

Sanctuary

MODERN GREEN HOMES

ISSUE
63

HEMP BUILDING
SPECIAL

PLUS: Renovating heritage homes for sustainability;
National Biophilic Design Awards; swap your lawn for habitat

Hemp Sensation

Seven gorgeous hempcrete homes inside



PUBLISHED BY **renew.**
WINTER 2023 • AU/NZ \$13.95
SANCTUARY.RENEW.ORG.AU

ISSN 1833-1416



9 771833 141017

WIN

One of two e-scooters from Voltrium,
with a total prize value of \$6,500

Offer open to Australian residents. Details page 81

CHAMPIONS OF CONNECTION:

The inaugural National Biophilic Design Awards

WORDS Alegria Alano



↑

Biophilic design is about much more than plants, and should be incorporated into as much of a project as possible. An example is the fluid shape of the canopy of James Cook University's Central Plaza by Cox Architecture, a finalist in the National Biophilic Design Awards. Image: Christopher Frederick Jones

This year, the Living Future Institute of Australia is hosting the first National Biophilic Design Awards, aiming to raise awareness of biophilic design to help us reconnect with the natural world. Alegria Alano explains what it's all about and introduces the inaugural winners.

It's easy to lose sight of the fact that our modern cities began with the simple human need to seek shelter. Our environment has evolved from natural to urban, but our biological imperatives have not; as we begin to understand the impacts of this disconnect, we're also discovering solutions with biophilic design.

In many ways, we've come a long way from our builder ancestors. Our societies and cultures have become more complex and we've built cities and suburbs to accommodate that. Over half of the world's population currently lives in urban areas, and by 2050 the United Nations expects that proportion to reach almost 70 per cent. Sustainable and regenerative design aim to reduce the ecological, resource and climate impacts of this development; biophilic design adds to this by looking at how buildings impact the human experience.

"Biophilic buildings help us to thrive physically, psychologically and emotionally. It's about creating places with the love of life and living things at their heart; human habitat if you will, rather than human storage boxes," says Laura Hamilton-O'Hara, CEO of Living Future Institute of Australia (LFIA).

At first, a human-centric design philosophy might seem at odds with the regenerative design movement that LFIA advocates, but as Laura explains, biophilic design is encompassed in the holistic approach. "Regenerative design is about leaving things better than you found them, which is a hopeful way to engage with the world. Designing to support life is a clear piece of this puzzle, and although it is just now regaining prominence in our imagination, we have actually done this for thousands of years."

The holistic approach of regenerative design also includes social impacts that biophilic design can address. "I think about biophilic design from a social planning perspective," says April McCabe, Chair of LFIA's Biophilic Design Initiative Advisory Panel (BDIAP) and judging panel Chair of the National Biophilic Design Awards Building Scale category. "Through this lens it has numerous touch points that connect us to each other in community, and connect us to Country and the environment that surrounds us. That, in turn, is a way of sharing and expressing culture and local knowledge that can have a positive impact on physical and mental health. For me, biophilic design adds a humanity to the form and function of our built environment."

THE PHILOSOPHY

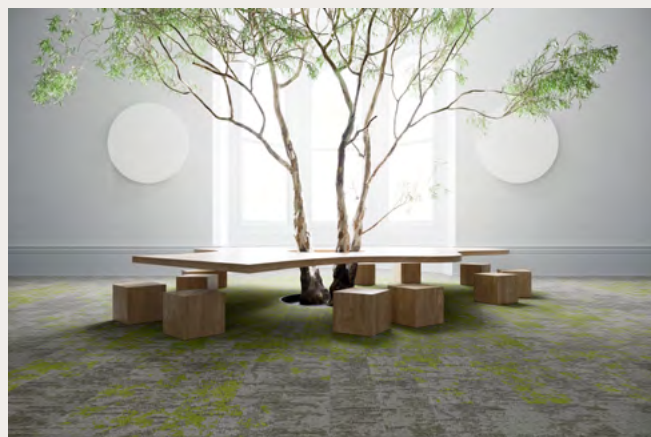
Biophilic design has roots in the term 'biophilia', popularised by American biologist Edward O. Wilson. In his 1984 book *Biophilia*, Wilson described humans' biological drive to affiliate with nature and other forms of life. This thinking is compelled

by the logic that humans evolved in a 'biocentric world' and that our inherent tendencies are closely tied to the natural world. Biophilia isn't a preference, it's an instinct.

As a building philosophy, it was defined and explored in depth by Stephen Kellert, Judith Heerwagen and Martin Mador in their 2013 work *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life*, and by sustainability consulting firm Terrapin Bright Green in their publication *14 Patterns of Biophilic Design*. These works distilled our affinities towards nature into 'elements' that can form the foundations of a project's biophilic design framework.

"An obvious misconception is that people think it's only about plants," says Stephen Choi, BDIAP Member and Chair of the National Biophilic Design Awards Community and Urban Scale Projects category. "Maybe one per cent of buildings being designed today incorporate even a fraction of the approaches. I mean, *deliberate* efforts to enable repeated and sustained engagement with 'nature,' in mutually reinforcing, interconnected, and integrated ways."

There are many elements of biophilic design, but they can be grouped into categories that represent characteristics of the natural environment that we experience:



↑
Patterns, textures and colour schemes drawn from nature are important elements of biophilic design; this carpet is inspired by mosses and lichens and is part of GH Commercial's Lichen Community collection. Image: GH Commercial

1. *Direct nature*: how spaces provide opportunities to interact directly with environmental features like sunlight, fresh air, water, animals and plants.
2. *Natural patterns*: how spaces incorporate representations of nature (such as fractals or botanical motifs) and natural processes (such as materials that develop a patina over time).
3. *Place and culture*: how spaces are bound to their locality by embedding local ecology and culture in their design.

Theories provide helpful guidance; however, it's important to remember that there is no single 'checklist' for integrating biophilic design into a project. It should be a guiding philosophy at all stages. A common pitfall is trying to apply biophilic thinking late in the design process. This greatly reduces the opportunity to create multiple connections and limits the number of elements a project can incorporate.

THE POTENTIAL

You don't have to look too hard to find a book, news story or research paper that talks to one of the benefits of biophilic design for the built environment. Interest and research continue to grow and positive outcomes have been found in a broad spectrum of fields, from workplace productivity and mental health to education and biodiversity.

One aspect of the biophilic design approach with huge

potential is its ability to help tie important ideas together. "We have seen significantly improved practices by taking a First Nations approach through 'Designing with Country', as well as by considering how social impacts are assessed and incorporated in the design of buildings and precincts," says April. "However, these improvements are currently being made in isolation, and I think that biophilic design has the ability to link these outcomes together."

For individuals, the hope is that people benefit from feeling closer to nature and that it translates to environmental stewardship. "Good biophilic design can have the effect of encouraging us to reconnect with the natural world that we're part of," says Stephen. "The more we're connected to something, the more likely we are to protect it – and we need to protect the living world, now more than ever."

The built environment is our environment, and because biophilic design appeals to our fundamental human needs and experience, biophilic buildings have the potential to be powerful agents of change. The National Biophilic Design Awards is an opportunity for acknowledgement, celebration and inspiration. "You can't be what you can't see. The awards bring visibility to what biophilic design is and how it can be supported and integrated not only by our landscape architect colleagues, but also by designers, architects, developers, planners and engineers," says April.



↑ Connection to place and culture is embodied in the ceiling mural by Indigenous artist Mandy Nicholson at Burwood Brickworks Shopping Centre by Frasers Property Australia – a finalist in the National Biophilic Design Awards. Image: Diana Snape, courtesy NH Architecture

2023 WINNERS

PAVONE HOUSE

Interiors and Renovation Category

Biophilia is on full display at Pavone House in Melbourne's northern suburbs. A natural material palette, interstitial spaces and an emphasis on outdoor views are obvious. But the biophilic design considerations of the renovated ancestral home go deeper.

The name Pavone (meaning 'peacock' in Italian) pays tribute to the heritage of the Peacock Street dwelling. It is owned and occupied by Dr Pippa Soccio and her family; five generations of the family have now resided at the address first purchased by her husband's grandparents in the 1950s.

Pippa is an architect and lecturer in Teaching and Learning (Built Environments) at the University of Melbourne's School of Design. The renovation provided a testing ground for her PhD studies on indoor environment quality (IEQ) in schools. Pippa sees synergies between biophilic design and IEQ that can be leveraged to promote wellbeing and energy efficiency. With fresh airflow and natural light, Pavone House has a more stable internal temperature range and decreased energy use post-renovation.

The 'House for Life' approach deliberately considers how the structure adapts to phases of life: housing young children, ageing grandparents, young adults and downsizers. This was achieved with a flexible floor plan that can be reconfigured, private entryways to accommodate independent living or a second dwelling after downsizing, and reinforced walls to support assisted living fixtures. A design that can shift with time draws on the principle of change and metamorphosis, while also reinforcing the strong familial connection to place.

Pavone House encourages gathering, be it in the kitchen – the heart of the home – or with neighbours in the food-producing front yard. It's also a sanctuary with considered acoustic design and private spaces for retreat. Above all else, it is a family home designed for its occupants not just to live, but to thrive.

Images courtesy Pippa Soccio





TARONGA INSTITUTE OF SCIENCE AND LEARNING

Building Scale Category

The Taronga Institute of Science and Learning at Taronga Zoo, Sydney, is the embodiment of the organisation's vision of 'securing a shared future for wildlife and people'. Collaboration between experts from varied disciplines, occupations and the broader community is essential to this vision, and the building plays a role in bringing those groups together.

The architectural concept simulates the natural form of brachium (branching arms), where the three major hubs – Learning, Science and Visitor Experience – grow from the central atrium. This indirect experience of nature is carried throughout the building with several biomorphic elements. At the entry is a hexagonal screen facade inspired by animal skins and cells; the ceiling of the atrium takes a skeletal form that also provides acoustic comfort; and the timber wrap of the lecture theatre is reminiscent of bark peeling off a tree.

The building's design also enables connection to the surrounding environment. Local ecology is referenced in the materiality of the natural finish. The form of the main podium mimics the sandstone escarpment it is on, and windows and screens provide views of nature and quality natural light penetration.

Glass is also used internally to increase visibility and place Taronga's cutting-edge science and research facilities on display. This also promotes the cross-pollination of ideas between departments and offers opportunities for immersive education.

The intentional use of experience, space and play is evident. The habitat learning spaces are the first of their kind



in the southern hemisphere and blend living animal habitats with learning. The sequence and hierarchy of multi-layered educational spaces and working areas encourage exploration and discovery, while displays throughout provide information richness.

Biophilic design considerations not only improve building users' wellbeing, but, by using natural forms and experiences to elicit awe, they also inspire a deeper connection with the natural world – an important step towards action on conservation.

Images: Alexander Mayes Photography, courtesy NBRS



BUNDANON ART MUSEUM & BRIDGE

Community and Urban Scale Category

Bundanon Art Museum & Bridge is Australia's only regional national museum, and it celebrates its natural setting with biophilic design. Like its east coast landscape, the construction of Bundanon was shaped by fire and flood, most notably the 2019-2020 bushfires that threatened the art collection.

While the subterranean art museum is resistant to fire and the bridge resilient to flood, wind and sun, the design as a whole is sensitive to landscape and climate.

The bridge is suspended across a gully, with open breezeways and transitional spaces that add a visceral experience of nature. Views are framed by windows, roofs, columns and armatures, while scattered outdoor seating and access paths offer opportunities for discovery and retreat. The sights, sounds and smells of the local flora and fauna are all available to visitors.

Materials heighten the direct experience of nature. A metal roof amplifies the sound of rain; timber interiors echo the surrounding bush, and concrete seating varies in temperature depending on exposure to sun. These connections deepen awareness of the particular and changing environmental qualities that define Bundanon's location.

Cultural attachment to place is established by embracing the knowledge, culture and management practices of the traditional landowners: the Wodi Wodi and Yuin people. Bundanon has adopted the cultural framework of Country, within an Indigenous design framework that views fire and water as regenerative. Cultural burnings maintain the health of Country and mitigate bushfire damage at Bundanon. Rather than impeding, diverting or channelling water flow in the gully, the design is unobtrusive.

Bundanon represents an important shift in the approach to building in challenging environments. Instead of being at the mercy of and overcoming conditions, they were embraced in a form that benefits from the integration of ecology, landscape, people and culture.

Images: Rory Gardiner, courtesy Kerstin Thompson Architects

