, such as those at Meow Wolf (Figure 1) in Santa Fe, New Mexico, demonstrate the potential of

immersive environments to replicate the experiential qualities of nature. These installations challenge the conventional boundaries of design and art, creating multisensory experiences that raise questions about the depth and variety of sensory engagement required to elicit naturalistic responses in an artificial setting. Essential components of biophilic design—such as sensory richness, olfactory elements, concepts of prospect and refuge, and dynamic movement—are critical in creating these profound experiences (Gillis & Gatersleben, 2015).



Figure 1. Fancy Town, Meow Wolf, Santa Fe. Creative Commons Attribution 2.0.

The discussion on biophilic design, traditionally anchored in augmenting the well-being of neurotypical individuals – those whose neurological development and functioning align with the societal standard of what is considered typical or normal- has evolved to recognize a broader spectrum of neurodiversity (Davies et al., 2023). The initial comprehensive framework for biophilic design vis a vis Kellert, Heerwagen, and Mador (2011) posits that incorporating elements of the natural world into built environments is not only aesthetically pleasing but also essential for human well-being. The framework outlines various ways in which nature can be integrated into architecture and urban planning, ranging from the direct inclusion of natural elements to the use of natural shapes, forms, and patterns in design (Figure 2). The approach emphasizes the profound impact that connections with nature have on human health, productivity, and overall psychological well-being.



Figure 2. Interior Space Based on Biophilic Design Principles of Kellert et al. Permission of the authors.

Since their publication in 2011, the biophilic design principles of Kellert and team have been a catalyst for expanded research and application, particularly in the context of neurodiversity. While initial discussions have predominantly focused on three specific neurodivergent populations- Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Conditions (ASC),

and Post-Traumatic Stress Disorder (PTSD) – there is an increasing recognition of the need to broaden this scope (Divya & Naachimuthu, 2020; Hutson & Hutson, 2023; Naumah et al., 2021). As such, this article will consider targeted design interventions for these three conditions, while also presenting a more comprehensive design framework that caters to a wider range of neurotypes, including Sensory Processing Disorder (SPD), Dyspraxia, Dyslexia, and more.

The acknowledgment of diverse neurotypes, especially those impacted by PTSD in specialized contexts such as Veterans Affairs hospitals, has illuminated the versatility of biophilic design in addressing unique sensory and cognitive needs (Rossi, 2017). Additionally, the role of oxygenation in biophilic environments, crucial for combating issues like sick building syndrome, exemplifies a shift towards a more natural and holistic approach in environmental design (Ignacio & Shealy, 2023). The incorporation of oxygenating plants in interior spaces not only purifies the air but also contributes to creating more vibrant and healthful environments. At the same time, biophilic design has also been found to promote social interaction, engaging the social nature of the human nervous system (Stavrianos, 2016; Tekin & Gutiérrez, 2023). This facet is essential in fostering community and belonging, offering significant benefits in mitigating feelings of isolation and stress identified in studies during the pandemic (Yin et al., 2020). Furthermore, the principles of privacy and visual complexity in

biophilic design are critical in creating spaces that respect individual needs while providing visually enriching experiences (Guo, 2016).

The importance of empirical research in assessing the effectiveness of innovative biophilic installations, such as algae chandeliers, cannot be overstated. Such research is pivotal in establishing the real-world impact of these designs. As the exploration of biophilic design advances, its potential to benefit a diverse array of neurotypes becomes increasingly evident. This exploration is aimed at broadening the understanding and application of biophilic design to encompass a wide spectrum of sensory and cognitive experiences. The objective is to cultivate inclusive, therapeutic environments that synergize artistic expression with scientific principles, thus providing valuable insights for academics, artists, and designers. This comprehensive approach seeks to transcend traditional design paradigms, offering a broader framework for diverse neurotypes.





Meow Wolf: A Case Study

The fusion of biophilic design within the realms of environmental architecture and artistic installations marks a significant intersection of artistic creativity and scientific inquiry. This interdisciplinary exploration is especially pertinent to a wide audience, including academics, practicing artists, and interior designers, as it delves into the psychological and sensory impacts of biophilic elements within designed spaces. A quintessential example of this is the installations at Meow Wolf in Santa Fe, New Mexico (**Figure 1**), which embody the essence of biophilic design through their immersive environments.

The installation exemplifies biophilic design principles by creating spaces that transcend mere visual appeal, engaging multiple senses to replicate the experiential qualities of nature. These installations challenge and expand upon traditional design and artistic boundaries, fostering multisensory experiences that closely mimic natural environments. The key to Meow Wolf's alignment with biophilic design lies in its meticulous integration of sensory richness, olfactory elements, and the concepts of prospect and refuge, all of which are vital in eliciting a naturalistic response in an otherwise artificial setting. These elements contribute to creating an immersive experience that resonates with the innate human affinity for nature.

The sensory richness of the installation

is evident in their use of varied textures, sounds, and visual elements that stimulate the senses in a manner akin to natural environments. The inclusion of olfactory elements further enhances this experience, drawing on the powerful connection between scent and memory to evoke natural settings. The concept of prospect and refuge, as elucidated in biophilic design, is ingeniously incorporated into the installation. This is achieved through design elements that provide vantage points (prospect) while also offering secluded areas (refuge), thereby mirroring the dynamic interplay found in natural landscapes. Additionally, the incorporation of dynamic movement within the installations, such as interactive features and kinetic art, adds an element of spontaneity and life, reminiscent of the ever-changing and evolving nature of the natural world.

These aspects of the installation underscore their alignment with the principles of biophilic design as outlined by Gillis and Gatersleben (2015). By creating environments that closely mirror the complexities and intricacies of natural settings, Meow Wolf offers a profound example of how biophilic design can be effectively realized in artistic and architectural contexts. This approach not only enhances the aesthetic appeal of these spaces but also fosters a deeper connection between humans and the natural environment, highlighting the potential for biophilic design to transform our experience of built environments.

Implementing Inclusive Biophilic Design: Considerations

In the realm of biophilic design, the incorporation of neurotype-specific elements stands as a cornerstone of creating truly inclusive spaces. The proposed approach involves an understanding of various neurotypes, including conditions such as ADHD, ASC, and PTSD, and tailoring design elements to meet their unique sensory and cognitive needs. The consideration is crucial for crafting environments that not only accommodate but actively support the well-being of individuals with diverse neurological profiles. Similarly, the functionality of the space being designed plays a pivotal role. Different spaces, be it homes, workplaces, educational institutions, or healthcare facilities, serve distinct functions and thus require specialized design approaches (Ryan & Browning, 2020). For instance, a healthcare facility might prioritize elements that foster tranquillity and healing, while an educational space might focus more on elements that stimulate focus and creativity (Totaforti, 2018).

The sensory experience of a space, encompassing aspects like lighting, colour palette, and acoustic design, significantly impacts its inhabitants. Natural and adjustable lighting solutions are employed to cater to varying light sensitivities and to influence mood and focus positively (Xie et al., 2022). The colour palette selection is another aspect that profoundly affects the psychological

and emotional state of occupants. Carefully chosen colours can set the tone of a space, ranging from soothing, earthy tones for relaxation areas to vibrant colours that energize and stimulate creativity (Kellert & Calabrese, 2015). Additionally, acoustic design plays a vital role, especially for individuals with auditory sensitivities. Managing sound through the use of sound-absorbing materials, creating quiet zones, or incorporating natural soundscapes can significantly enhance the comfort and usability of a space (Torresin et al., 2020).

Another critical aspect of inclusive biophilic design is the spatial layout and accessibility, ensuring that spaces are intuitive and easily navigable for all, including those with physical disabilities or mobility challenges. This includes considering the placement of biophilic elements like plants and water features to enhance aesthetic appeal and improve air quality, without impeding movement (Park & Lee, 2015). The integration of texture and tactile elements caters to sensory stimulation or provides calming effects, which is especially important for neurodivergent individuals (Demers & Potvin, 2017). Furthermore, balancing visual complexity with areas of privacy allows individuals to engage with their environment at their comfort levels, offering spaces for both social interaction and solitude. Technological integration, such as smart lighting and temperature control systems, adds a layer of personalization, enabling occupants to tailor their environment to their specific needs (Parsaee et al., 2019).

Lastly, sustainability and environmental impact are fundamental to biophilic design, ensuring that design choices not only benefit the occupants but also contribute positively to environmental health (Wijesooriya & Brambilla, 2021). This comprehensive approach to design

underscores the importance of creating spaces that are not just physically accessible but are also cognitively and sensorially accommodating, fostering well-being and inclusivity for a diverse range of individuals.

Table 1. Considerations for Implementing Inclusive Biophilic Design

Consideration	Description
Neurotype-Specific Design	Tailor design elements to specific neurotypes like ADHD, ASC, PTSD, etc., for supportive environments.
Functionality of Space	Design approach varies based on space function (e.g., homes, workplaces, educational institutions).
Lighting Considerations	Use natural and adjustable lighting to influence mood and cater to light sensitivities.
Biophilic Elements	Incorporate nature (plants, water, natural materials) for aesthetic appeal and stress reduction.
Oxygenation and Air Quality	Improve air quality through natural methods like plants, beneficial for respiratory health.
Color Palette Selection	Select colors that influence psychological and emotional states, suited to the space's use.
Acoustic Design	Manage sound for auditory comfort, using sound-absorbing materials and natural soundscapes.
Spatial Layout and Accessibility	Ensure spaces are intuitive and accessible, accommodating a range of physical abilities.
Texture and Tactile Elements	Use diverse textures for sensory stimulation or calming effects, important for neurodivergent individuals.
Visual Complexity and Privacy	Balance stimulating visuals with privacy areas, allowing engagement at individual comfort levels.
Social Interaction Areas	Create areas that encourage community building and offer solitude to cater to varying social needs.
Technological Integration	Use smart technology for personalized environmental control (light, temperature, etc.).
Sustainability and Environmental Impact	Make sustainable and environmentally friendly design choices for health and well-being.

Case Studies in Biophilic Design

In the field of biophilic design, the installation *Serpentine Serenity* by June Sekiguchi (<https://www.portseattle.org/page/serpentine-serenity>) emerges as a paradigmatic example, showcasing how artistic creativity can be harnessed to foster inclusive and soothing spaces. This installation, distinguished by its use of movement and fluid shapes, offers profound insights into designing environments that resonate with neurodivergent individuals. The essence of *Serpentine Serenity* lies in its emulation of natural flow, reminiscent of the tranquil movements of water and the graceful sway of tree branches. This approach is particularly effective in creating an atmosphere that is calming and conducive to individuals sensitive to sensory inputs. The integration of curvilinear forms, evident in the installation's design, encourages architects and designers to infuse their spaces with similar elements. By incorporating curved walls, winding pathways, and circular seating areas, the monotony of rigid, linear layouts is broken, fostering an environment that is organic, inviting, and reflective of natural harmony.

Further enhancing this connection with nature, the installation incorporates dynamic elements like kinetic sculptures and mobiles that subtly respond to air currents, mimicking the gentle rustling of leaves. Such features add a dynamic yet soothing visual stimulus to the space, engaging the senses in a gentle, non-overwhelming manner. The layout of spaces inspired by the installation emphasizes fluidity, encouraging natural movement and eschewing the harshness of sharp angles and straight lines. This

design philosophy promotes exploration and relaxation, akin to strolling through a serene forest or meandering along a gentle stream. Additionally, lighting plays a pivotal role in these environments. Soft, gentle lighting that simulates the dappled effect of sunlight filtering through foliage can be particularly comforting for those with sensory sensitivities. Not only does this enhance the aesthetic appeal, but it also contributes to creating a more comfortable and tranquil environment. Natural materials, such as wood, stone, and fabrics with organic patterns, are utilized to deepen the connection to nature, contributing to the overall serenity and aesthetic coherence of the space. The inclusion of water features like indoor fountains or water walls further augments this calming effect, with the sound of flowing water masking distracting noises and creating a peaceful sanctuary within the space.

Another exemplary case study in the realm of biophilic design is the installation *Tree.ONE* by ecoLogicStudio (<https://www.ecologicstudio.com/projects/treeone>), showcased at the Chengdu Contemporary Art Museum. This installation, embodying principles of biomimicry, serves as a profound example of how natural processes can be replicated within indoor spaces to enhance air quality and well-being, particularly for neurodivergent individuals. Drawing inspiration from the structure and functions of trees, *Tree.ONE* utilizes biomimicry to purify air in a manner akin to that of natural forests. This approach not only benefits individuals with allergies or respiratory issues by improving air quality but also introduces a visually and tactilely appealing natural element into the built environment.

The implementation of the design highlights the importance of integrating plant-based systems in biophilic design. These systems, functioning as living, breathing components of the design, do not merely serve aesthetic purposes but play a crucial role in enhancing indoor air quality. The installation of living walls or vertical gardens, incorporating moss, ferns, or other air-purifying plants, adds a lush, green dimension to the space while acting as natural air filters. Such installations are instrumental in absorbing pollutants and releasing oxygen, thereby contributing significantly to the health and comfort of the space's occupants. Additionally, these green installations offer the added benefit of noise reduction, creating a more serene environment that is particularly conducive to the needs of neurodivergent individuals who may be more sensitive to sensory stimuli.

Inhale, Exhale by Jason Bruges Studio (<https://www.jasonbruges.com/>) serves as another example of how interactive installations can be effectively incorporated into biophilic

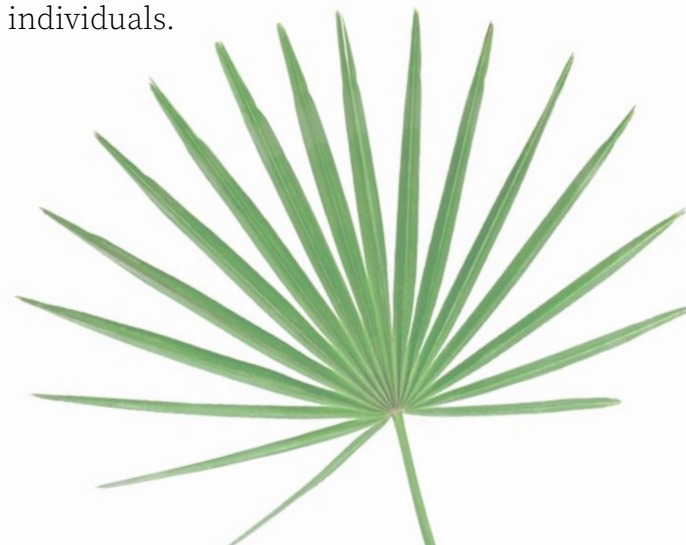
design to support sensory modulation. This installation, utilizing sensors to detect breathing patterns and create corresponding visual and auditory experiences, exemplifies the dynamic and therapeutic potential of interactive features in design. Such installations are especially beneficial for individuals with stress and anxiety, including those who are neurodivergent. Neurodivergent individuals often exhibit a higher prevalence of anxiety disorders compared to the neurotypical population, making this approach particularly impactful. To integrate similar interactive elements, designers and artists are encouraged to focus on creating installations that respond to the presence and actions of occupants. This involves the integration of sensory-responsive technology capable of adapting to and influencing the environment in real-time. Installations that modify lighting, color, or sound in response to movement or ambient sounds can create an engaging, therapeutic experience, particularly when founded on neuro-inclusive principles of color and sound therapy.



The effectiveness of these interactive installations lies in their capacity to provide a calming, immersive experience, coupled with the option for personalization and control. For individuals who may be overwhelmed by certain sensory inputs, the ability to interact with and influence their environment is both empowering and soothing. Achieving this requires installations that are intuitive and easy to interact with, ensuring accessibility and enjoyment for all users, regardless of their sensory processing needs. Additionally, the incorporation of natural elements into these installations augments the biophilic experience. Mimicking natural phenomena, such as the movement of leaves or the flow of water, these installations provide a connection to nature and a soothing sensory experience. Exposure to natural elements through biophilic design has been shown to positively impact cognitive functions, including enhanced concentration, creativity, and problem-solving abilities. The presence of natural light, greenery, and nature views can stimulate the brain, leading to increased productivity and mental clarity. In designing these installations, inclusivity is paramount. Designers must ensure that the interactive elements are accessible to individuals with varying abilities and sensitivities, potentially involving installations that allow for the adjustment of sensory input intensity.

Drawing inspiration from *Inhale, Exhale*, designers can craft interactive biophilic installations that enrich aesthetic appeal and cater to the cognitive and sensory needs of neurodivergent individuals. These installations offer unique and engaging ways to experience and interact with the environment, promoting relaxation and well-being through sensory modulation. This approach underscores the potential of biophilic design to create inclusive, responsive, and therapeutic spaces in both public and private settings, harnessing nature's rich sensory experience for the benefit of the nervous system.

The last two case studies represent the potential of carefully considered biophilic design to have measurable impact on the health of large populations and provide sustainable alternatives to traditional interior design. The *Lungs of the City* project by the Eindhoven University of Technology (<https://www.ens-cleanair.com/en/projects/lungs-of-the-city/>) and *Moss Walls* by Naturahq (<https://www.naturahq.com/moss-walls>) present innovative approaches in biophilic design, focusing on air purification and sustainable integration of natural elements in built environments. These case studies offer insightful perspectives on creating healthier and more inclusive spaces, especially beneficial for neurodivergent individuals.



Lungs of the City leverages the natural air-purifying capabilities of algae, demonstrating an inventive method of enhancing indoor air quality. This approach utilizes algae not only as an effective air purifier but also as an aesthetic element in design, contributing to the visual vibrancy of spaces. The integration of algae-based systems into architectural designs, such as incorporating algae into glass panels or terrariums, provides a balance between functionality and visual appeal. These installations, ideally placed in common areas, lobbies, or relaxation spaces, not only improve air quality but also invite interaction and engagement. The success of such installations hinges on selecting the appropriate type of algae and implementing effective maintenance plans, ensuring the longevity and effectiveness of the systems.

On the other hand, *Moss Walls* by Naturahq exemplifies the use of maintenance-free natural installations in biophilic design. These installations provide the visual and tactile benefits of natural elements without the extensive care required by traditional plant installations. Moss walls introduce a lush, green texture to indoor environments, enhancing the visual complexity and serenity of spaces. They foster a sense of connection with nature, which can be particularly calming for individuals with sensory sensitivities. When implementing moss walls, it is vital to consider their placement and integration into the overall design, ensuring they are positioned to maximize visual impact and accessibility. The choice of materials and design should align with the aesthetic of the space, creating a cohesive and harmonious environment. Furthermore, the sustainability

and environmental impact of these installations are important considerations, underscoring a commitment to environmental stewardship.

Both examples demonstrate the potential of biophilic design to not only enhance the aesthetic appeal of spaces but also create nurturing and inclusive environments. By integrating these innovative natural installations, designers can craft spaces that bring the benefits of nature indoors without the burden of extensive maintenance. These case studies exemplify the fusion of art, functionality, and sustainability in biophilic design, offering innovative solutions for modern architectural and interior design challenges. They underscore the capacity of biophilic design to support the well-being of all occupants, particularly neurodivergent individuals, by creating environments that are healthful, engaging, and sustainable.

Tailoring Biophilic Design to Diverse Neurotypes: A Considered Approach

In the evolving field of biophilic design, the focus has broadened to encompass a range of neurotypes, each with unique sensory processing considerations. To effectively support these diverse needs, biophilic design must be tailored with precision, integrating specific interventions that align with the sensory and cognitive profiles of various neurotypes. Table 2 serves as a foundational guide for this tailored approach, providing a structured framework for designers and architects to create environments that are not only aesthetically pleasing but also cognitively and sensorially supportive.

Table 2. Design Considerations for Supporting Various Neurotypes

Consideration	Neurotype	Environment Type	Design Intervention
Sensory Sensitivity	ASD, SPD	Educational, Healthcare	Low sensory stimulation areas, controlled lighting
Focus and Attention	ADHD, Dyslexia	Educational, Workplace	Distraction-free zones, ergonomic furniture
Social Interaction	ASD, PTSD	Public Spaces, Healthcare	Designated social areas, private spaces
Stress and Anxiety	PTSD, Anxiety Disorders	Healthcare, Residential	Calming colors, nature integration
Auditory Sensitivity	ASD, SPD	Educational, Residential	Soundproofing, ambient soundscapes
Visual Stimulation	ASD, ADHD	Workplace, Educational	Adjustable lighting, visual aids
Tactile Sensitivity	ASD, SPD	Healthcare, Educational	Textured materials, sensory-friendly furnishings
Olfactory Sensitivity	ASD, Anxiety Disorders, SPD	Healthcare, Residential, Public Spaces	Controlled scent environments, natural aromatherapy

For individuals with ASC and SPD, for example, environments with low sensory stimulation and controlled lighting are crucial. These interventions address the heightened sensory sensitivities common in these neurotypes, creating spaces that reduce the likelihood of sensory overload. In educational and healthcare settings, where these individuals often spend significant time, such design considerations can greatly enhance comfort and functionality. On the other hand, ADHD and Dyslexia present different challenges, primarily related to focus and attention. Here, the design interventions focus on creating distraction-free zones and incorporating ergonomic furniture. These elements are particularly beneficial in educational and workplace environments, where concentration and comfort are

paramount to productivity and learning. Social interaction takes on a different dimension for neurotypes like ASC and PTSD. Designated social areas balanced with private spaces allow individuals to engage at their own pace, providing opportunities for interaction without overwhelming them. This balance is especially important in public spaces and healthcare environments, where social dynamics play a critical role in the overall experience. Stress and anxiety, common in individuals with PTSD and other anxiety disorders, can be mitigated through the use of calming colors and the integration of natural elements, typical of biophilic design. Healthcare and residential settings, in particular, can benefit from such interventions, creating a tranquil environment conducive to relaxation and recovery.



Auditory sensitivities, often experienced by individuals with ASC and SPD, require a thoughtful approach to sound management. Solutions like soundproofing and the use of ambient soundscapes can create an auditory environment that is both comforting and non-intrusive. Such considerations are vital in educational and residential settings, where auditory experiences significantly impact daily life. Likewise, visual stimulation and tactile sensitivity are other areas where biophilic design can be tailored to meet specific neurotypical needs. Adjustable lighting and visual aids cater to the visual processing needs of individuals with ASC and ADHD, particularly in workplace and educational environments. Similarly, the use of textured materials and sensory-friendly furnishings can provide a positive tactile experience for individuals with ASC and SPD, essential in healthcare and educational settings.

Tailoring biophilic design to diverse neurotypes involves a deep understanding of the unique sensory and cognitive experiences of these individuals. By employing targeted design interventions, as outlined in

the table, architects and designers can create spaces that are not only aligned with biophilic principles but also cater to the diverse needs of the neurodiverse population. This approach underscores the importance of inclusive design practices, ensuring that environments are supportive and enriching for all individuals, regardless of their neurotype.

Conclusion: Embracing Neurodiversity through Biophilic Design

The exploration and implementation of biophilic design, characterized by its integration of elements like kinetic botanical sculptures and air-purifying textiles, mark a pivotal commitment to neurodiversity in architectural planning. This approach illuminates the remarkable potential of biophilic design to craft environments that are not only sensory-engaging but also deeply supportive of various neurotypes. Tailoring design elements to meet the specific needs of neurodivergent individuals allows designers to create spaces that transcend physical accessibility, offering cognitive and sensory accommodations that are essential for a holistic experience.

This initiative significantly underscores the role of architecture and design in enhancing societal well-being. It moves beyond mere aesthetic appeal or environmental sustainability, focusing instead on improving health, comfort, and inclusivity. The application of biophilic design principles is a substantial step toward addressing the diverse needs of the population. It reflects the evolving nature of design as a discipline increasingly cognizant of its social and ethical responsibilities. Through the innate human connection to nature, biophilic design has the profound capacity to foster environments conducive to neurological health and overall well-being. The essence of this exploration lies in its recognition that design must be inclusive, catering to a broad spectrum of human experiences and sensitivities. By meticulously tailoring design elements to cater to individuals with neurodiverse conditions, including but not limited to ASC, Dyslexia, Traumatic Brain Injury (TBI), ADHD, anxiety disorders, and sensory processing disorders, designers and architects can create environments that are more than physically accessible; they are cognitively and sensorially accommodating.

Furthermore, the integration of these innovative design elements into the fabric of architectural and environmental planning speaks to a larger narrative. It underscores the significant role of architecture and design in contributing to societal well-being. This inclusive approach to design extends its

implications far beyond individual buildings or installations, influencing broader urban planning and environmental policies. The incorporation of inclusive biophilic design principles represents a significant stride in acknowledging and addressing the diverse needs of the population. As the field continues to explore and innovate, maintaining a focus on inclusivity is imperative. This ensures that our built environments are not only sustainable and aesthetically pleasing but also nurturing and supportive for all individuals, irrespective of their neurotype. By embracing the innate human affinity for nature, biophilic design stands as a powerful tool in fostering environments that bolster neurological health and well-being, paving the way for a more inclusive and empathetic approach to architectural design.

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WORKING SMARTER FOR WELLBEING AND INCLUSION

*“How can we ensure that both our ways of working
and our workplaces are good for us?”*

Andy Lake

‘Smart Working’ describes a dynamic approach to work flexibility that maximises autonomy for teams and individuals. This goes way beyond the typical “work two days here, three days there” approach of most hybrid working implementations. Instead of focusing on time spent being somewhere, it requires a focus on results, supported by a culture of innovation and trust.

This provides the context for an extensive and mature approach to both employee wellbeing and inclusion.

Studies over many years have shown that what people value most about flexibility is having autonomy and choice about their ways of working. Having a degree of choice over the time and place of work has beneficial outcomes for stress reduction. That can also ripple through into beneficial physical effects such as reducing blood pressure and sleeping better.

People’s circumstances and preferences are different, as are the work tasks they do, and there’s no one-size-fits-all. That’s why blanket policies for hybrid working are not fit for purpose. Similarly, putting roles into categories like ‘office-based’, ‘hybrid’ and ‘remote’ are too simplistic to meet the needs of the majority of workers. These kinds of policies reflect an organisational urge to limit and control flexibility rather than to empower.





Workplaces for wellbeing and inclusion

We need to create workplaces that facilitate flexibility and work for everyone. The key principles for inclusive workplaces that support everyone's wellbeing are:

- **Choice** – being able to choose different settings with different characteristics within a building and/or in other locations, and to encourage mobility during the working day.
- **Variety** – having the widest viable variety of locations and settings, to create more opportunities to meet different needs and preferences, as well as different types of work.
- **Control** – being able to control the immediate environment one works in, in as personalised and localised way as possible.

These apply both in the organisation-owned workplace, and also across the 'Extended Workplace' that includes third-party commercial spaces, public spaces and domestic workspaces.



Using these headline principles it is possible not only to create a range of activity-based settings that suit the different tasks that people do, but also to create very different work environments in terms of ambience, acoustics, lighting, busy-ness and access to nature.

Acoustics in office environments are too often an afterthought. Or it can be an element salami-sliced out of projects when executives get nervous about costs. Close attention to acoustic excellence from the outset is vital for creating spaces that support wellbeing and inclusion.

Solutions need to be tailored to support the intended nature of the tasks that will be most carried out in any setting.

But it isn't only about the tasks. Individuals process and react to sound differently. So having a variety of spaces with different acoustic treatments provides options for people to seek out spaces where they are most comfortable getting on with their work.

This also applies to lighting levels, and the options available to individuals to alter light levels, e.g. through having lower levels of overhead lighting and/or task lighting.

These features do not operate in isolation, but in combination with other sensory experiences, that contribute to the overall sense of comfort and wellbeing in a setting. So biophilic features, textures, smells and natural sounds all have their part to play in achieving the overall ambience within a setting. These can create the

variety of settings to have a different appeal for different people, and possibly at different times also.

Some people draw their energy from busy environments that have an lively and active vibe. But sensory overload is a key issue for people with autism and others who experience stress in noisy or complex environments, especially social ones. The fashion for forcing people by design into 'social collisions' in atriums or refreshment areas is intended to promote positive interactions and collaboration – but this can be a daily trial for some people too.

So alternative spaces are needed, including spaces that act as quiet refuges, places to recharge, alternative access routes and 'space to pace' for people who need this to regain equilibrium or to help with creative thinking. Integration of biophilic features and access to the outdoors can be important parts of this.

One advantage for physical wellbeing of having a range of alternative spaces is to encourage mobility during the day. Sit/stand desks can help avoid entirely sedentary days, but being able to move around during the day is far better from a health point of view.

Walking meetings can be used to integrate work activities with positive movement. There are many benefits to this practice, particularly when able to walk and reflect in natural environments. And, of course, taking a walk is also a key way to refresh and re-energise during the working day.

Working outside the organisation's workplace

The principles and types of settings outlined here also have relevance for working in third-party spaces and at home. We may have limited control over the settings in third-party spaces, but in making the choice of provider (e.g. of a coworking space), we should seek out variety and also locations that support quality time spent outside the building.

When working at home, we also benefit from being able to move between different settings, and not spend the whole day sitting in front of a computer. We need also to pay close attention to the acoustic environments and lighting in home work settings. Having views of nature and access to the outdoors are also very beneficial. Large parts of my book *Beyond Hybrid Working* were written (using laptop stand, separate mouse and keyboard, of course) in a conservatory overlooking fields and a lake, to the accompaniment of the sounds of wildlife.

Being able to have non-linear workdays and take time out for walks in nature has been one of the ways to refresh and re-energise. But taking time to reenergise can involve just taking a refreshment break, doing stretching exercises, sitting somewhere else and reading, or doing a different activity (such as a hobby or leisure activity).

Taking a break in the company of other people can also be an important way to reenergise. Working from home this might involve meeting friends or neighbours and going to a local café.

And it's why workplaces need to have comfortable and energising social spaces, for those breaks during the day or the moments when people just want a different work environment.

The option to work from home is an important element of inclusion. While it's important to provide suitable environments for 'neuroinclusion' in offices and other shared workplaces, having the option to work at home or nearer to home is also valuable. And It's extremely valuable for people with physical disabilities, long-term illness or conditions where, for example their health may vary from day to day, or they need frequent medical appointments.

All the different circumstances and options is why having a dynamic approach to flexibility, rather than a highly regulated one, is so important. This allows people to have genuine choice about how, when and where they work, dovetailing the needs of the task with their own preferences and requirements.

Andy has almost 30 years experience of implementing of flexible and smart working, working with large UK organisations and international clients, including UK central government advising on and supporting the implementation of smart working.

<https://flexibility.co.uk>

See book review at the back of this issue of Andy's new book, "Beyond Hybrid Working", published by Routledge



Creating biophilic working environments for a neurodiverse workforce

Reaching out, connecting and taking time

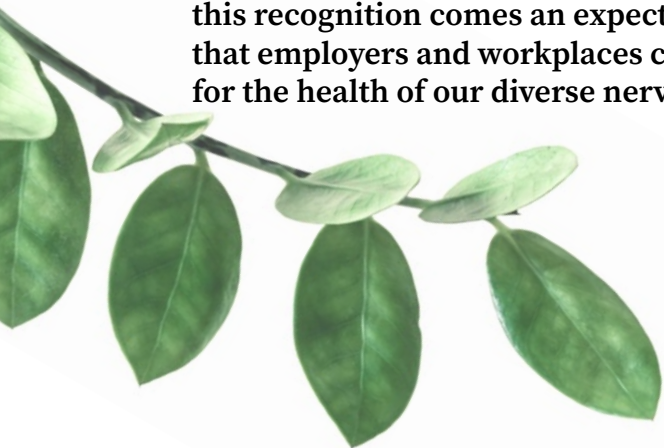
Glen Cousquer

April is Stress Awareness month and the Health and Safety Executive (HSE) are encouraging employers and managers to complete the five steps of their Working Minds campaign¹. This campaign recognises the significant impact that working environments and workplace cultures have on our wellbeing. Such impacts land in our nervous systems and are likely to be particularly felt by those of us who are neurodivergent and whose needs are all-too-often overlooked. The good news is that we are now starting to recognise the impacts this can have on our health and productivity and, with this recognition comes an expectation that employers and workplaces care for the health of our diverse nervous

systems. In this short article, I present the five steps of the Working Minds campaign and then consider how this might help us to become more compassionate towards people with ADHD and the role that a biophilic approach might play in promoting health and wellbeing.

The five steps consist of five Rs, which are:

1. **Reach** out and have conversations
2. **Recognise** the signs and causes of stress
3. **Respond** to any risks identified by agreeing action points
4. **Reflect** on the actions taken – have things improved?
5. Make it **Routine** to check back in on how things are going





Reaching out and having conversations requires us to, not just listen, but to do so deeply, creating spaces in which people feel safe to express how they experience the world differently and are affected by systems and environments that have been designed for neurotypical people. There is more to this first step than meets the eye, however, and it is important that we recognise that neurodivergent people have often been judged and left feeling deficient, ashamed, confused and unable to be (and advocate for) themselves.

In reaching out, it becomes possible for people with conditions such as autism and ADHD to share how they experience their working environment and where and when they feel distressed. The signs and causes of stress then become **recognised** and most importantly co-recognised for the underlying intention is to **respond** to these insights with a view to improving the situation. When the actions taken to improve the situation are reviewed and **reflected upon**, trust in the process develops and this is especially the case, when we make it **routine** to check back in on how people are feeling.

So what might initiating this five-step process look like for someone with ADHD?

ADHD stands for attention-deficit / hyperactivity disorder and is a type of neurodivergence that affects both

children and adults worldwide. Digging behind the label, it is important to recognise the extent to which it affects every aspect of life. Many people do not realise they have it until they are much older and later life diagnosis carries with it a number of challenges as discussed by Dr Zoë Ayres in a recent [blog](#)² for Voices of Academia. The following quote from Zoë's blog speaks to some of these challenges:

I have seen my generation (women in their 30s) being referred to as “The Lost Girls”. And we are – lost, left to muddle through, let down ... [in our society] the stance is so often “if you are functioning you are fine”, even if you are screaming on the inside ... our value is measured so heavily in our contribution, that as long as we are contributing no-one stops and asks the question: Are you actually fine?

Sincerely reaching out and asking “**are you actually fine?**” involves moving beyond labels and seeing the individual. ADHD is thought to be a lifelong condition that is often stereotypically associated with hyperactivity, lack of focus and ‘disruptive behaviour’ particularly in school. Such stereotypes fail to recognise the diversity behind any label and that every individual is unique and multi-faceted. The label is problematic in another sense because, like so many labels, it is simplistic and lacking in trauma awareness, failing to appreciate that such behaviour may be, to quote Gabor Maté, “a normal response to abnormal circumstances”.

The potential underlying origins of the condition are explored in Nick Haslam's recent [article](#)³ in The Conversation, which recognises the dappled complexity of mental health and the interplay of factors that can co-constitute any interaction between individuals and their environment. Haslam's article recognises the need for us to ask searching questions about the impact of our cultures on community members and the dynamic relationship between individuals and their environment. A 2019 review of the relationships that students with ADHD have with their teachers, for example, provides a powerful example of this complexity, reporting that

teachers' rejection of ADHD students poses a risk factor for not only school failure, but also peer exclusion and rejection, leading to low self-esteem and loneliness. (Ewe, 2019, p.136)⁴.

Inclusivity as an aspiration

Seeking to evolve our cultures so that we are more inclusive of neurodiversity, involves celebrating diversity. We arguably need to become better at recognising that people with ADHD can be creative problem solvers, capable of deep focus on tasks that interest them and who bring innovation to their work. This is possible when we emphasise asset framing over deficit framing. Setting out to learn about potential contributions and what may get in the way of contributing can help to ensure that reaching out is well received and productive. Such moves take effort, creativity and a willingness to listen, however. They might, for example,

involve asking people where they would feel most comfortable having such a conversation. This in itself may be revealing for it can often be the case that a walk outside in a garden or park can provide the calming environment that supports such conversations. This may partly be because walking side by side is less hierarchical and more conducive to conversation than sitting across a desk from someone.

Biophilic ways forward

In concluding this short piece, I propose that caring for all members of our neurodiverse communities is inclusively compassionate and therefore biophilic. When we factor in environmental aspects and how they contribute to our ability to reach out, converse, respond and sustain a commitment to the flourishing of a neurodiverse workforce, we are starting to realise the potential of biophilic practices.

<https://www.ed.ac.uk/profile/mr-glen-cousquer>

Photo credits:

Common Gull scything over the surf,
Bar Tailed Godwits in Flight,
by Glen Cousquer.

¹ <https://workright.campaign.gov.uk/campaigns/working-minds>

² <https://voicesofacademia.com/2023/06/15/rediscovering-me-my-journey-to-adult-adhd-diagnosis-by-zoe-ayres/>

³ <https://theconversation.com/gabor-mate-claims-trauma-contributes-to-everything-from-cancer-to-adhd-but-what-does-the-evidence-say-207144>

⁴ <https://www.tandfonline.com/doi/full/10.1080/13632752.2019.1597562>



DESIGNING PUBLIC SPACES FOR PEOPLE WHO ARE NEURODIVERSE, OR NOT

*“Learning design principles to support neurodiversity, benefits us all
Learning design principles to support neurodiversity, benefits us all.”*

Dr Sally Augustin

There’s been lots of discussion recently, in the design press and elsewhere, about creating and managing spaces/objects to support neurodiversities.

Integrate the research in the neurodiverse design field and you’ll find, surprise, surprise, that spaces/objects developed to support neurodiverse people do the same for humans who are neuro-typical.

Think about workplaces. A great workplace for everyone, whether they’re on the autism spectrum, have ADHD or dyslexia or something else or nothing at all is one whose design:

- Aligns with the activities planned, whether that’s focused work or collaboration or something else entirely.
- Gives users options for how they use it, as well as, even more fundamentally, where they’re going to work.
- Makes sure that users have plenty of opportunities to refresh mentally, by looking at plants inside, photos or paintings of natural scenes on lovely Spring days, or natural fractal prints, for instance, or, moving beyond just what’s seen, by hearing pleasant nature soundscapes – the bottom line here really is that supportive spaces for all are biophilically designed.
- Signals wordlessly to users that they are valued and that the contributions they make to the success of their employers are recognized and respected.
- Is consistent with users’ national and organizational cultures.
- Protects the health of the Earth.
- And is understandable, familiar.

Sure, people with various neurodiversities out in the world need acoustic and visual privacy from time to time to do whatever they need to do to restore their own psychological stability – whether that’s a person with ADHD who needs to do pushups to burn off extra energy or someone on the autism spectrum who needs to look at bright coloured images on their laptop. Spaces where the neurodiverse can re-establish their own mental balance are also places that any of us might need from time to time – at a workplace to finish a report on

a tight deadline or at the grocery store to regain our composure and stop weeping after the death of a pet, for example. When all can use “restoration” spaces any stigma linked to using them evaporates, and everyone, again, benefits.

The public places that are best for neurodiverse users, the ones where they can live great lives, are best for all users.

www.designwithscience.com

www.thespacedoctors.com



Biophilia's Impact on Sensory Processing, Cognitive Well-Being and Neuro-Inclusion

Kay Sargent, FASID, FIIDA, CID, LEED® AP, MCR.w, WELL AP

Our brain functions are wired uniquely, and we all process information differently. This is the essence of neurodiversity. Neurotypical individuals tend to fall within expected parameters, while neurodivergent individuals process the world differently. These variances are naturally occurring in the unique ways we all think, process, feel and act are naturally occurring differences in neurocognitive functioning.

Unlike many physical disabilities, neurodivergence is not visible. Today, approximately one in five individuals globally identify as neurodivergent, forming one of the largest [underrepresented groups in the workplace](#)¹.

As designers, our challenge is to create inclusive environments for all.

Understanding how environmental conditions impact individuals is critical to helping create spaces where everyone can thrive. This begins with grasping how we handle sensory stimulation and human sensory thresholds in the spaces we inhabit.

SENSORY THRESHOLDS

One of the most overlooked workplace challenges is sensory processing and our varying sensitivities to the daily onslaught of sensory stimuli. We all have different thresholds for processing sensory input, and no one is immune to the impact of sensory stimulation in the built environment. Even neurotypical individuals who fall into a predictable range of responses to stimulation are affected.

HOK's recent research has shown that "when you design for the extreme, you benefit the mean." In other words, addressing sensory stimulation and processing in built environments benefits both neurodivergent and neurotypical individuals. But what might be irritating for some can be debilitating for others. Those with more acute sensitivities to sensory stimulation tend to fall into two main categories:

- **Hypersensitive:** Individuals who prefer environments with less or controlled stimuli. They tend to dislike excessive stimuli such as loud spaces, bright lights, crowds or unwanted smells.
- **Hyposensitive:** Individuals who prefer or need more stimuli to process it successfully. They may have difficulty seeing, hearing or feeling the acute sensory details in a space. They often seek out more tactile, bolder, more active or sound-filled spaces.

In a recent survey by [SensoryIntelligence](#)², 40% of respondents identified as neurotypical, 40% as hypersensitive and 20% as hyposensitive. This highlights the importance of addressing the needs and preferences of a wide variety of individuals when designing spaces.

BIOPHILIC INFLUENCES IN BUILT ENVIRONMENTS

Biophilia offers balance in today's high-tech, chaotic world. Natural and biophilic features can have a calming, comforting effect. Biophilic design strategies can reduce stress,

enhance creativity and clarity of thought, improve well-being, boost health outcomes and expedite healing for both the neurodivergent and neurotypical. Using colors that are abundant in nature, such as browns, greens and blues, can also create a sense of comfort and calm. Many biophilic design principles that benefit neurotypical people in the workplace can also contribute to environments that are more inclusive of neurodivergence.



**BIOPHILIC DESIGN ELEMENTS FOR
NEURO-INCLUSION**

Incorporating thoughtful biophilic elements across various sensory experiences can help create inclusive environments that support neurodiversity:

Visual

- Access to natural light and views of nature to invigorate occupants (among the most essential features in spaces)
- Incorporation of biomorphic forms from nature to create more organic settings
- Use of organic shapes and configurations that are less rigid and more natural
- Fractal patterns emulating natural elements
- Dynamic, varied, and diffused lighting

Auditory

- Natural sounds instead of static sound masking (less irritating and more comforting)

Tactile

- Natural materials, such as wood, stone and moss
- Plants that enhance air quality, sound and visible control within the space
- Incorporating air movement and variable thermal flow, such as the use of fans

Olfactory

- Strategic use of natural fragrances and smells

Spatial and Environmental

- Spaces that are simultaneously complex and ordered
- Elements of prospect and refuge to enable some degree of control and safety
- Bringing the outside in and the inside out
- Introducing elements of mystery, peril and delight
- Water elements providing relief for those struggling with sensory overload or deprivation

In recent years, we have gained a much deeper understanding of how environmental elements within the spaces we occupy impact our physical and mental well-being. Biophilic elements play a significant role in creating environments that support neurodivergent individuals while also promoting a more calming and inviting space for everyone.

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<https://www.hok.com/people/leadership/view/kay-sargent/>

HOK NEURODIVERSITY DISCLAIMER

Neurodiversity is a term used to describe a broad range of conditions, some of which likely will be unresponsive to design solutions. HOK's approach to inclusive design is based on our experience as designers and architects with the objective of providing a wide range of options for users with different needs. Any attempt to address the needs of neurodiverse individuals should also include review of human resources policies, implementation of technology solutions and building operations among

other considerations. HOK does not represent that any design solution discussed in this article is capable of achieving any specific outcome for an individual user.

REFERENCES:

¹ www.kornferry.com/content/dam/kornferry-v2/pdf/institute/kfi-neurodiversity-the-little-known-superpower.pdf

² <https://sensoryintelligence.com/>



PLANTS



Plants of the Month

Dracaena an indoor classic with a flamboyant streak

Coll Smith with Urban Planters

Beautiful leaves in fashionable colours on a sturdy trunk: Dracaena is a statement plant with an exotic look.

Dracaena comes as a tall, full houseplant or tree; it can have more than one trunk from which its colourful leaves sprout in a range of colours from green, yellow and gold. They can also have touches of pink or red around their edges too. The different varieties offer a range of leaves too, from small, narrow and pointy to large and soft. They are easy to care for too – a plantman's dream.

Dracaena is derived from the Greek 'drákaina', a female dragon. This refers to the resin of the plant, which is bright red and explains why it is known as the dragon tree and dragon's blood plant.

'The resin is used in the paint industry. The plant is the botanical symbol of Tenerife. Icod de los Vinos is home to one of the largest and oldest dragon trees in the world called El Drago Milenario (the thousand year old dragon). That's a slight exaggeration, as the plant is probably between 250 and 350 years old.'



These three plants were used at The Atrium, Sheffield Hallam University by Urban Planters
<https://www.urbanplanters.co.uk>

Zamioculcas zamiifolia aka the ZZ plant

Zamioculcas zamiifolia is commonly known as the ZZ plant. According to The Joy of Plants, it is not only beautiful but also 'virtually indestructible'. It has sturdy, noticeably regular leathery leaves that grow on branches that makes them look a little like feathers. Its sturdy stems are the result of special veins that store water and nutrients ensuring that it is one of the easiest plants to keep.

As proof of this, ZZ plants are easy to keep – 'light, dark, forgetting to water it' don't seem to have an adverse effect on this plant. It retains its dark green colour and grows albeit slowly.

It originates in Tanzania, Zanzibar and across central Africa where it has to tolerate long periods of dry weather alternating with torrential downpours which accounts for its tolerance of dry conditions.

Zamioculcas is a stoic type: it does not shed, does not grow rapidly and is the embodiment of stability.



Peace lily – a beautiful plant with cheerful white flags

The Peace lily is a well known plant with 'stylish dark green leaves with radiant white banners or flags'; it's 'bound to steal your heart'.

Colours and shapes

The peace lily's white bracts often thought to be its flowers but the flowers are much smaller and appear on the tiny spike protected by the white bract. This plant is easy to care for and gives you clear signals. When it needs water, it will droop. Once you have given it water, it will visibly perk up again within an hour.

Peace lily aka the Spathiphyllum to give this plant its real name, is a member of the Araceae (Arum) family and grows in the tropical rainforests of Colombia and Venezuela. There are over 50 different varieties of this plant which was introduced into Europe in nineteenth century. Its name Spathiphyllum is derived from the Greek: 'spath' for spoon and 'phyl' for leaves - in reference to its spoon-shaped leaf.

Symbolism

'Unsurprisingly, the peace lily is known as a bringer of peace: the white flower represents the white flag which is recognised internationally as a truce signal.'

www.plantsatwork.org.uk

<https://www.thejoyofplants.co.uk>



Schools with “Nature Indoors”

“Creating environments that help everyone flourish should be key to any interior or architectural design, but especially true for school environments to support learning and growth.”

Lisa Norton

West Riding is a specialist biophilic education environment based in South Yorkshire, for young people aged 11 to 16 who have communication and interaction difficulties as their primary need. West Riding is part of **Nexus Multi Academy Trust**. The provision opened in September 2022 in a temporary building until the biophilic designed environment was created. The inspiration for a biophilic environment was the Co-headteacher Michelle Sault, who was introduced to Biophilic designer, Lisa Norton at Harrogate Garden Design, who went on to design and create a fully biophilic environment alongside West 8 Architecture.

What once was a disused youth centre, has been refurbished and transformed into a nature-inspired, truly calming

space to accommodate the varying needs of the children. Lisa introduced more natural light to the classrooms by adding windows and roof lights, this has opened the space and helped the children to regulate their circadian rhythms, in fact, four of the children at the school have now stopped taking melatonin to sleep. Custom-made key features made from natural materials include tree trunk dividing screens, a large feature tree trunk within West Riding’s nature immersive space, and a hexagonal, nature-inspired pattern wooden wall. As you enter the school you are greeted in the reception area with a lush, green living wall which creates a powerful calming emotion as you enter, this peaceful feeling is enhanced through the soft scent of diffused, natural Doterra essential oils.





The biophilic-inspired carpets journey you through the spaces, creating a connection between all spaces and create a desire to travel further through the school. Organic-shaped reading nooks establish a space of refuge for the children, these are backed with colourful acoustic materials. Couple this with the custom-made, green acoustic mats and cushions scattered through

the space, it really does create a calm, quiet environment that soothes the neurodivergent needs of the children at this school. One of the key features is a hand-painted mural of the local landscape in classroom one, the mural blends with the outside landscape and was created by Rachel Biggins a very talented, local artist.

Essential oils are a key part of the school with diffusers in every classroom. Doterra natural oils are used to reduce feelings of overwhelm, calm the nervous system and can be used to create a feeling of creativity and motivation. Something West Riding is harnessing and testing as this concept is new within education, especially in the UK.

The pupils take great care of their school environment and remove their shoes when entering the building and walk around in socks, bare feet or indoor shoes that are comfortable and not restricting such as Crocs.

Biophilic design principles have been used in every way in West Riding, and you can feel it when you spend time in the school – it fosters an emotional attachment to the space, something which Lisa and Michelle are passionate about creating for the children and teachers. All these considered elements of design help to reduce absenteeism in both children and teachers, improve behaviour, increase learning and overall create a positive feeling of wellbeing. In fact, this is what the children and teachers had to say about their biophilic school:

Pupils commented:

‘it is different from other schools because its unique and its like nature indoors. It is a nice, spacious environment to learn new things in. It has made a difference in pupils learning experiences and mine’.

‘the living wall has a nice vibe, makes me feel relaxed’

‘nice and calming views from the windows’

‘feel calm here, completely different to a mainstream school’

‘it makes me feel safe’

‘the layout of the desks makes me feel good, I’m not worried someone is going to hurt me from behind’

Staff commented:

‘the lack of clutter in the classroom helps me feel a tidy classroom a tidy mind’

‘the natural light from all the windows, sometimes we don’t put the lights on all day’

‘when one of my pupils becomes frustrated he just turns his chair to look at the outside, the view and he feels instantly calm’

‘breathable’ lots of light, we can breathe’

‘the building flows, we float around, its zen’





Parents commented:

‘The smells, help set the tone, it creates a feeling of serenity & also makes the children feel safe I believe. The natural light is brilliant as lots of children have lots of screen time & artificial light so the natural light is really good, especially for concentration. The decor is so so calming for me as a parent also, I think it all has a really positive effect, the children are able to learn to their full potential in these settings’.

‘Yes, the way the school is set out is having a positive and calming effect. The different zones, although they all link together cater for all children. The outdoor environment is also very pleasant and will help the children to wind down’.

‘Personally, for me it just makes the whole place feel calmer and relaxing. I love the natural feel of the interior of the school and I know she finds it soothing in ways she didn’t realise she needed before attending here. I know it’s a small school but compared to her old school the acoustics are far superior. It has a noise softening and dampening property to it that really reduces the overwhelm sensory wise. I wouldn’t change a thing I find it boosts and supports the children’.

‘It provides a much gentler experience in terms of sensory input. While there is so many opportunities for seeking sensory stimulation it’s a much gentler delivery and in a way that it seems to meet those needs but not overwhelm them. The lighting is something I always struggle with personally in other settings even home and workplaces but the more natural light is great’.



West Riding is due to open Phase Two of the school at Easter 2024, this is an extension to the existing building accommodating with 60 neurodivergent children in total from the local borough. Phase Two includes curved stone walls, murals, natural features, and many newer biophilic concepts which haven’t been seen in education to date. The landscaping plans are also due to be finished in 2024. Watch this space for the first, fully biophilic designed school in the UK. Let’s hope this becomes a flagship and the DFE recognise the benefits of investing some extra time in the way we construct our school environments. The next ten generations are likely to inhabit these new buildings, Lisa and Michelle are keen to make sure these generations are given the biophilic environments they so desperately need and deserve.

www.harrogategardendesign.co.uk

A Garden of Serendipities

How We Designed Our New Offices with Our Humans in Mind

Two months ago, in Milan, we opened Il Prisma Live, our new headquarters conceived as an observatory on the humans of tomorrow. As an architecture and design firm, this project presented us with a unique opportunity to explore firsthand the relationship between humans and the built surroundings. Guided by our vision, “Design Human Life”, we sought to place the human experience at the center of our design. Therefore, in shaping our new spaces, we asked ourselves: How can we enrich our collective experience and create value from time spent together? What common aspiration unites our people? The answer we’ve found contained a simple yet profound realization: we were driven the desire to share knowledge. This is why, for us, Il Prisma Live is more than merely a physical space. It serves as an observatory on tomorrow and its possible impacts on the cities of the future; the place where new knowledge develops through cross-pollination and experiences of mutual enrichment; the laboratory in which spaces, materials and interactions are shaped in the most sustainable way possible, to make the

future of living, learning and working truly human.

Il Prisma Live covers a total area of 1100 sq.m, spanning across two floors, ground and first. Inside, everything is designed as a laboratory experiment: from the varied environments to the adaptable furniture, each element contributes to a dynamic, versatile and immersive experience. Among the diverse spaces—including the Live Area, Bar Bar, Living Matter Lab, and Artist’s Atelier – one narrates a particularly captivating story: the **Serendipity Garden**. Previously a dim and secluded storage area – a ‘backstage’ space and a non-place to pass without staying or hanging out – the Serendipity Garden has undergone a complete metamorphosis. We approached its transformation with a bold vision: to seamlessly integrate it into the heart of our office, ensuring it became a focal point of vitality and inspiration. To achieve this, we redesigned the space opening it up to the rest of the ground-floor area and enlarging the ceiling windows to flood it with natural light.



PLANTS

Now, the Serendipity Garden invites all who traverse our office to enjoy a serene retreat for work, collaboration, relaxation, and contemplation amidst greenery. Here, a diverse array of plant species, sourced from the Mediterranean maquis – such as thyme, mint, sage, lavender, myrtle, citronella, eucalyptus, lemon balm, laurel, rosemary, oregano, as well as olive trees, capers papyrus, Asplenium, Homalomena, Platycerium, Euphorbia, Rhipsalis, Lepismium, Hattoria, Sophora, Adiantum, Tradescantia, pomegranate, pepper, Thillandsia, Chlorophytum, Equisetum, Jupiter's beard – create a botanical oasis. Visitors are invited to immerse themselves in a multisensorial experience: from the aromatic scents of plants to the relaxing sound of pebbles underfoot, accompanied by a curated soundscape of European forests and green spaces recorded in a sequence of 20 tracks.

Since the opening of our headquarters, the Serendipity Garden has captivated both our team and guests, fostering a sense of wonder and discovery. Its allure is such that visitors frequently inquire about the possibility of using our spaces as a coworking area – an affirmation of its transformative impact on our workplace culture and wellbeing.





Exploring the principles of biophilic design and engaging the five senses is not new territory for us – we have embarked on diverse biophilic journeys with our clients. In one such project, the transformation of the outdoor spaces at **Bodio Center in Milan**, we embraced a regenerative design approach. Here, we reimagined the exterior space between buildings, creating four distinct thematic gardens. Spanning 2,800 square meters, *Archipelago* is designed as a collection of “islands” featuring essences divided by colors – pink, blue, white, and yellow. It serves as a social hub, fostering collaboration and leisure activities. Covering 800 square meters, *The Labyrinth of Essences* is an experiential garden of individual islands dedicated to concentration and contemplation, providing a tranquil retreat amidst nature. *Forum*, encompassing 1,200 square meters, serves as a link between the business centre and the city. It hosts outdoor events and meetings, fostering connections and community engagement. Finally, *Terrarium*, a 400-square-meter green space, complete with bird houses and a future bug hotel, creates a new ecosystem within the urban landscape.





In another project, the new **Milan headquarters of LVMH Group**, we designed a **terrace-garden** spanning almost 2,000 square meters, with biodiversity as a core value. The terrace unfolds through a sensorial journey that embraces five areas – **five experiential worlds** – inspired by essences designed by Il Prisma. *Sensorial Garden* is an area conceived as an oasis of psychophysical well-being. *Biodiversity Garden* is the “wildest” spot on the terrace, where you can reconnect with nature. Formal and elegant, *Event Garden* features a broad central lawn, with paved areas open to various configurations and a large amphitheater. Lush vegetation, but also aromatic herbs wrap around the garden’s panoramic layer, with informal seats where you can relax and socialize. *Secret Garden*, separated from the rest of the terrace by thick hedges and luxuriant edgings, is designed as a quiet space where you can meditate or workout, and features a lawned area and a platform. Finally, *Working Garden* offers different types of workstations in the open air or in the shade of a pergola.

Similarly, our project for the **building in Via Oglio**, Milan, revolves around the concept of an “Urban Oasis”. By integrating natural elements into the architectural design, it aims to provide

a “breathing space” inside the urban life while enhancing tenant well-being. The biophilic approach is evident in three key areas: **Courtyard**, featuring an experiential garden with a variety of plantings, pergolas, and platforms for socializing and hybrid work, offers sensory and cognitive stimuli to reconnect users with nature; **Façade**, the insertion of a green wall with integrated lighting that serves as an urban vegetal landmark, enhancing the building’s iconic status while increasing greenery for the city and community; and **Terrace** on the sixth floor, where planters along the perimeter offer new perspectives on the urban landscape, provides opportunities for socializing, conviviality, and informal work. Moreover, the project emphasizes permeability between internal and external areas, fostering connectivity and bringing greenery into the building’s interior through custom-made furnishings in the lobby.

In conclusion, our commitment to biophilic design transcends aesthetics. As we continue to explore and innovate, we remain dedicated to designing spaces and experiences that enrich the lives of all who inhabit them.

<https://www.ilprisma.com>



Neurodiversity and biophilic design

“Connecting to nature through horticulture at home and in the workplace is incredibly beneficial for so many of us, it helps reduce stress levels and gives us respite on so many different levels.”

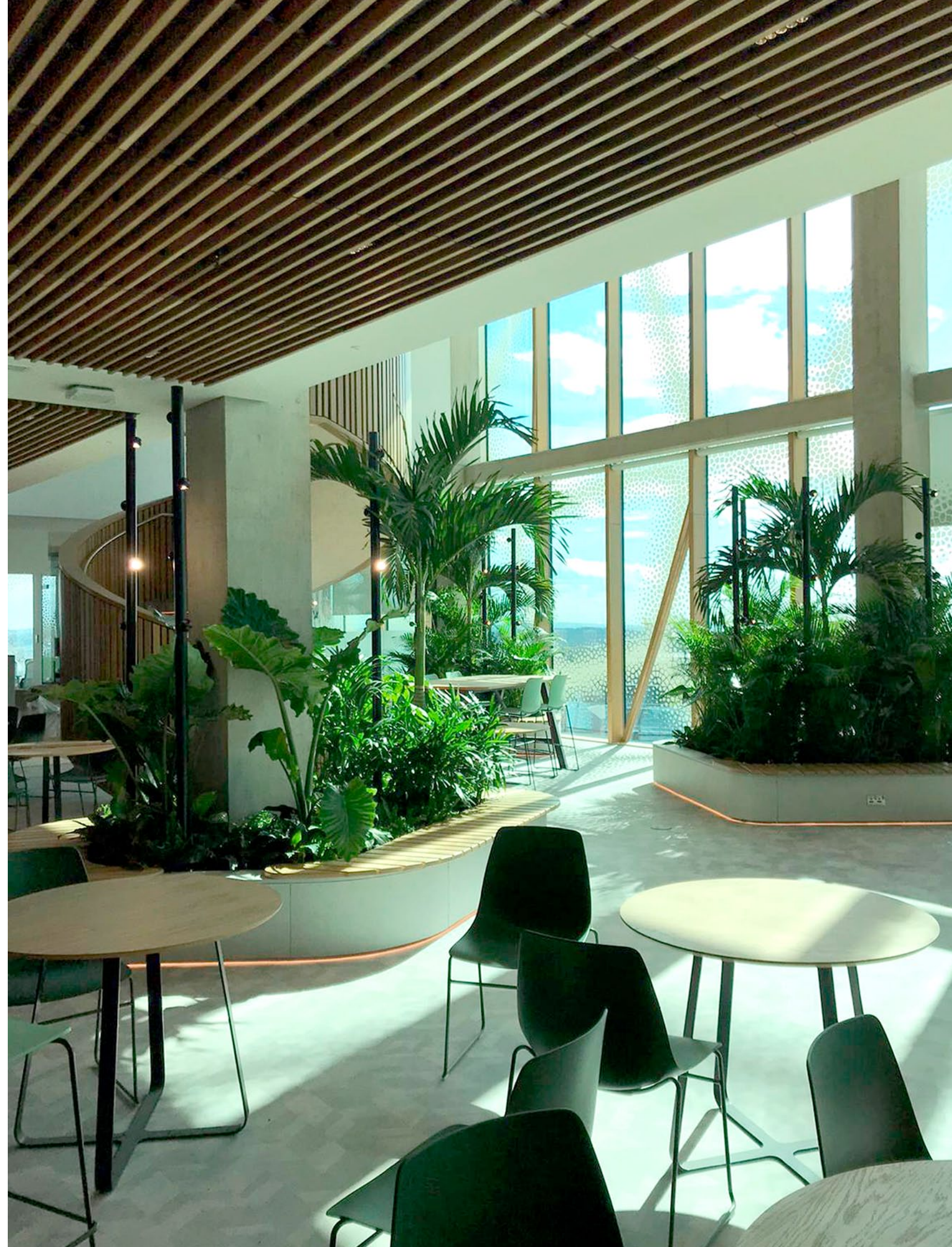
Thomas Palfreyman

The **BBC says**¹ that ‘Neurodiversity is a word used to describe the different thinking styles that affect how people communicate with the world around them. It is an umbrella term – a word that sums up lots of different things. It includes conditions like autism, ADHD, dyslexia, dyspraxia, dyscalculia, and Tourette’s syndrome.’ It also covers conditions such as brain bleeds and strokes.

‘**Understanding neurodiversity**² starts by acknowledging the broad range of cognitive variations, including *Autism Spectrum Disorder (ASD)*³, *ADHD*⁴, *dyslexia*⁵, *dyscalculia*⁶, and *dyspraxia*⁷.

Despite their distinct characteristics, **individuals with neurodivergent conditions typically perceive environments in a manner that’s different from neurotypical individuals.** This unique way of experiencing the world can bring challenges and strengths to the workplace.’ This is how American company Natura explain it.

We can make a great deal of difference to the lives of people with these conditions by encouraging them to appreciate horticulture generally and to notice the changes that the different seasons offer. It is also important to ensure that their places of work offer environments that embrace nature in a way that is mindful of their condition.





Improving your office for everyone
There are several ways that we can look at offices/places of work and find ways to improve the office for everyone, especially for those suffering from neurodivergent tendencies. Consider these three conditions in particular which could cause problems for staff with these problems:

- bright lighting
- noisy offices particularly those that have large open layouts with constant noise
- rigid routines

As well as the general wellbeing of these employees, we also need to consider how to make offices neurodivergent-friendly.

The biophilia factor

We know that plants in offices and other workplaces can improve the working conditions for all of us, so it is no surprise that plants can also improve conditions for neurodiverse workers too.

Apart from the joy that plants bring generally, they can also help productivity. Houseplants work from the basics of giving us something to admire in our workspace to the many reasons that research has found they can benefit us. These benefits range from improving our mental health to refreshing the air and improving our productivity.

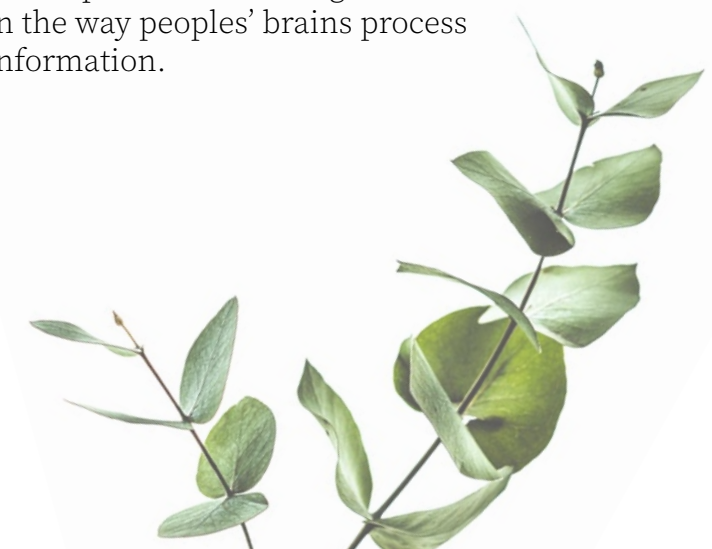
Plants@work members and Urban Planters have been explaining how sharing our workspace with several plants can help to keep our stress levels down and this is shown by many research studies.

Research has also shown that plants can refresh the air making it cleaner for the occupants to breathe; this is great to know if you are working in an office with sealed windows or in an area where the outside air is likely to be contaminated by traffic fumes.

Other studies have shown that having plants in your workplace helps to improve productivity and also influences your creativity. While these research areas might seem obscure, they have been **proven several times by different researchers**.⁸

Over the years research has explored the benefits of having plants in all kinds of work spaces. It has also shown how plants help to make workspaces more comfortable for everyone using these spaces, including those with problems experienced by neurodiverse individuals, whose number continues to increase and is shown as 30% of the population in **some studies**.⁹

As you can see, neurodiversity encompasses a wide range of differences in the way peoples' brains process information.



Stress Reduction

A lot of research has shown how including plants in your décor can reduce stress for individuals generally. For those suffering from Autism and/or ADHD this would be particularly helpful as they typically have a heightened sensitivity to stress and stressful situations.

Improved Concentration and Productivity

Similarly, plants help with concentration and productivity for those on the neurodiverse spectrum who find contact with nature helps.

Sound Reduction

We all know that workplaces can be noisy especially if you work in a large establishment. Using plants to reduce the noise by offering a barrier of plants that can both absorb and buffer the noise is a great help for this group of people.

There is no doubt that by having plants in and around your buildings will help in various ways. Urban Planters can assess how and where to use plants in your building for the benefit of everyone, especially those with a neurodiverse condition.

Thomas Palfreyman, Managing Director
of The Urban Planters Group

<http://www.plantsatwork.org.uk>

<https://www.urbanplanters.co.uk>



¹ <https://www.bbc.co.uk/newsround/64951690>

² <https://blog.naturahq.com/how-plants-help-create-a-neurodivergent-friendly-office>

³ <https://www.cdc.gov/ncbddd/autism/facts.html>

⁴ <https://www.cdc.gov/ncbddd/adhd/facts.html>

⁵ <https://my.clevelandclinic.org/health/diseases/6005-dyslexia>

⁶ <https://www.bdadyslexia.org.uk/dyscalculia#:~:text=What is Dyscalculia, across all ages and abilities>

⁷ <https://my.clevelandclinic.org/health/diseases/23963-dyspraxia-developmental-coordination-disorder-dcd>

⁸ <https://www.plantsatwork.org.uk/index.php/benefits-of-plants>

⁹ <https://www.td.org/magazines/td-magazine/design-for-neurodiverse-learners>



Growing Minds: The Green Revolution for Schools

“In the realm of education, where young minds are shaped and nurtured, the incorporation of plants as part of biophilic design represents a powerful tool for creating enriching and supportive learning environments. This case study from Benholm highlights how it can be done and why.”

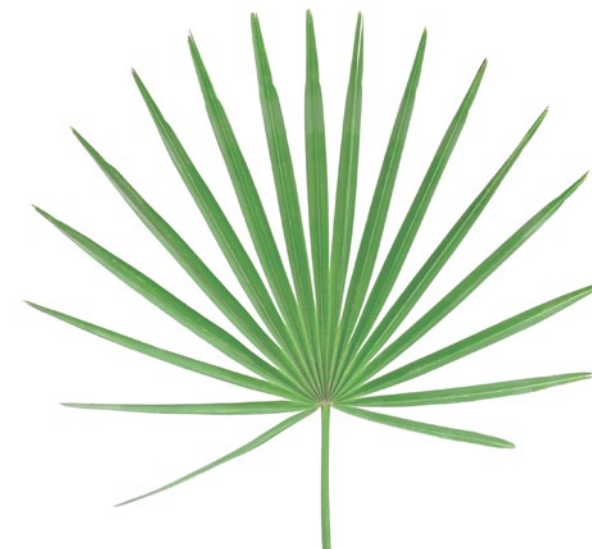
Adrian Byne

Biophilic design, rooted in the principle of connecting humans with nature, acknowledges the profound impact of natural elements on psychological well-being, cognitive function, and overall health. When applied thoughtfully within school settings, plants serve as catalysts for development, offering many benefits that extend far beyond mere decoration.

First and foremost, plants have been shown to positively influence cognitive function and academic performance among students. Numerous studies have demonstrated that exposure to greenery can enhance attention span, concentration, and memory, leading to improved learning outcomes. The

presence of plants in classrooms can also promote a sense of calm and reduces stress levels, leading to more focused learning.

Furthermore, integrating plants into educational spaces fosters a deeper connection with the natural world, instilling values of environmental stewardship and sustainability from a young age. By witnessing first-hand, the importance of biodiversity and ecosystems, students develop a greater appreciation for living organisms and the need to protect our planet. This awareness not only cultivates a sense of responsibility towards the environment but also inspires future generations to become environmentally conscious citizens and advocates for positive change.





In a recent example, creative plant designers Benholm Group were tasked with bringing nature indoors to provide a healthy and welcoming learning environment within the atrium and learning spaces at Stirling-based High School, Scotland.

At the heart of the school's brief to merge nature with architecture lies the vast atrium. Here, a bold statement was made with the introduction of a magnificent tree as a centrepiece to serve as a source of inspiration, grounding students in nature amid their academic pursuits.

Mindful of the challenges posed by high traffic and noise within the atrium, moss wall panels were installed not only for their aesthetic appeal but also for their remarkable acoustic benefits; moss is inherently a natural sound absorber and virtually maintenance free as it does not require watering, perfect for the demands of a busy educational setting.

Extending the embrace of nature beyond the atrium, strategic interventions were implemented in multifunctional spaces, such as meeting areas and rooms designated for staff training and multimedia presentations. Here, wall-mounted plants and a moss feature wall cultivates a serene atmosphere. This fusion of greenery and architecture not only enhances the aesthetic appeal of the space but also nurtures a sense of well-being among its occupants.

The transformation of the school towards embracing biophilic design represents a paradigm shift in educational philosophy. By bridging the gap between the built environment and the natural world, the school cultivates a holistic approach to learning, one that nurtures not only academic excellence but also emotional well-being. As schools worldwide seek to redefine educational spaces in the wake of unprecedented challenges, the story of this school serves as a beacon of inspiration, illuminating the transformative potential of biodiversity in shaping the minds and spirits of future generations.

Benholm Group has proudly been delivering plant and floral products and services with care and creativity, for commercial clients across Scotland and the UK, for over 30 years.

www.benholm.com



Rejuvenating Gardens and Natural Spaces in Ancient Rome

“Over 2000 years ago the ancient Romans knew how gardens and nature had a positive impact on us. Fast forward to the 21st Century, there is a lot we can learn.”

Patty Baker

The hustle and bustle of modern lifestyles can have detrimental effects on our mental and physical wellbeing. To negate these potential health threats, it has been proven, as many papers in this journal attest, that slowing down and spending time in natural environments can help restore our wellbeing. The recognition that nature has healthful benefits is nothing new. Over 2,000 years ago, Greco-Roman writers commented on the advantages of spending time in nature, neatly summed up in the closing remarks of a letter written by Pliny the Younger, a Roman statesman (1st – 2nd AD), about his mountain villa at Tusculum, located in modern day Umbria. Pliny said,

“I can enjoy a profounder peace there, more comfort, and fewer cares ... everywhere there is peace and quiet, which adds as much to the healthiness of the place as the clear sky and pure air. There I enjoy the best of health, both mental and physical, for I keep my mind in training with work and my body with hunting.”¹

This gave him respite from his from his working life in the crowded, smelly, and noisy city of Rome.

Pliny's comment relates to the Roman concept of *otium*, a Latin word which roughly translates to “contemplative leisure.” Essentially, *otium* was having time to devote to intellectual pursuits and to exercise the body in healthy environments, which holistically maintained and healed the mind, body, and soul.

Yet, not everyone in Rome was as wealthy as Pliny and could not escape urban areas for their private villas. However, the art and archaeological evidence from Pompeii and Herculaneum and other areas of the Italian peninsula, such as Rome and Ostia, demonstrate that the Romans attempted to recreate green garden spaces in and around their homes and environments.

Dwellings in these cities ranged in scale from luxurious villas to very small spaces, the majority of which had some form of garden located at the rear away from the sounds of the street. For those who lived in apartment blocks, green spaces and public gardens could be accessed near theatres, baths, and temples.

The Romans also incorporated fresco paintings of gardens and natural environments on the walls of their dwellings to simulate the experience of being in the natural world. One of the finest examples was found at the empress Livia's villa at Prima Porta, Rome (1st BC/AD). It is a four-walled garden scene lush with trees, flowers, and birds.²

Along with this evidence, a variety of other Roman literary genres – poetry, agricultural works, natural history, and military writings – regularly mention salubrious spaces. So, what precisely was it about natural spaces and gardens that gave Romans the opportunity to maintain the balance of their humors³ and rejuvenate their health?

The details in these texts, images, and remains inform us that it was the sensory experiences people had in particular spaces that either harmed or contributed

to their wellbeing. Vision, hearing, and olfaction, in particular, were prioritized. For example, in *On Affections 1*, the Hippocratic writer said that imbalances were caused by

“foods and drinks, from exertions and wounds, from smell, sound, sight ... this happens when any of the things mentioned are applied to the body at the wrong time, against custom, in too great amount and too strong, or in insufficient amounts...”

On the other hand, health could be restored with pleasant sensory experiences. The Arabic writer, *Ibn-al-Gazzār* (10th century AD), quoted the Greek physician Galen (2nd AD) as stating that some cures for those suffering from melancholy (an excess of black bile that caused depressive symptoms) were listening to music and looking at water, gardens, greenery, and radiant faces.⁴

Vision played a significant role in restoration. For instance, Pliny compared the views from his villa in the mountains to “a painted scene ... and the harmony to be found in this variety refreshes the eye wherever it turns.”⁵ The architectural writer, Vitruvius (1st BC/ 1st AD) advised that colonnades for walking should have green spots in the open spaces located between them because walks in the open were healthy and seeing green was particularly good for the eyes.⁶ According to him, “the (green) air was subtle and rarefied, it flowed into the body and cleared the vision and removed the thick humours from the eyes, and left the glance defined and the image clearly marked.”⁷

Gardens, too, offered healthy views, which included greenery, colourful flowers, and blue skies. Although we have the remains of gardens and archaeobotanical evidence that indicates what was grown in them,⁸ it is the Roman frescos that give us an idea of how they might have looked. They had plants, flowers and animal life.⁹ Often the images are idealized showing all the plants blooming at the same time, making them lush and rich in colour. Usually there is a mix of greenery: palms, olive, cypress, oak, hazel, and pines; various fruit trees, such as pomegranate and citron/lemon; and flowers: oleander, roses, lilies, iris, poppies, and daises. All of these depicted are proven to have been in the gardens through the remains of pollens and seeds. Aside from the flora, other common features of garden paintings and archaeological remains were birdlife and fountains. These two features also provided pleasant sounds.



The Hippocratic writer of Regimen said that through hearing, sounds could warm and dry the soul,¹⁰ recalling *Ibn-al-Ğazzār*'s comment about music. Gardens and natural spaces away from noisy urban settings offered restorative sounds. These include moving water (the sea, brooks, and fountains), bird songs, and gentle breezes blowing through leaves and branches. Pliny noted that peace and quiet added to the healthiness of his mountain villa as much as the pure air.

Pure air, too, was considered vital to health in ancient Rome and was partially identified through olfaction. The lack of scents or very mild smells from flowers, trees, grasses, and moving water were an indication of clean air. In comparison, harmful air was malodorous and emanated from marshy water, kitchen and workshop fires, and toilets, for example, all of which ancient writers remarked should be avoided because the smells entered the body and caused illness and imbalance.

Although brief, the evidence demonstrates that the Romans sought out natural spaces that provided them with health giving sensory experiences that restored their minds, bodies, and souls. So next time you feel the need to decompress and restore your health, why not take some ancient advice and place yourself in a beautiful garden, listen to the sounds around you, and take in the refreshing scents.

Dr. Patty Baker, Founder of Pax in Natura

www.paxinnature.com

Photo by Baker, Portion of the Garden Fresco Painting from Livia's Villa at Prima Porta Rome.

Primary Sources

¹ *Epistles* 5.6.45.

² See Carroll 2003; Kearns 2016, 164–169; Jashemski 1979, 56; von Stackelberg 2009, 30–33

³ Baker 2023

⁴ *Ibn-al-Ğazzār On Lovesickness, Sustenance of the Traveller* (1.20)

⁵ *Epistles* 5. 6. 24–25

⁶ See also Baker 2011 and 2017

⁷ *On Architecture* 5.9.5

⁸ See for example Masi *et al.* 2024; Ciaraldi 2007, and Ciarallo 2004.

⁹ For Gardens see Carroll, von Stackelberg 2009, Kearns 2016; Jashemski 1979, 79. Gleason 2016

¹⁰ 2.61

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ENVIRONMENT PEOPLE PLANET



WHY CLIMATE CHANGE IS NOW EVEN MORE SCARIER THAN BEFORE

“When heat records are broken worldwide at record speed, you would expect leaders around the globe to be alarmed and take drastic measures. However, they don’t. Nor does the media seem particularly alarmed, except for a few leading quality newspapers like The Guardian that warned the world this weekend that February is on course to break an unprecedented number of heat records.”

Alexander Verbeek

Shocking climate data and examples of extreme weather are reported from all over the world, for instance, in Morocco where, in the first half of February, twelve weather stations registered over 33.9 Celsius, which is more than 5 degrees Celsius above average for July.

The Mediterranean warms faster than most other areas in the world, and that is, for instance, also noticeable a bit further north of Morocco, where Spain experiences three years of minimal amounts of rain in combination with record-high temperatures. This combination explains why Catalonia declared a drought emergency last week. Officials stated that the reservoirs that provide water for Barcelona are now record-breaking empty and below 16 percent of their capacity.

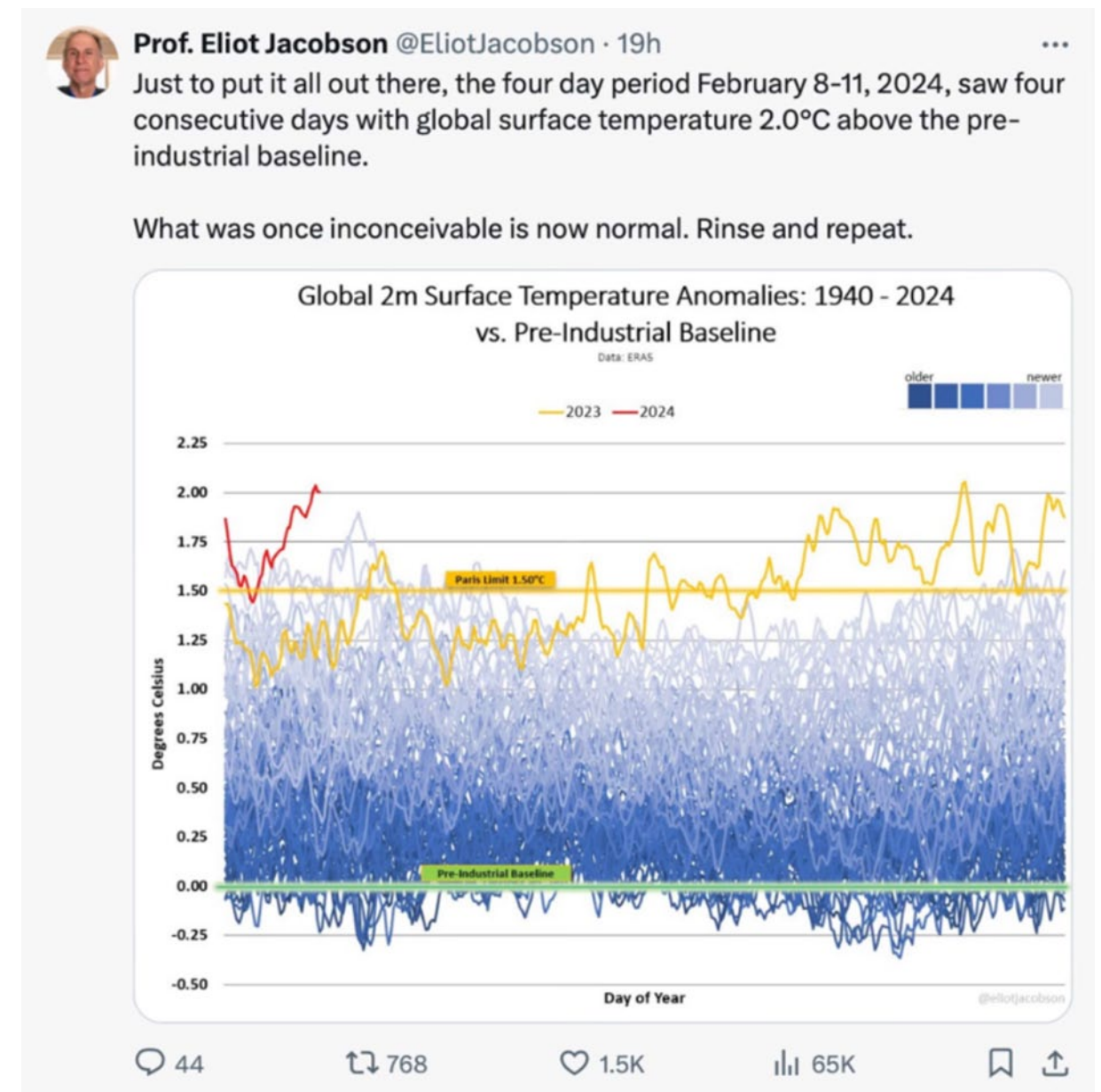
Have a look at this graph from Professor Eliot Jacobson. It shows that the global surface temperatures have been rising since 1940. But the yellow line that represents the data of 2023 escapes the pack of other sequences around May last year and now sprints ahead as the red line into unknown territory, recently breaching the two degrees Celsius warming above the pre-industrial baseline for four days.



Last November, this happened for the first time, but then just for two days. As so often before, we quickly get used to bad news, so these four days get hardly any attention in the media and zero attention from politicians.

I’m not claiming that these politicians have nothing else to

worry about in times of massive violations of human rights, sudden death syndrome, populists on the rise worldwide, and American politics entering unknown territory, not unlike that red line gone away in the graph. But there will always be other urgent and important issues that need simultaneous attention.



Consistently ignoring the climate crisis because it's never seen as more urgent tomorrow than today will make the challenge each day harder to solve than yesterday.

Worse: the unsolved climate crisis will worsen other problems as well.

In short, the climate crisis feeds the water and food crises, while each contributes to further destabilizing global peace and security.

These aspects of Planetary Security were discussed last week at the UN Security Council high-level open debate on the impact of climate change and food insecurity on maintaining international peace and security.

UN Secretary-General António Guterres summarized his view as “Empty bellies fuel unrest” and added that climate disasters and conflict both inflame inequalities, imperil livelihoods, and force people from their homes. That can strain relations, stoke mistrust, and sow discontent. Meanwhile, diminished

resources and mass displacement can intensify competition.

Conflict can easily be sparked where tensions are high, institutions are weak, and people are marginalized. And women and girls pay the highest price. Just as they do when food is short, and climate disasters hit.

At the same time, climate and conflict are two leading drivers of our global food crisis. Guterres said: “Where wars rage, hunger reigns.”

He proposed several measures to break these deadly links between conflict, climate, and food insecurity. One of these aims to target the points at which food insecurity, climate, and conflict meet. This can be done by creating partnerships, policies, and programs that address these issues together, for example, by considering climate risk and food security in peacebuilding or investing in adaptation programs that support communities in managing shared resources.

<https://theplanet.substack.com/>



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Garden designed by Sensory Trust. Credit: RHS

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NEWTON, BLAKE AND RAINBOWS

*“While we are focused on data, we should
also count the flowers in between.”*

Mark Eltringham

On the doorstep of the British Library, you will find Scottish sculptor Edouardo Paolozzi’s imposing statue of Sir Isaac Newton. At first glance, this position seems to make perfect sense. Where better for a monument to the Enlightenment’s poster boy than raised on a plinth at the entrance to the world’s second largest library? And yet, there’s more going on here than is evident at first glance.

The statue is modelled on a series of watercolours by the visionary poet and artist William Blake, who created them to satirise Newton and the 18th Century belief that rational thought had at last triumphed for humankind. (If only).

Paolozzi’s statue maintains some of this intent but, shorn of the painting’s context, lacks some of its punch. In

the original etchings, as in the statue, Newton is depicted as a God, buff and beautiful, a titan of reason. He is crouched over his work, a ‘divine geometer’ wielding a compass, then as now a symbol of science and divinity. Yet we also see that he has his back to nature.

Not some bucolic natural world but a colourful, primordial smear of lichens on rocks. Blake is mocking both Newton’s status and his inability to see every dimension of the world.

He is a ripped superhuman whose focus on his work blinds him to the organic world. The image fades from the brightness of the organic on the left to the dimness of rationality around Newton’s parchment, an inversion of Enlightenment thinking.

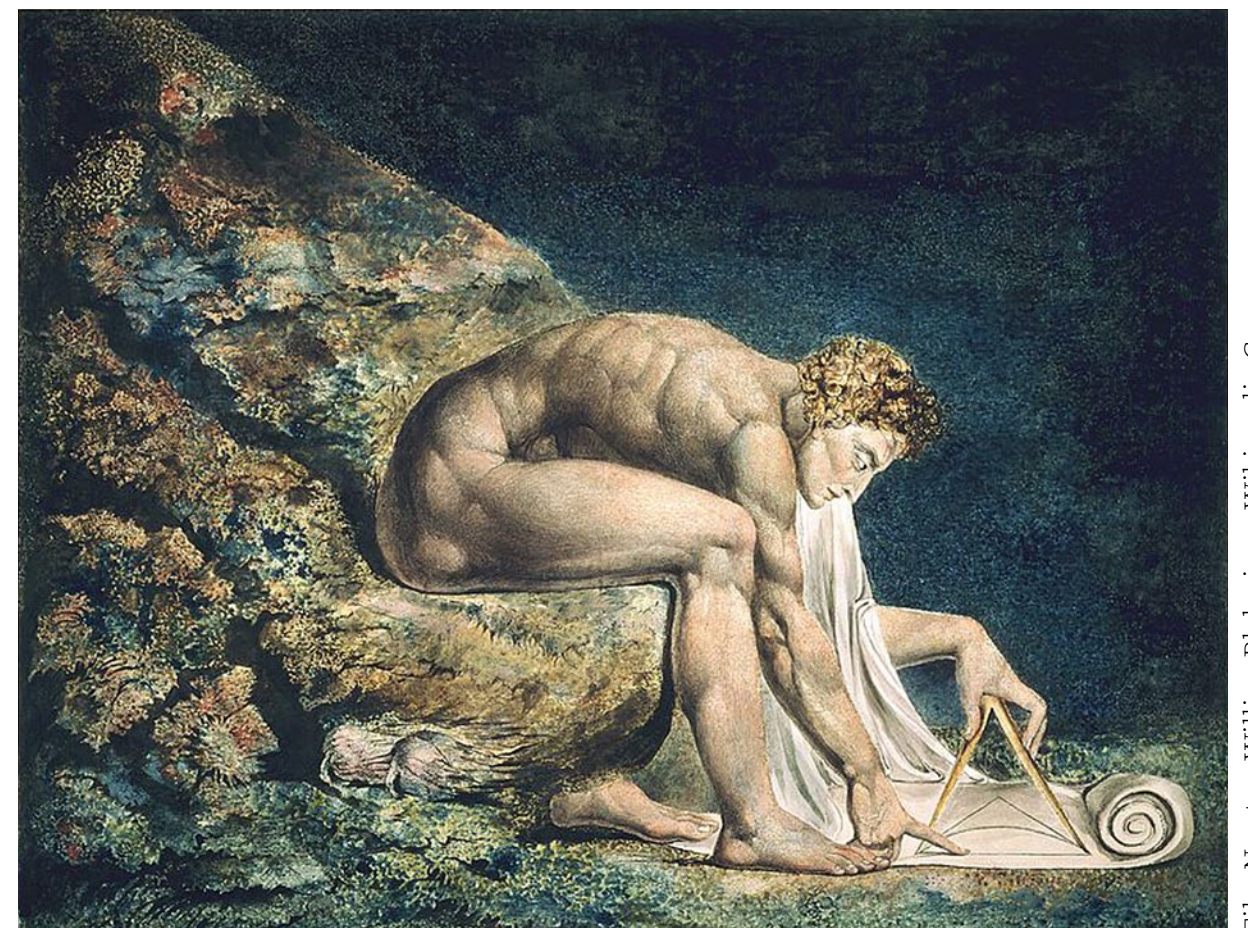
For Blake this was Newton’s underlying flaw. He maintained that Newton presented a one-eyed view of the world and it had become the default position of the right thinking of the era. Blake is not rejecting reason per se, just saying it is not enough. He believes those who rely solely on reason are ignorant of other truths. In a later poem contained in a letter he writes: *May God us keep / From single vision and Newton’s sleep.*

The obverse of this perspective was presented in a contemporary series of etchings produced by the Spanish artist Francisco Goya. In *The Sleep of Reason Produces Monsters*, Goya shows that a lack of rationality exposes us to horror, an idea that also maintains a great deal of resonance for us now. In both cases, an absence of a particular perspective

from the subject of the artwork – in Goya’s case himself – comes to haunt them. In both, the criticism is that the subject is asleep to a truth.

Blake’s satire is complicated by the fact that Newton himself held some odd, mystical beliefs. His work has endured to the modern day and helped take us to the stars amongst many other things, but he was a lifelong occultist and alchemist.

His equations continue to define our world, but we also have him to thank for the fact that the rainbow is said to have seven rather than six colours. For mystical reasons, he couldn’t apply the number six when describing the spectrum, so shoehorned indigo between blue and violet to make up the numbers.



File: Newton-WilliamBlake.jpg – Wikimedia Commons

The economist John Maynard Keynes once said that ‘Newton was not the first of the age of reason, he was the last of the magicians’. So maybe the best interpretation of Blake’s depiction of Newton now is that its main purpose was to mock the idea of pure reason, at least as a way of describing the world in the absence of other viewpoints.

Jonathan Swift also addresses this tension between pure reason and other visions. He offers up an AI prototype of sorts in the form of The Engine, a device found in the city of Lagado. The city has been impoverished by a commitment to relentless research. The Engine is described as “a project for improving speculative knowledge by practical

and mechanical operations”.

The device consists of a table covered with words written out on wooden squares. Handles on the edge of the table recombine these words at random and students look for meaningful combinations of words to transcribe. Thus, it becomes possible to generate all knowledge and art.

But this is merely the illusion of knowledge and reason. We are easily duped into believing there is some consciousness behind such devices. But as Swift also suggests, there’s not always a great deal of logic and rationality in humans either. We can’t always acknowledge this in either machines or ourselves.

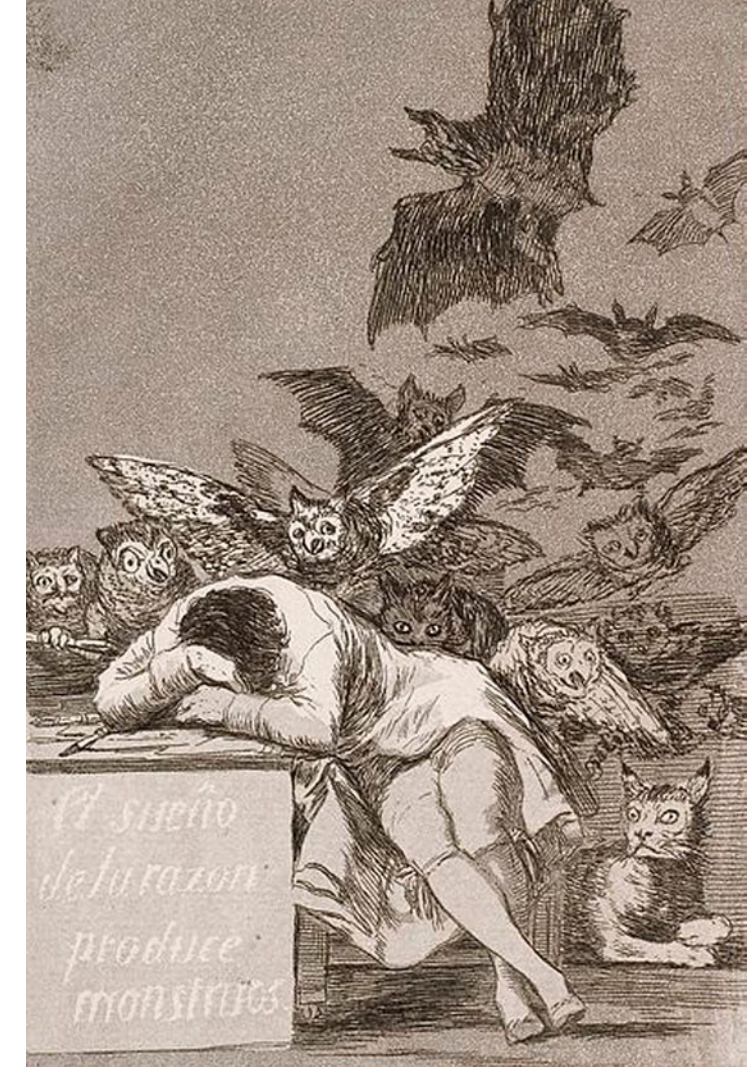


Gulliver-taking-his-final-leave-of-the-land-of-the-houyhnhnms-sawrey-gilpin - Houyhnhnm - Wikipedia

This is the source of Gulliver’s eventual disillusion with humans. After his final journey to the Land of the Houyhnhnms, the purely rational race of horses, he despairs at last. At the heart of this sense of detachment from people is the realisation that they are not really rational, but rationalising. Even though Swift demonstrates how the pure reason of the horses can lead to very dark places – an idea he also explores in ‘A Modest Proposal’ – his protagonist admires the Houyhnhnms. He contrasts them unfavourably with the thuggish Yahoos of mankind.

We like to believe we are both logical and correct in the belief we hold; in the same way we misunderstand the mechanisms of AI. We seek out and disperse information and thoughts that support the ideas we cling to. And we do it about mundane issues as well as important ones.

We maintain or pay lip service to this faith in rationality for the most part, now with added data. Indeed, the data sometimes seems like it’s an end in itself. Hence the number of stories you might see based almost solely on numbers – days lost, hours worked, productivity, demographic groupings, office utilisation and the uptake of new models of work. To this familiar roster we can now add a new lexicon of experience, agility, and engagement.



File: Francisco José de Goya y Lucientes – The sleep of reason produces monsters (No. 43), from Los Caprichos – Google Art Project.jpg – Wikimedia Commons

All this might well be true, and it seems a laudable enough goal. The problem may be that we look for creativity and serendipity while crouched over our equations when what we really need to do is stand up and turn around to look at the colours as well. We can’t rely on one way of looking at things.

Mark is a publisher, commentator, author, editor, journalist and speaker.

<https://workplaceinsight.net>

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YOU ARE WHAT YOU BUILD WITH...

Bear necessities of life

Bjorn Baywood

Cob is the English term for what is both an ancient and modern building material. It has been used in different forms and under different names throughout the ages around the world. From the adobe (mud brick) pueblo cliff dwellings of the southwestern United States to the impressive mud architecture of Mali. From the towering ancient mud skyscrapers of Yemen, the quaint cob cottages of Wales and the southwest of England, to the modern cob renaissance, started in the late 20th century in Oregon, USA. The thread of its existence, our connection to that thread and of its continued use is evident at nearly every turn. Even today, approximately one third of the world's population live in homes comprised wholly or partially of mud.

Clay, sand, and straw. A trinity of simple, cheap, abundant, and natural materials

that when mixed together in varying proportions, using differing grades of each component, becomes more than the sum of its parts. A remarkably versatile mixture that lends itself to a multitude of different applications. From a coarse building material to the finest of plasters. From dense thermal mass to a fluffy, light insulating layer. These three can seemingly do it all.

Clay rich sub soil, ideally dug on site, is the binder that sticks everything together. Sand offers compressive strength allowing you to build tall, self-supporting structures. It also reduces the shrinkage and subsequent cracking that would occur without it. Straw provides tensile strength that helps to weave the whole structure together. Cob also naturally lends itself to sculptural forms and artistic expression and is wonderfully tactile to work with and live around.





Whilst cob has an array of practical and aesthetic applications in the construction of beautiful, low impact structures, perhaps there is something else that contributes to it being such an enduring and universal building material? The way in which it can connect those that build and inhabit these spaces with the surrounding environment is subtle but undeniable. This is especially true when the raw materials used have been harvested from that same surrounding environment. In this instance we are aware of where it has come from and over perhaps generations, we bear witness to it gracefully returning there. In doing so it informs us of our own origins and ultimate destination. What a paradox. Who would think that an earthen wall could be like a mirror and reflect this truth on us so clearly?

The word Human has the same root as the word Humus (Latin for earth or ground) and as the word Humble. So, in realising that we are no more than earth incarnate maybe we also discover some humility and in turn some peace.

Franciscan priest and author Richard Rohr wrote “Being human means acknowledging that we are made from the earth. We are earth that has come to consciousness... And then we return to where we started - in the heart of God. Everything in between is a school of love.”

I founded Bear Natural Building in 2016. Since then, I have worked on projects in the U.K. E.U. and USA. The joy I get from building with cob is

more than from creating something that has function alone. Its only when people inhabit these spaces that the true reward reveals itself. I specialise in creating bespoke cob structures where form, function and imagination merge to enhance and compliment their surroundings. From wood fired pizza ovens and outdoor kitchens, to garden walls and intimate seating areas, my drive is to create spaces that encourage positive human interaction and connection to the environment.

www.bearnaturalbuilding.com

[bear_natural_building](#) on Instagram



WELLBEING



BENEFITS OF A BIOPHILIC APPROACH FROM THE PERSPECTIVE OF A NEURODIVERSE FAMILY

Journal of Biophilic Design
WELLBEING

When indoors we had daylight lighting and opened windows to improve ventilation and, when necessary, noise cancelling headphones.

In June 2023, the National Autistic Society¹ published a brief article entitled “Wellbeing in nature – how being outside can help autistic people’s wellbeing”. The article also drew upon

studies evidencing how the benefits could be applied to the workplace, schools, and universities.

Of course, it isn’t just the neurodiverse who benefit from incorporating the natural world into everyday life. Exeter University led a study² into house plants in offices and reported a 15% improvement in productivity.

“The ‘neuro-typical’ world is starting to adapt to the needs of the ‘neurodiverse’ and life is becoming easier. The irony is that the world started out as a place adapted to the needs of everyone and bringing nature back into the human world is gaining momentum as the right thing across numerous dimensions.”

David Callé

Eighteen years ago, when aged 9, my son was diagnosed as having Asperger’s Syndrome. At the time, I observed to the person delivering the diagnosis that it sounded as if she was describing me too. Her response was “that’s very possible”! Our working assumption since has been that we are both neurodiverse and we accept that we see the world differently to those who are neurotypical.

Even before the formal diagnosis, as neurodiverse individuals, we knew that we needed coping strategies and ways to interact with the world that worked for us. Simply applying received wisdom often led to greater difficulty and exclusion rather than acceptance.

In recent years it has been more common for people to understand that masking

and avoiding are strategies that the neurodiverse amongst us adopt. There is also a greater understanding that busy, noisy environments, poor lighting, poor ventilation, and functional spaces all create challenges for people like us.

Spiralling, out of control thoughts are the curse of neurodiverse; we are easily overwhelmed by distractions. Before the internet started providing scientifically backed studies on appropriate coping mechanisms, we found our own.

The aim was to become “grounded” again. Even that expression starts to hint at what they are. The outdoors helps, a closer connection to nature, feeling grass beneath your feet, water flowing, and birdsong all help return both me and my son to a level state.



My son and I find supermarkets uncomfortable. The “piped” smells, bright lights, crowded aisles, and general noise make them places to avoid. It is fantastic news (for us) that major supermarkets are trialling or have trialled “Quiet Hours” and sensory-friendly shopping hours.

Similarly, but for different reasons, cinemas can be a challenging place. Dimensions (UK charity supporting people with learning disabilities, autism and complex helping them lead ordinary lives in their local communities) have worked with all the major cinema chains to introduce autism friendly screenings. These screenings are relaxed and sensory friendly; they reduce stress and sensory input.

The neuro-typical world is starting to adapt to the needs of the neurodiverse and life is becoming easier. The irony

is that the world started out as a place adapted to the needs of everyone and bringing nature back into the human world is gaining momentum as the right thing across numerous dimensions.

Biophilia, the love of life and living things is a good thing. Biophilic Design ranges across a broad church of topics and design elements. It is shorthand, in my book, for reconnecting humans with nature and making the world fit for everyone, my little neurodiverse family included.

egopetram.co.uk

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CELEBRATING NEURODIVERSE SUPERPOWERS

How our environment can help us cope with day-to-day challenges.

“For me, biophilia is vital to my survival.”

Lara Cowan

Neurodiversity Celebration Week means March is all about celebrating those with neurodiverse superpowers; product leaders like Steve Jobs, entrepreneurs like Richard Branson, top actors like Orlando Bloom and Keira Knightley, influencers like Stacey Machel, athletes like Simone Biles and us, those of us who are chugging away making it work for us too.

When we are neurodivergent, we struggle with our executive function including emotional regulation. This often plays havoc with our professional and personal lives. However, it is most definitely not a measure of how bright we are, it doesn't negate how highly capable in other areas of our lives we might be, but it can lead to horrible stress, shame and a reduction in our

capacity to undertake daily tasks.

Nature has been my natural anti-depressant and constant ally for the last three decades and through Botanic Shed I work to help more people experience the 'green cure.' Discoveries about my brain in recent years, have been pivotal in helping me create a better life.

There are many ways to approach the treatment of neurodivergent symptoms so, although I personally have not taken medication (yet), I support the point here made by Barbara Ingersoll, Ph. D. "Asking if you should use medication or a complementary therapy to treat ADHD is like asking whether you should eat fruits or vegetables, you often need both."

Using real, personal experiences, I am going to briefly outline the types of pressure that the brain can cope with, even in the shadows of, or under the spotlight of 'cognitive impairments' and 'divergences' when supported by nature.

I will also introduce you to the viewpoints of two other women on the impact of nature in the lives of neurodivergent people that they look after.

Just two years into University, I started a family which shortly afterwards shattered catastrophically. It left me quite scarred and shocked. I then struggled for 20 years with undiagnosed post-traumatic stress disorder (PTSD) alongside ADHD and a significant number of autistic traits.

Lucky me, I had nature on my side in many forms. The setting of that traumatic relationship was a tropical green paradise, and I was able to retreat to my parents' house in a small village in Oxfordshire, where I had gardened through my childhood. I could work outside and walk for hours a day. Gardening I think has been a massively effective medicine for me. There are several studies supporting the use of gardening to rehabilitate people with a whole range of mental health symptoms including the use of gardening programs as an intervention to increase children's ability to delay gratification which helps us with our erratic impulses. The garden offers a setting for optimum learning relationships described as something waiting to be discovered, a lack of fixed rules, and an interaction that is changing and adapting daily (*Mendizza and Pearce 2004*).

Throughout my twenties and thirties, I experienced high-level anxiety and bouts of feeling low, but I spent so much time outdoors, it was my love and my medicine. I saw patterns in the trees that comforted me. I needed them. My outdoors time was and still is a non-negotiable part of life. I needed her most when I was in employment, facing the challenges of expectations of attention to detail that I couldn't meet, or interaction with confrontational or dishonest people. My anxiety spiked painfully in these situations.

However, there came a breaking point when recently, in my early forties, life threw more challenges my way. So huge that my coping strategies started failing. My physical health declined considerably. My Mum thought I had cancer. The NHS discovered that, I had been coping with undiagnosed post-traumatic stress disorder (PTSD) for two decades. This 'stress disorder' had obviously been compromising my executive functioning (focus, memory, impulses) and gave me an aura of vulnerability which made everything quite a struggle. At the same time, I was assessed for ADHD by my GP and given forms to complete to get a formal assessment (forms, which in typical style I have not yet completed).

When my sister got diagnosed with ADHD, (which she would never been at all aware of had her therapist not been curious as to why she was finding life so hard,) she quite literally said "I think you've got the wrong sister." What she meant was that my ADHD traits were so obvious. At the time we didn't know how

well-hidden ADHD could be in people like her. She is a thoroughbred organizer, practical minded, but her brain was actually crushing under the pressure. ADHD often is hidden or expressed in depression in women.

Anxiety, depression and constantly feeling stupid and that we are not fulfilling our potential are typical experiences for people with ADHA. These have been themes of my life and nature has been a key medicine against depression and anxiety.

Plants indoors, images of plants and trees, breathwork and qigong outdoors, walking and gardening are all bottled up in my own figurative medicine cabinet. My routine plant checks help me slow down and then take that slower speed to planning my workday and my interaction with humans who aren't so forgiving of mistakes or spontaneous outbursts. ASD traits are also ameliorated by time spent in nature. A teacher interviewed in a *Natural England Report* stated: *What I have found working with autistic children is that they just are different when you take them into nature, to how they are in a classroom. When we are in school, it's very contrived, and they know they will have to do things that they may not be very comfortable about doing, but when they go into nature e.g. woods or fields I think they feel much more relaxed, they seem to understand the environment, they feel more comfortable – maybe because they are much freer to roam and explore, and to be involved in the sensory aspects of nature.* Most other interviewees in the study also considered personal well-being as one of the primary benefits for autistic

children of engaging with the natural environment including: helping them to relax, feel more comfortable with their surroundings and have heightened sensory experiences."

Mauline Vernon, an ADHA specialist at ADHD in Balance Ltd in London, provides training and consultancy to organisations and families, teaching psychoeducation to help them to understand and subsequently manage the symptoms of ADHD.

"We recognise the vital role that nature plays in supporting those with ADHD, our training programmes and coaching interventions incorporate many aspects of nature, inclusive the practice of mindfulness in nature. Using breathwork can assist in supporting the executive functioning skills such as managing impulsivity. Breathing in naturally occurring scents will support the brain functioning of those who have ADHD, whether in a wooded area full of trees, or your garden, clients benefit from immersing themselves with any of the scents they notice in the natural environment around them. Whether pinecones, flowers, bark or soil all contribute to regulating the heartbeat and relaxing the nervous system, which is fundamental in supporting the working memory, aiding concentration, regulating impulsivity and managing anxiety."

Sara-Louise Ackrill, who lives with ADHD and Autism and is voted Top 80 UK Neurodiversity Evangelists 2023 is a Social Entrepreneur and founder of Wired Differently. She says; *"Nature takes its own time. I can't speed it up or slow it down. So, nature is a reminder I don't – and shouldn't – control everything. So as*

an autistic person, I get chance to reframe what progress and productivity mean. I am forced to gain some perspective on what I'm expected to achieve day to day. And as a person with ADHD, if I'm going to struggle with getting dopamine hits, it's when I'm in the countryside (without the instant gratification of city life) that I have to regulate myself without the dubious coping strategies of spending, jumping in an out of Ubers and trying the 'latest' whatever it is. I am from Devon and when I go back, I'm reminded of a different pace, life feels like it can be paused for a while, so I can catch up. And as much as I love man-made construction and am uplifted by architecture for example, there is something really grounding and reassuring in nature. That feeling we all need sometimes that nature is far bigger than any of us. And that's quite a transpersonal experience. Nature is a reality check. Quite humbling. And it highlights how we need to do better as people. As a neurodivergent person who by nature thrives on intensity ... this is appealing to me. Or maybe it's being neurodivergent that means I interpret this in the first place."

It is scientifically proven across numerous studies, that nature is good for brain development and excellent for stress busting.

Researchers, at the Universities of Sheffield, Westminster and Virginia, found that a greener front garden can make you feel happier, more relaxed and closer to nature. Their four-year scientific research project spear-headed by the Royal Horticultural Society added ornamental plants to previously bare front gardens in economically deprived streets of Salford (Greater Manchester). Before

the experiment, only 24% of residents had healthy cortisol patterns. Over the course of the year following the plantings, this increased to 53% of residents having healthy cortisol patterns.

In *"The Cognitive Benefits of Interacting with Nature,"* a study published in the journal *Psychology Today* in 2008, researchers showed that, when participants walked in nature or viewed pictures of it, as opposed to doing the same with an urban environment, their directed-attention abilities improved.

Basically, getting out into nature helps you focus more on specific tasks, and this works better than, say, running on a treadmill or playing indoor basketball. Even looking at pictures of nature can help improve focus.

Having nature in our environment helps us to focus (even on the boring tasks) and we have less cortisol spikes which are the 'interventions' neurodivergent people so desperately need, as a part of a holistic system of approaches to help us feel calmer and achieve our goals. Our brains have means that are out of reach to those without neurodivergences. Yes, we can think faster, see more clearly, and create more prolifically. But we can also fail faster and make mistakes more often than others, get into debt, rush into relationships, and seek out dopamine hits that distract us (impulsive, addictive shopping has most definitely been a downfall for me). So, we need to understand our brains, know what works and structure an environment around us that supports our cognitive function. Because who knows where the mind can take us if it's healthy and happy.

The biophilia hypothesis, which says humans are innately attracted to nature, and therefore exposure is beneficial for the development of a brain is far more than a hypothesis.

For me, biophilia is vital to my survival.

<https://www.botanicshed.com>

“For me, biophilia is vital to my survival.”

The Archetype of Metal

This is the fourth in a series on the five elements

Maureen Calamia

In feng shui, there are five elements of nature (wood, fire, earth, metal, and water) and according to Eastern philosophy, each of these elements make up all of creation. Not only as these elements the material of physical matter, unlike the Western elements, they are connected with all of unseen energy, or chi.

These elements are sometimes called the five phases, or transformation of chi. That is because they represent how energy shifts, changes, and impacts each of the other elements. There is a process of creation and control (sometimes referred to as destruction). Each element has an element that creates it, another that controls it, and yet another that drains its energy.

This elegant process is so simple, yet

profound, in that it describes how the natural world, basically everything in creation, maintains equilibrium and harmony.

*Each element has many characteristics and layers that form a depth of knowledge of how the natural world works, including us humans. These elements are expressed as character and personality traits within us. Below is an excerpt from my book, *Creating Luminous Spaces: Use the Five Elements for Balance and Harmony in Your Home and in Your Life* (Conari Press, 2018), goes into detail about how these elements show up in our lives, representing archetypes of energy and personality traits.*

“If you are irritated by every rub, how will you be polished?” – Rumi

The Metal Archetype: The Alchemist

The alchemist's goal is to magically transform ordinary, common metals into gold. This process was and still is a metaphor for the spiritual enlightenment.

Metal is Authority & Leadership

Metal has a great skill in creating structure. Although Metal types are both male and female, Metal is the archetype of the Father energy. She provides strength, yet adaptability – when in balance, knowing when to let things flow rather than grasping for the reigns. Her leadership skills sprout from her confidence and ability to organize others around a project. Always seeking what is right, she has great judgment. She takes what she's been given and transforms it to the highest level.

This Metal reminds me of one of my clients when I was a freelance marketing specialist. She had a commanding presence, not unlike a father-type energy. She was a natural leader and thrived on setting strategy and tactics for new projects. I guess it was my Metal Element that really connected with her and I loved to be a part of her wonderfully organized work. After working in this career for a couple of decades, I truly appreciated the skills and talent that she brought to her work, rare in my experience!

... or Domineering

She can be domineering, like the archetype of the Father, rigidly holding to her word. She only sees black or white; unable to see gray. She can be

too formal and distant among peers, her communication may be too blunt and direct.

On the other hand, she may be unable to speak up against injustice, allowing others to walk all over her, or others that she holds dear.

Metal is the Moral Compass

She gives us virtue and discretion and holds others to their highest standard. She will fight dearly for what she believes is fairness and equality for all. Metal gives us virtue and discretion.

When writing this, I am reminded of an experience when I was around thirteen. Walking with a group of friends, one of them threw a candy wrapper on the street. I was disgusted and reacted sharply, telling her that she shouldn't do that. Immediately I regretted it, thinking that I might be ostracized from the group (oh, how little self esteem at thirteen!). To my surprise, she bent down and picked it up. And to this day, she is a good friend of mine, saying how she remembers my words and how it was a minor turning point in her young life, seeing how I took a stand to be more responsible to the earth rather than be cool.

... can be Self-Righteous or Hypocritical

She may be intolerant of others opinions and staunchly hold to her ideals. She can behave punitively to those that do not uphold her ideals. Her communication can be blunt and too direct, driving people away. Or, she may be hypocritical and not following through on her convictions.

At a great turning point in my life, I became aware that my self-righteous behavior was challenging my closest relationships. This excessive Metal was a reaction to feeling powerless. I felt that I alone had the right perspective while I was actually being very narrow-minded. In my failed attempts to change other's behavior I became very punishing to them which only exacerbated the situation. I finally became conscious of my poor behavior through a dream. It showed me very clearly that other people were also "divine" and their presence in my life was to teach me an important lesson in self-awareness.

Metal is Structure & Organization

She possesses a great logical mind. She has a skill in filtering what is no longer needed. Metal provides strength, yet adaptability – when in balance – knowing when to let things flow rather than grasping for the reigns. She is precise in her expression and work. She is a rule maker and a rule follower.

One of my greatest strengths, as well as weakness, is structure and organization. It came in very handy while developing my feng shui certification training materials. I've created and taught a certification program since 2009. Creating a logical path for the topics to be covered, laying out the content for each module, as well as organizing a system for students to translate this material is easy for me. But it's taken me a while to see that the way I was teaching was still coming from that logical brain, not the intuitive mind. I needed to learn to break from the shackles of the content and all the details (Metal), and engage

my students, every one, with the esoteric teachings, and often life-changing perspectives that one collides with in a program of this nature. I needed to channel the energy of Water and Fire when I taught.

... or can be a Perfectionist

Metal can be too strict and not a go-with-the-flow type. She can be a perfectionist to the extreme and unable to settle for anything less. She may have OCD – obsessive compulsive disorder. She can be over sensitive to her environment – sounds, scents, visuals, tactile, as well as vibrational energy – and either detach or soak up the bad vibes. She may not be able to release sadness and grief, which is held in her lungs. She may develop asthma and other breathing difficulties in response to the stored-up grief.

Metal is Beauty & Refinement

Metal admires beauty and refinement. She tends to be very sensitive to her environment – sounds, scents, visuals, tactile, as well as vibrational energy. She seeks to create beauty and often surrounds herself with fine art and music. Metal is a connoisseur of the finest things in life. She filters and refines, easily removing all that is no longer needed.

I see the Metal Element in my brother-in-law Dave when it comes to wine. He has created (I'm sure without realizing the profound significance of it) beautiful ritual and ceremony surrounding the wine experience. All of the senses are stimulated. The wine glasses are cleaned and dried in a ritualistic way. Care is taken that each glass is of the highest

cleanliness; selection of the bottle, talk about its variety, vineyard and vintage. The opening of the bottle (in fact, cork has the most dramatic effect – one Metal wine friend said that the sound of popping the cork stimulated the relaxation response in her!). Pouring a glass and observing the bouquet; all for the anticipation of having the first sip. It's a beauty to behold!

Japanese tea ceremony is another beautiful ceremony that demonstrates the beauty and power of the Metal Element. I participated in an abbreviated ceremony for demonstration at a local college. Every aspect, every instrument, every connection was with great mindfulness, honor, and respect. It was honor and respect for everything, including the handmade tools.

Metal is Minimalist

Metal desires simplicity. An aesthetic monk is the poster child of Metal. She scoffs at material excesses, living in an austere space with bare essentials. Metal can also be a modern design devotee with the sleek, modern décor found in many interior design magazines.

... or can be too Austere

However, its purity and strict adherence to form over function can be almost punishing, lacking comfort and balance in the environment. Visitors may feel unwelcome and unable to relax.

Metal is Connection to the Sacred

The true Alchemist, Metal strives for purity and divine connection. She is on a spiritual path and helps others align with their spirituality. Connected

to the angelic realm, her passion for ceremony and refinement creates an air of sacredness.

Metal is attracted to careers requiring precision, such as accounting, architecture, and medicine. They are also great in careers involved in beauty such as interior design and fashion. With their great ability to lead and organize they are often C-level executives in organizations.

Metal often has some of the following facial attributes: a well-defined nose, prominent upper checks, flat upper cheeks, visible upper lids ("hooded" eyes), more than usual space between facial features, and moles. She tends to have fine bones and holds herself regally and with grace. She has a pale complexion (regardless of race).

Physical symptoms of weak Metal are frailty, shortness of breath, congestion, delicate skin, and loss of body hair. Too much Metal manifests as dry skin and hair, stiff spine, and neck, dry, cracked lips, and sinus headaches.

Her home is full of refinement and collections. She surrounds herself with either fine antiques or modern design. She is extremely fastidious in cleanliness of house, so much so that it can feel like a "prison" – the inability to feel at ease and comfortable in the home.

*Curious what True Nature Element you are?
Visit my website and take the True Nature Quiz: <https://www.luminous-spaces.com/>*

(Female gender pronouns were used for consistency throughout this excerpt).

HARNESSING NATURE: THE IMPACT OF GREEN AND BLUE SPACES ON NEURODEVELOPMENT

Dr Owen Wiseman,

*“Unlock your brain’s full potential: how
Nature’s Wonders boost your mind.”*

Long has the intricate relationship between humans and nature been a subject of fascination and study.¹ In recent years, a growing body of research has clarified the profound impact that exposure to nature – both green spaces like forests and parks, and blue spaces such as rivers, lakes, and oceans – can have on neurodevelopment and cognition.

The Foundation of Neurodevelopment and Cognition

Neurodevelopment is the process by which the nervous system, including the brain, develops and matures. This process is influenced by a combination of genetic and environmental factors, including air pollution. Urban areas with plenty of congestion and traffic put children at risk as the pollutants pass from mother to child.²

Cognition encompasses the mental processes involved in gaining knowledge and comprehension, including thinking, knowing, remembering, judging, and problem-solving. These complex processes are foundational to how humans interact and interpret the world around them.

The Role of Green Spaces in Neurodevelopment

Green spaces, such as parks, forests, and community gardens, provide essential opportunities for physical activity, relaxation, and social interaction. In multiple countries, visits to urban parks increased during the COVID-19 pandemic as people sought safe areas to connect with nature.^{3, 4, 5}





These environments can significantly impact neurodevelopment, particularly in children. Studies have shown that children with regular access to green spaces have better attention spans, reduced symptoms of Attention Deficit Hyperactivity Disorder (ADHD), and improved cognitive outcomes compared to those with limited access.^{6,7,8}

One of the mechanisms by which green spaces may benefit our minds is by calming the activity of our amygdala, the emotional ‘control centre’ of our brain.⁹ Those in greener environments are also more resilient to negative emotions, showing lower brain activation in the prefrontal cortex.¹⁰

Natural settings have been found to lower cortisol levels; a hormone associated with stress. This reduction in stress facilitates a more encouraging environment for learning and cognitive processing. Additionally, the complexity and richness of forest and water may stimulate sensory and cognitive development by offering a wide range of stimuli not found in urban settings.

Blue Spaces and Cognitive Function

We often hear about green space and time with forests, but we seldom hear about the power of our local streams and rivers. The sight and sound of water are intrinsically calming, and time spent in blue spaces fosters a profound sense of peace.¹¹

For children and teenagers, being near water can significantly enhance overall behaviour, offering special benefits. Skipping stones across a lake or splashing in a stream promotes a healthier mental and emotional state. Time around water has also been shown to improve behaviour overall and can be particularly beneficial for those diagnosed with a disability.¹²

Neuroplasticity and Nature Exposure

Exposure to nature not only supports cognitive function and development but also promotes neuroplasticity – the brain’s ability to form new neural connections throughout life. This adaptability is crucial for learning and memory, and it shows that our environments can shape our brains in significant ways.

Engagement with natural environments stimulates sensory, emotional, and cognitive processing, all of which can encourage neural growth and reorganization. Studies have even shown that kids who spend more time with parks and gardens have more grey matter in their brains.¹³

So, when we’re out in nature, we’re not just relaxing or having fun – we’re giving our brain a much-needed workout!

Practical Implications and Future Directions

The evidence supporting the positive effects of nature exposure on neurodevelopment and cognition has practical implications for urban planning, education, and public health. Cities can be designed to incorporate more green and blue spaces, making nature accessible to more people. Schools and educational programs might integrate outdoor learning environments to support learning and development. Furthermore, public health initiatives could promote nature-based activities as part of a holistic approach to mental health and cognitive well-being.

By incorporating more natural elements in the places where we work and play,

we can enhance our brain's performance and clarity.

Dr Owen Wiseman is the founder of HealthWISE Consulting, a multi-interest organization focused on supporting the health of Canadians through direct patient care and helping business clients invest in the wellness of employees with programs that work. He is also an advisor to an international phytopharmaceutical company and was awarded Ottawa's Best Health Educator of 2022 for his clinical work and passion for promoting equitable access to nature. He sits on various boards and committees that raise awareness and provide programs that help get people outdoors and in nature.

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Pennyroyal Flower Essence

“How it can help those who are struggling with things bigger than themselves...”

Saskia Marjoram

Recently, after years of not being able to fully describe the properties of our Pennyroyal essence, I had a bit of a breakthrough....

We had discovered that this essence came up for a lot of people who struggled with addictions, learning difficulties and those who did whatever they could to fill the big hole inside of them ... However, this never felt like the whole picture and whenever I had to explain the properties of this plant with clients it became a problem, and the words would get stuck in my throat ... and then one day in a class I was teaching it clicked....

What this flower essence can really help with is being able to deal with everyday life especially if you are a being who is aware of how much bigger

than that you are ... Many of us feel forced into behaviours and ways of being that society can handle ... even though this is incredibly difficult for us and against our true nature. Many of us are finding that even though there is more awareness and acceptance of neurodiversity, the structures we have to live in are incredibly restricting and VERY frustrating.

Using pennyroyal as a flower essence allows us to accept and work within the boundaries and constraints that modern life imposes and be able to deal with those day to day things in a calmer and more balanced manner without having to resort to our old managing behaviour – whether that is substance abuse, avoidance or any of those other things that we do to help us feel okay and get through as best we can.



One of the main reason that a friend and I started making flower essences was that we were having trouble with our sons and how they interacted with others, school and society in general ... they all had varying degrees of dyslexia, dyspraxia, ADHD and probably many other classifications, however when we discovered flower essences many of their disruptive behaviours shifted and became more manageable, they were also happier in themselves and we knew that here were tools that could help them throughout their (and our) lives ... so we thought we'd make our own. It seemed an easy process and was much cheaper than buying them – that was more than 20 years ago and it's been quite a journey since and I'm still amazed at the shifts and changes these safe and effective liquids can bring....

As we are all so different and struggling with different issues there isn't room here to talk about all of the other essences that might help you if you are neurodiverse, however some that people find especially useful are the My Personal Space (this comes as a mist or can be taken as drops under the tongue) and helps us to feel safe and not so overwhelmed, our Focus, Energise, cCreate blend – especially for those with ADHD – and Walnut essence which stops us worrying what other people think and gives us space to be fully ourselves.



If you would like suggestions as to which essences might help you, your children, or other people you love do get in touch – I'm always happy to help in whatever way I can.

On a side note, I would also like to recommend Indigo Essences – a range of crystal essences whose prime area of focus is neuro-diverse children.

Saskia Marjoram has been working with plants her whole life as a professional gardener and cut flower grower for many years, assistant florist to King Charles 3rd, and as a flower essence producer and practitioner. She is based in East Somerset and you can find out more about her work and the essences she makes at www.saskiasfloweressences.com





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Nature Connection & Neurodiversity

“Sometimes nature works when all else fails.”

Tansy Jane Dowman

When I first started connecting with nature, I was amazed by its profound impact on my mental health and well-being. Despite trying out other wellness avenues like yoga and meditation, I often felt frustrated and impatient, battling against boredom and an overactive mind that demanded attention.

Initially, my walks in nature weren't intentional well-being activities; they were simply a chance to get some fresh air and fulfil my daily dog-walking routine. But a noticeable shift began to occur during those walks. Intuitively, I began to slow down, remove distractions, and simply notice my surroundings more than usual.

Unlike the previous frustrations, I felt engaged, tranquil, and deeply present as I observed the environment and invested attention through my senses. So powerful was this discovery that it led me to build a career guiding others into nature to discover their own well-being connection.

In 2021, a late diagnosis of ADHD prompted me to learn everything about it – symptoms, challenges, nuances, and others' experiences. Reflecting on my early nature connection days with this fresh perspective, I now understand why it had such a profound impact. I recognise clearly the way Nature is a direct support for many traits and challenges faced by Neurodivergents navigating a neurotypical world.



Neurodivergents tend to be highly sensitive people both physically and emotionally, which can present many challenges when faced with the often chaotic, noisy, and demanding energy of the human world. Natural spaces therefore offer a peaceful sanctuary, allowing those sensitivities to tune into the environment without feeling overwhelmed.

Sensory overload, for example, is a common experience and challenge among Neurodivergents. This happens when one or more senses are overstimulated, resulting in uncomfortable interference and triggering feelings of anxiety, overwhelm, and loss of focus. Yet, when immersed in nature, these heightened senses become a gift, allowing a deeper connection with the environment and providing natural calming relief.

Instead of causing interference, the multi-layering of sensory input in Nature is a joy to receive as you enjoy the soothing sounds of birdsong, notice the gentle swaying of branches in the breeze, and breathe in the earthy or floral scents that you pass by.

Emotional dysregulation is another identified challenge. It's something that we will all struggle with at some point in our lives, but for Neurodivergents, it can feel more intense, happen more frequently, and be more difficult to manage.

Emotional regulation involves managing the nervous system and discovering methods to attain a grounded and



calm state within the body, facilitating a deeper connection with the present moment. Studies in the nature connection practice of Forest bathing have shown that spending mindful time in Nature can reduce blood pressure, heart rate, and the stress hormone cortisol. When these three things lower, a sense of ease and calm has space to grow, allowing you to feel re-centred.

The natural world offers a very grounding atmosphere to immerse yourself in, particularly being among trees that stand tall and strong and are deeply rooted into the Earth. The simple act of sitting against the trunk of a tree can bring about a huge sense of peace and relief, offering a feeling of support you can freely lean into.

Nature connection can be transformative for everyone but is particularly profound for Neurodivergents. Providing space and tranquillity away from the frantic pace of the human world. Through mindful sensory and grounding exercises, individuals can regulate their nervous systems, reduce stress, and cultivate a sense of calm and ease. As we continue to recognise and harness the therapeutic benefits of nature, we pave the way for a more inclusive and supportive environment for Neurodivergents to thrive and find solace in the natural world.

Founder of Tansy in the Wild

Outdoor Life Coach & Nature
Connection Guide

www.tansyinthewild.com

Biophilia, Takiwātanga, Hakomi and Rivers...

“‘Biophilia’ as proposed by E. O. Wilson, ‘the tendency of humans to focus on and to affiliate with nature and other life-forms has, in part, a genetic basis.’”

Amanda Bond

I came across the word, ‘Takiwātanga’ recently. It was developed as part of a glossary produced for the Māori language in the Mental Health, Addiction and Disability sectors by Keri Opai. It speaks to the needs of people with autism having their own timing, spacing, pacing and life-rhythm.

It brought back another indigenous perspective on being an individual in the world...from the Hopi language, the word ‘Hakomi’ asks the question, “Where do you stand in relation to these many realms?” This word was taken up, as a result of a dream, and consequent permission from a Hopi Elder, by the Hakomi Institute to describe its particular form of ‘body-centred psychotherapy’ inspired by Ron Kurtz.

As a therapist, somatic and in

ecopsychotherapy, I personally do not orient toward pathology, but rather toward finding health within an individual. This is the way I was trained to perceive, and also the way I naturally regard others.

So, to me, being ‘neurodivergent’ is occupying a space that is different to the masses, behaving, thinking and being.

My father passed away in September 2022 on the equinox, that in itself I believe has meaning. I travelled to Devon where he lived and spent around two weeks before his funeral wandering on Dartmoor, following rivers. Why? Because he loved rivers. I intuitively knew this is where I would be able to connect with him. So, in my wanderings I came across places that I had forgotten, places I knew because of him.

At the time, I was staying with my mother’s cousin, (in her late 80s), and was given the freedom to be, to do what I needed each day. A religious person, Vivienne, also needed her own space, and time to do things in. I noticed traits and characteristics about her that I was familiar with, some in myself, but also in my mother, grandmother, and my father.

Since then, I’ve reflected and ruminated (thinking deeply about something, not the rather unhealthy perception of the word that is being shared within mental health circles now) on what is clearly present within my extended family in all the generations that I know – what may be described as neurodivergence. None of us have been diagnosed. However, during educational screening, myself, and three of my 4 children were said to ‘process information differently’ and all given extra time to sit exams, as well as for assessed essays and assignments. My sister, working in a health environment was screened for work purposes, and told that she was on the ADHD spectrum.

I know that nature supports and resources all of us as individuals and

when together. We are challenged being in contemporary urban environments, the sensory impact is often overwhelming and disorientating. As a Forest Therapy Guide I witness many people open and be more of themselves within a natural setting, and particularly amongst trees. Landscapes have an impact on everyone, however not all are effected by the same landscape, or in the same way, this is personal and individual.

I’ll end with the term “Biophilia” as proposed by E. O. Wilson, ‘the tendency of humans to focus on and to affiliate with nature and other life-forms has, in part, a genetic basis.’

I believe that ‘neurodivergent’ people may be exhibiting this innate connection more than others, perhaps showing ancestral traits and skills that are no longer recognised in modern society.

Amanda Bond MA BCST
is an Ecopsychologist and Herbologist

<https://wildedgewalker.earth>



Seeing things differently

“Some people can see things we can’t see. Imagine things we can’t, feel and appreciate textures and their juxtaposition in a different way than us.”

Dr Charlie Easmon

Unglamorous though it sounds the marvellous Temple Grandin improved conditions for animals in slaughterhouses because she was autistic and could see and relate to things differently. This was interior design for animals by an autistic neurodiverse individual and the lack of glamour comes from the fact that she was designing more ‘humane’ slaughterhouses!

In the world of “humane” design for humans we obviously need a range of opinions. Many a time we have seen badly designed spaces in public places, airports, hotels or schools but some can detect those problems early and avoid them and often those people will be neurodiverse.

I have met an interior designer who had significant social anxiety but was brilliant at her work. I met a famous furniture designer for whom words were

not his means of expression. I know a famous musician who is helping design light spaces for hospitals but as part of his character he has a rigidity about time and space.

Some designers have the skills of knowing why wood and cord work well. They appreciate why some smells evoke positive memories and certain entrances are more inviting than others. Some of the people who are atypical in how they think benefit us through their neurodiversity. A biophilic design by me will be different than one from you and within the diversity of design among many minds there will be some excellence. In his illuminating book “Neurotribes” Steve Silberman explains and explores how we have created a mainly neurotypical world when the world has many neuroatypical people. According to ACAS as many as one in 7 people in any workplace may be neurodiverse.

Neurodiversity covers a range of conditions each of which may have different levels of severity. Autism is referred to as a spectrum and is often diagnosed late if at all in those who identify as female because they learn to mimic social skills more readily than those who identify as male. Many people have degrees of Attention Deficit and Hyperactivity (ADHD). Some have word blindness but have a great visual sense to make up for that.

If you are used to words and being literate it can be hard to imagine the advantages of being visually minded and of being an original thinker.

Most of us would agree that design should never just be about straight lines and a limited pallet of colours or sensations, but some designers do straight lines and monochrome very well indeed.

We are blessed as humans by our capacity to think and imagine and within

that infinite universe the neurodiverse can create spaces that bring us joy, fulfilment and they have a special role to play in biophilic design possibly because their thinking and imagination is more likely to be “organic” rather than linear.

In concluding we must welcome and celebrate the design gifts of the neurodiverse. The Maori’s have a word for autism “Takiwatanga” which apparently means “in their own time and space.” Many neurodiverse designers have in their own time created and will create more amazing spaces.

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BIOPHILIC CITIES



The Beauty of Water

“There are so many reasons why water and wellbeing go together, and nowhere better than Bath, especially when you let your imagination, senses and design envisage a mosaic of tantalising different spaces.”

Robert Delius

One of my key takeaways from architecture school was from a tutorial with the famous Malaysian Architect Ken Yeang, who at the time was a visiting tutor at the University of Sheffield. I had just pitched my design for a new house in a riverside setting to him, which I was relatively pleased with, which was followed by an awkward silence as he considered my proposals, probably trying to work out something diplomatic to say about my underwhelming sketches. All I remember him eventually responding with was.... ‘You need to make your design about one thing.’

Since then, I’ve thought a lot about what he meant, and I believe what he was

talking about was the power of the ‘big idea’ – which was evidently missing from my proposals. This design philosophy of developing an overarching vision for projects has been a major influence on me and my career since then, and the majority of my most successful projects have embodied this thinking; the *‘think bigger, keep it simple, make it compelling’* approach to design.

So how does this relate back to biophilia? Well, a few years ago I was fortunate to win an RIBA design competition for my hometown, called ‘Imagine-Bath’, with a big idea that has a lot to do with biophilia. My idea was to transform the city with a single theme.... Water.





My provocation was called 'Waters of Bath', a reference to Bath's ancient origins and original name 'Aqua Sulis', meaning literally 'Waters of Sulis'. I imagined a network of small interventions across the city which would completely change how it was experienced. In every public space I proposed a new water feature being introduced, each one different, each one changing the atmosphere of that space, not just visually but also and especially audibly. When we design, we nearly always just consider visual impact – this was an opportunity to influence the whole acoustics of a city.

In some spaces there could be large, invigorating waterfall-types features ... gushing, fizzing, splashing, roaring, thundering, spraying, erupting, surging – mimicking the energy of natural waterfalls. These spaces would make one feel alive; they would get people's endorphins going and would be natural gathering and play spaces. In other spaces there could be smoother water features... flowing, eddying, gurgling, swirling – similar to the characteristics of natural rivers or streams, and slightly calmer but no less enticing or invigorating than the cascading features. Then, in other spaces, there might be quieter, gentler water features.... tinkling, whispering, babbling, sparkling, pouring, sprinkling, dripping – mimicking natural springs and potentially creating a wonderfully calming atmosphere. And finally, there could also be almost completely calm water features, with pools or expanses



of water with surfaces gently lapping, mirroring, rippling, glistening, ebbing, shimmering. These would evoke imagery of natural lakes and ponds and would help create mesmerising, reflective, and quiet spaces.

This is the beauty of water, with the many different characters and the possibilities that it represents – its ability to generate a whole range of emotions and affect how we feel. But common to all states is the predictable unpredictability of water. It is always moving and changing yet staying the same. Even a still pond is ruffled by a breeze or reflects a changing sky. This predictable pattern is part of what makes it so calming and one of the reasons we are drawn to it, like other biophilic elements, and why spending time by water has been proven to be so good for our health. It follows natural patterns.

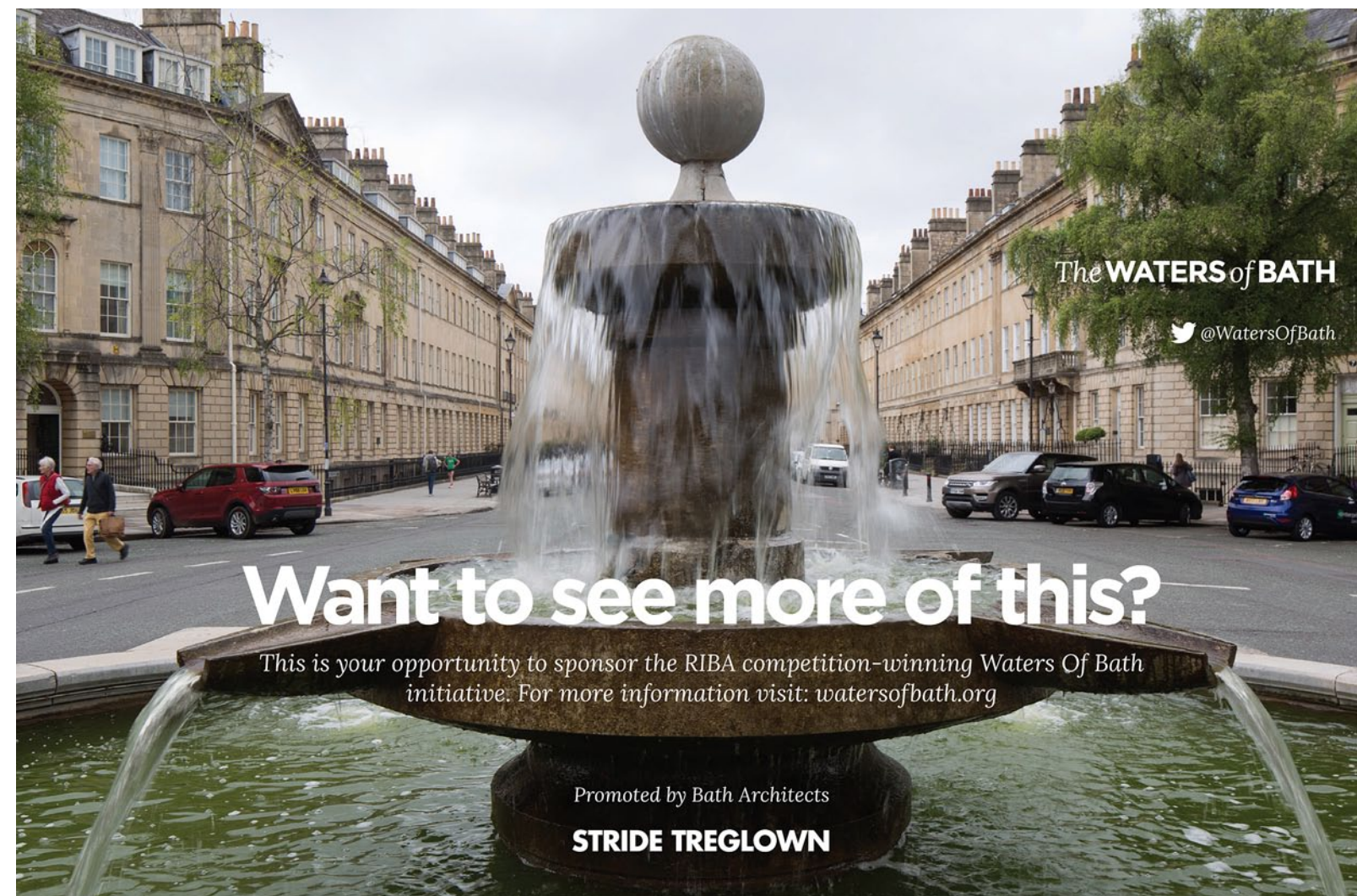
Not only does flowing water generate health-giving negative ions but it also connects us to nature. It is timeless. It is sensory. We can touch it and hear it, even occasionally smell it. And during hot weather it can be tantalisingly cooling, physically and psychologically. Its tactility is why children love it. It invites play. It is intrinsically life-giving and therefore proximity to it gives reassurance built deep into our human psyche. We instinctively know that contact with water is good for us, proven by tests that being near water helps lower blood pressure and improve mood.



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So, this single big idea of micro interventions on a macro scale, would completely transform the whole character of the city. The sight and sound of water would likely have a profoundly therapeutic impact on everyone who spent time there. It would turn our common experience of cities on their head; urban places are frequently polluted, noisy, or stressful, but we could instead make them places that are actually good for one's health, physically and mentally. Feeling unwell...? Spend time in the city to recover!

The idea linked back to Bath's history, firstly to the spa complex developed by the Romans and then with the Georgians transforming the city to a resort town, with generous green spaces, wide pavements for promenading, vistas to surrounding wooded hills, and new establishments for socialising. These were all part of 'taking the cure', where visitors would spend several weeks in the city frequenting the hot springs, exercising, spending time in nature, and attending social functions, all to restore their health.



The **WATERS** of BATH

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STRIDE TREGLOWN



[Photos by Robert Delius]

With my design I conceived the city as a giant spa, with each public space becoming a ‘treatment room’. In the same way that the Roman Baths had indoor hot and cold treatment spaces, as well as steam rooms (much as most new spas still have today), the city could offer different outdoor ‘treatments’ in each of its public spaces. From quiet calming spaces to invigorating and energising ones, there could be something for everyone. Bath would finally become a true spa town. And perhaps the landscaping could adopt that theme too, so that some spaces, or ‘rooms’, could have soaring trees, offering opportunities for urban ‘forest bathing’, while others could be adorned with smaller plants. And some spaces could be sensory gardens, delighting visitors with the smell of jasmine, thyme or mock oranges.

Together these would create a mosaic of tantalising different spaces, much as one might find in a natural mosaic landscape — where light and dappled shade, natural scents, natural sounds, and movement would all stimulate our senses and create variety that is a common theme in biophilic design and often missing in our urban environments.

Maybe Mr Yeang was right, we just need simple big ideas....
How about our cities as urban spas as one of them?

Robert Delius BA (Hons) DIP Arch MA
ARB RIBA is Associate Director Architect,
Head of Sustainability at Stride Treglown

<https://stridetreglown.com/>

Biophilic Transformation

How Singapore inspires the rest of the world

Francesco Toffoli

In 2023 I took an important decision: I would give a twist to the job I had for the last 10 years and open my own Biophilic Design Studio. To do that, I felt the need to go beyond reading about it and studying its best practices. So I took a flight and went seeing with my own eyes what the world of Biophilia feels like in South East Asia. When I first arrived in Singapore I was happy to notice how much space they dedicate to Nature in all its forms. The most remarkable unveiling is arguably the Jewel at Changi Airport, but there's so much more that deserves to be explored.

It is perhaps the Cloudforest at Gardens by the Bay that sparked a thought of urgency and devotion towards Mother Nature, with its massive glass greenhouse and the world's tallest indoor waterfall offering a staggering cloud walk from the top of the Lost Forest down to the Secret Garden, highlighting with a projection what the human civilization is going to lose if we keep acting the way we do. The

contrast is magnificent, and the natural world in the dome speaks for itself.

I went travelling there with my family to deepen our knowledge around Biophilia, as both I and my partner work with plants, natural materials, and space design, and I found much more than just that. There is a symbiotic relationship with the jungle they come from, and a desire to value it as part of the culture. In recent years aboriginal wisdom combined with awareness around sustainability, giving to the world an example of how we can thrive in modern society. A lot of new educational and sensorial parks came to life in the last years, such as the Children's Park at Singapore's Botanical Gardens, offering an adventurous alternative to the already impressive Orchid Garden. All of these researches are then applied in day-to-day spaces like residential and office buildings. One thing that could surely be improved though, is the level of accessibility to these lush wellbeing





areas. As of now, most of them are accessible through private properties, but it could be extended to streets and public spaces. Singapore's Khoo Teck Puat Hospital is a great example. Having said that, there are plenty of parks and green areas you could visit for free or for a small fee if you do a little research on the web.

Now more than ever Biophilia is important to us. It's an innate quality of the human being and it has the potential to determine the next phase of human evolution. From small natural artifacts to large-scale developments, it needs to be at the core of how we design the spaces we live, because we all deserve to live a healthy life, regardless of religion, ethnicity, or status.

I am currently in Malaysia, Singapore's mother if you will, and home to one of the oldest rainforests on Earth. Here you can breathe a sense of connection to the natural world and learn from great

artists who are bringing that same sense to artificial settings in an unprecedented way. This alone is worth seeing, touching, and feeling, just some of the senses that Biophilic Design awakes in us. Wanting to bring these sensations to the people in offices, schools, and their homes, I co-founded a Biophilic Arts Studio with my partner, combining our expertise in Design and Fine Arts.

Francesco Toffoli is a Senior Designer who worked in Multimedia and UX Design for the past 10 years, after graduating in Fine Arts. Since his childhood he always cultivated strong interest in the botanical world and started a side business using moss and bonsai in 2016. He is currently looking for Interior Design partners to help him translate his Digital Design expertise into a Biophilic Design Studio focusing on Wellbeing and Natural Arts.

francescotoffoli.com



BOOK REVIEWS

Journal of Biophilic Design

BOOK REVIEWS

Beyond Hybrid Working *A Smarter & Transformational Approach to Flexible Working*

Andy Lake

Published by Routledge

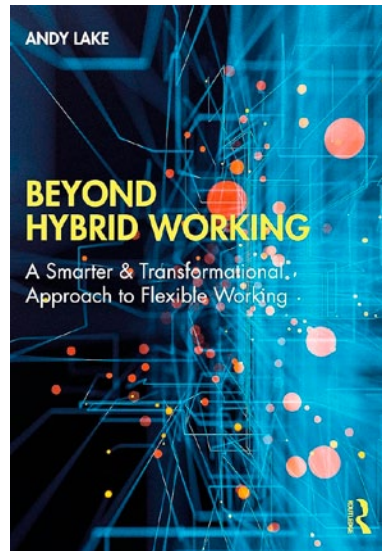
In *Beyond Hybrid Working*, Andy Lake has delivered a thought-provoking book that opens up the working environment and sets out the challenges and opportunities that come from truly seeking to deliver the benefits available when moving from the traditional structures of business and embracing the available tools and cultural demands of the modern world.

The launchpad for *Beyond Hybrid Working* is the observation that post-Covid the working environment has moved from a binary, office v home to one in which hybrid working (a mix of the two) has almost become the norm. Implementing hybrid working might seem like a relatively simple problem involving ensuring that the necessary technology is made available but as the author makes clear the challenges are myriad.

Beyond Hybrid Working advocates Smart Working and seeks to set out the considerations required to truly benefit from its implementation.

Smart Working is rapidly becoming a concept adopted by larger companies and by governments. There is even a Cabinet Office/ British Standards publication setting out a Smart Working Code of Practice. In this Smart Working is defined as:

“A business focused approach to flexible working that delivers more efficiency and effectiveness in work organisation, service delivery and organisational agility, as well as benefits for working people.”



As *Beyond Hybrid Working* develops, the author considers the need for changes in strategy, culture, and performance monitoring. He also sets out the benefits to be gained from thinking about wellbeing, inclusion, and sustainability as part of implementing a Smart Working environment.

The chapter on wellbeing was of particular interest as it is often neglected in books that cover organisation change. The “wellbeing and inclusion” content is thorough and pleasingly includes a broad range of biophilic approaches.

Readers looking for a simple, quick guide to implementing Smart Working won't find one in this book. It is a thorough exploration of how to deliver more efficiency and effectiveness in a work organisation.

There are numerous entry points to Smart Working; the author has chosen Hybrid Working. He could equally have started with the productivity and wellbeing benefits of biophilic design, the changes in culture required to meet Gen Z expectations of work, or the new management and control systems and procedures required in the modern working world.

Reading the book prompted many “What about...?” questions only

to find that they were answered in later chapters as the author considered a different dimension of the Smart Working environment.

Perhaps by necessity, the book seems a little too focussed on office work in large organisations, but it is apparent that it is possible to apply the concepts and thinking models to smaller organisations, manufacturing organisations and even non-commercial organisations. To do so just requires some lateral thinking.

It is also possible that this reader's preconceptions made it seem focused that way; it is important to read *Beyond Hybrid Working* with an open mind and to allow existing assumptions and biases to be challenged.

This reader was left with an overriding sense that implementing Smart Working requires challenging the traditional hierarchical approach to work and new approaches to management, wellbeing, and culture.

This reader drew the following overall lessons from *Beyond Hybrid Working*:

- Smart Working makes sense.
- Smart Working is complex.
- Smart Working is different in every implementation.

Beyond Hybrid Working provides a comprehensive insight into the considerations required when implementing Smart Working along with some helpful models to use. It is an excellent introduction to Smart Working, but you might need expert help for a successful implementation.

Buy the book here:

<https://www.routledge.com/Beyond-Hybrid-Working-A-Smarter-Transformational-Approach-to-Flexible/Lake/p/book/9781032265780>

Reviewed by our Finance Director and grounded Oak Tree, David Callé

The Lifestyle Medicine Toolbox *Mind-Body Approaches for Health Promotion*

Z.Altug

Published by Jessica Kingsley Publishers

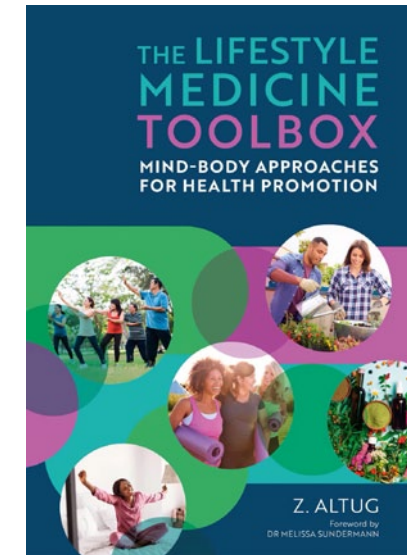
When Ziya got in touch with me to review his book, I was intrigued. I liked the title. I recently fell off the rails in terms of personal health and wellbeing, as happens after a period of challenging personal family circumstances I found myself reaching for the box of biscuits and the couch rather than a walk and an apple. Fast forward 12 months, and I'm swimming, back eating wholefoods, yoga, meditation and trying to switch my mindset into “sport”. I have never seen myself as a “sports” person, but be that as it may, I seem to be turning that around too.

So, when Ziya's book landed through my door, along with a beautiful card I settled down with a glass of juice (orange, honestly not fermented grape!) at my desk, with the windows open allowing bird song to come wafting in.

First of all, this book really is a “lifestyle medicine” handbook. It is easy to use and will inspire healthy ways of being. Right at the beginning is a “How to use this book” where it states the book aims to supplement clinical and fitness/wellness coaching practice and other lifestyle medicine books. What I like about it, is that it not only provides practical tools but also checklists in the form of “Self-Care Handouts”.

The “Self-Care Handouts” are easy to use, for instance there two in the Restorative Sleep chapter which are full of tips and ideas on what to avoid near bedtime, how to minimise tension and lots more. Plus, these are followed by ideas for self-management activities such as exploring art. There are classroom and lab activities and useful clinical resources. So, if you are a coach, medical practitioner or just “you”, there are brilliant ideas on how to live better quality and healthy lives.

I mentioned it covers sleep, but also exercise and physical activity with simple easy to do at home ideas, including aquatic therapy for pain and function, also culinary medicine (with recipes!),



stress management, social connectedness and wait for it ... nature-based therapies.

Chapter 10, outlines the key concept of “ecotherapy for Well-being” and there are many suggestions from gardening for health, park prescriptions, nature as medicine, soothing sounds and Biophilic Design. What I love is in the Self Care Handout section there are three “Natural Light Exposure” sheets, one each for Home, Work and School. Natural light exposure can act like a cup of coffee and give us an uplift when our energy surges (just think about how you feel when you take a break and look out of the window!). The importance of natural systems and our need to connect and be healed by them is simply put, along with how they benefit us, from improving exercise adherence to lower blood pressure, managing chronic pain, improving mental health and many other benefits.

If you are feeling lost and stressed out at work or home, juggling the kids, the workload and the laundry bin, grab a copy and turn to Self-Card Handout 10.7: Garden Meditation or 10.8 which outlines ideas for including nature in your workplace and office, from indoor plants to placing a small Zen garden kit near you and images of nature in front of your desk. Oh, and don't forget to eat your lunch outside, by a tree if you can.

Reviewed by our editor, Dr Vanessa Champion

FINAL WORD

Dr Vanessa Champion
Editor

There are many types of hidden disabilities which some of us live with but maybe we haven't given our challenges a 'label', and in some instances these issues may even be invisible to ourselves.

Also to recap, the new PAS standard also states that Biophilic Design is a key element to designing for neurodivergence: "The majority of features that are generally associated with physical and mental wellbeing can also be beneficial to people who experience sensory differences. In particular, connection with nature through all the senses, biophilic design principles, applying the golden ratio to replicate in design the proportions commonly."

I hope this issue has helped spark some thoughts on how we should be designing for everyone in mind. We all have different ups and downs during the week, it's good to be mindful that for some people these are daily happenings which make the everyday seem like they have mountains to cross just to get through the day.

As designers, architects, planners and members of planet earth, we can also do a little something to make spaces and places easier for people function and enjoy their work and home life indoors and out.

Click on the link below to find out more about how some people might be struggling and we had no idea.

[https://hdsunflower.com/
uk/insights/category/
invisible-disabilities](https://hdsunflower.com/uk/insights/category/invisible-disabilities)



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