



SUSTAINABLE FOR LIFE

Bilgola Beach House: designed for the best (and worst) nature has to offer

Background

Located on Sydney's northern beaches, Bilgola Beach House embraces the beauty and convenience of its beachfront location while resisting the vagaries of the coastal environment.

AT A GLANCE

Project: Bilgola Beach House, Sydney, NSW

Main concrete elements: Off-form and exposed concrete walls (internal and external), polished concrete floors

Architect: Olson Kundig

Builder: Belvedere Constructions

Photographer: Rory Gardiner

The Challenge

While the location provides stunning ocean views and the convenience of easy beach access, it also exposes the house at times to harsh environmental conditions, including salt spray, wind and – like many coastal locations – the potential threat of storm surges.

Solution/Outcome

Designed by award-winning US-based architects Olson Kundig and built by local prestige builders Belvedere Constructions, Bilgola Beach House utilises a concrete structural solution to future-proof the home against the potential threats posed by storms and surging seas.

Resilience was a hugely significant consideration for the Olson Kundig design team. The home is set on a continuous concrete piling structure, with the concrete foundations and floor level raised above the flood plain. The idea is that in a worst-case scenario, sand and water can move in and out beneath the floor level without destabilising the footings and the structure they support.

The design team also explored repairing the sea wall at the front of the site, but ultimately found it would be too disruptive to the natural sand dune and native plantings, which they wanted to not just maintain but expand.

Architect Tom Kundig says Bilgola Beach has a history of heavy storms and extreme weather, which is part of the beauty of the site.

"The home is designed to adapt to different weather conditions, able to close as protection against harsh weather or open to sunshine and ocean breezes," Kundig says.



“The materials provide a sense of shelter and warmth in what can be a challenging environment, allowing the building to unveil itself to the beach and horizon.”

Initially the team explored a rammed earth structure as a direct response to the surrounding cliff face and the layering and striation of geologic forms surrounding Bilgola Bay. However, concerns were raised about its ability to stand up to the tough saline environment, as well as the potential for erosion and difficulty maintaining its intended form.

“Concrete allowed us to create a highly durable structure, while maintaining warmth and texture.”

Tom Kundig - Olson Kundig

That made the decision to use concrete a relatively easy one. The ground level structural walls are all off-form concrete with oversized board forms to mimic the rammed earth patterning. The concrete is also coloured to reference the tones of the surrounding beach environment. An additional attraction for using concrete was its ability to weather and soften over time.

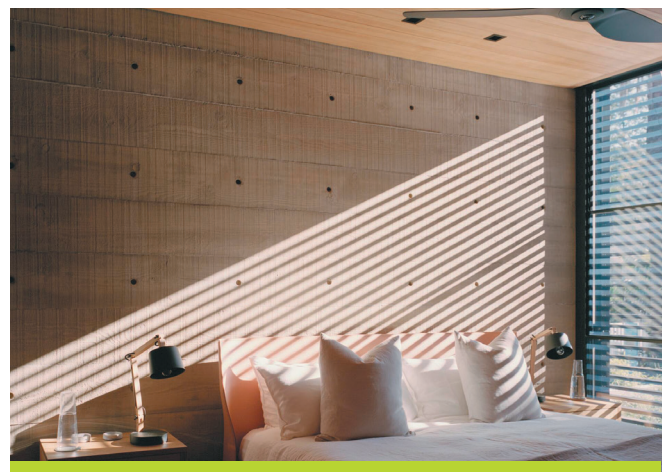
“Concrete allowed us to create a highly durable structure, while maintaining warmth and texture,” Kundig says.

The off-form board finish has also been exposed internally to add to the material texture of the internal palette.

While responding to the challenging location and site conditions, the design also allows the family to connect

with the natural environment, with shaded retractable window walls that merge inside with outside and provide passive ventilation.

An interior courtyard brings filtered daylight into the core of the home, where a central water feature helps to cool the air.



BENEFITS OF USING CONCRETE:

- Strength, durability and resilience
- Aesthetics
- Sustainability