‘Another 50 years’ of research and conservation: Mon Repos Turtle Centre

PROJECT | Sheona Thomson 13 Oct 2020

Imbued with the values that have protected this turtle natal site since the 1960s, this stealthy, angular building by Kirk poetically navigates firm constraints, creating a focal point for research and conservation that doesn’t “look like a turtle centre.”

Bespoke copper sheeting and recycled tallowwood will develop a patina over time, allowing the building to immerse itself in the landscape.

Image: Scott Burrows

Mon Repos Conservation Park, 14 kilometres east of Bundaberg on the Woongarra Coast of central Queensland, is a globally significant site for research on and protection of the endangered loggerhead sea turtle, a prehistoric species thought to have emerged around 40 million years ago. Adjacent to the Southern Great Barrier Reef and bracketed by rocky outcrops, the ecological

Mon Repos is their natal beach. While they spend decades at sea reaching sexual maturity, and forage and breed many hundreds (or thousands) of kilometres away, the beach where they were born is the one to which females are destined to return to renew the immemorial cycle.

Turtle research has been ongoing at Mon Repos since the 1960s, when biologist Colin Limpus began tagging turtles to study them, aiding our understanding of the manifold ways that humans impact on species loss, including through fishing-related harms, plastic ingestion, ocean contamination and, more recently, climate change. From the 1990s onwards, when the waters off the coast were established as a marine park, ecotourism to the region grew, formalized through the design and construction of a visitor centre by Guymer Bailey Architects. By 2013, the visitor centre at Mon Repos was receiving more than 30,000 people annually to experience night-time turtle nesting and hatching through a ranger-led "turtle encounter."

The harsh Queensland light plays off the subtle modulations of the timber and copper, creating a richly textured effect.

Image: Scott Burrows

In 2014, the Queensland government released a concept masterplan outlining principles for expanding the park's experiential education program to support the increasingly significant work of the Mon Repos researchers and rangers, who to date had been housed in fairly rudimentary facilities. With a vision to realize the turtle encounter as "the world's best practice turtle experience and turtle conservation movement," the government announced in 2016 that the facilities at Mon Repos would be redeveloped, with $10 million initially allocated from its Significant Regional Infrastructure Projects Program. In 2017, the Brisbane studio Kirk was awarded the project to replan the conservation zone and design a new turtle centre as a year-round facility for research, conservation and experiential public education, including an immersive interpretive centre.

The conservation values of the site intersect with other complex histories, such as that embodied in a wall that traverses the park south of the turtle centre. The Kanaka wall was built in the late 1800s from volcanic rocks cleared for the cultivation of sugarcane fields that bordered the park. It was built by South Sea Islanders, kidnapped (or "blackbirded") from their homes and induced into slavery or indentured labour under terrible, often fatal, conditions.

Through a strategy of consolidation and retreat, Kirk aimed to restore as much of the beachside conservation zone as possible to a natural state, organizing functions previously dispersed into one compact building. Relocating car parking outside the conservation zone and siting the new building on the former car park enabled the reinstatement of the area occupied by the previous visitor centre as a dune landscape once the new centre was functionally complete. Firm project constraints included minimizing construction impacts during the November-to-March turtle nesting and hatching season, and achieving zero light spill from the building to avoid disorientating the sea-bound hatchlings who, sensibly, emerge after dark to avoid early predation. From these constraints, a durable form for the harsh coastal conditions emerged, conceived as a night-event building that would remain dark during turtle season. Combining these aspects with a desire to decrease maintenance requirements over the longest possible lifespan in the harsh conditions while minimizing energy consumption, the architects proposed a timber-framed and naturally-ventilated "black box" that would transform from a research facility and volunteer-supported interpretive centre by day to a ranger briefing space for the 300 daily visitors arriving at dusk during turtle season to experience night-time beach visitations.

A 9.6-metre by 8.25-metre diagrid forms the structure, providing structural efficiency, planning flexibility and cyclonic resistance. To maximize project construction output during the limited time on site, the building frame was designed for prefabrication from engineered glue-laminated timber, using locally grown spotted gum. The typical procurement approach was changed to appoint the prefabrication manufacturer prior to the appointment of the main contractor. Although there was some assembly-related risk (mitigated through assurances of the accuracy and tolerance of components), this was offset by the tangible benefit to both the local economy and the project timeline of getting funding to local industry well in advance of when the main contractor could access the site. The frame was fully manufactured off-site in Maryborough for rapid on-site assembly (two weeks, with two to four riggers working at any one time).

The building's stealthy, angular physique is clad in bespoke copper sheeting and recycled tallowwood. A consistent datum sets the head height of all thresholds, with fine timber and flush copper sheeting describing the base, and a crinkled crown of copper above, carefully modelled to conceal variations in permeability in the darkly crystalline form. The harsh light of the region requires only the subtlest of surface modulation to create richly textured effects. Four dramatic south-facing skylight hoods pierce the roof plane to bring daylight into the interior as well as funnel prevailing winds. These hoods are double-baffled with two layers of louvres, glazed on the outside and black on the inside.

The plan coherently places the "back-of-house" research and laboratory space as a spine along the southern third of the building, with the remaining space dedicated to the public functions of cafe and souvenir shop, briefing area and interpretive centre. The diagrid's geometry is exploited to sequence access and egress at the eastern edge through an arrowed sliver of space carefully baffled to transition between the interior and the harsh coastal sunshine by day and to prevent light leakage after dark.

Inside, supported by six superstructural glue- laminated "tree" columns, the inclined and exposed diagrid network is patterned with the recessed infill of smaller triangles made of dark-stained acoustic ply: the building's own sheltering "carapace," punctuated by the openings to the sun hoods. Light ply walls and a honed concrete floor evoke the colours of the adjacent beach and suggest a continuity with the natural environment as visitors move beyond the building to the network of paths and boardwalks that control nightly access to the beach.

The interpretive centre includes an immersive space that both augments and, in part, mimics the real turtle encounter, including a beach boardwalk and sandpit to stage a turtle-nesting experience surrounded by large-scale video displays of the turtle journey. It offers an accessible experience to people who are unable to physically traverse the beach at night while also attracting visitors out of season.

The long elevation to the north-east captures prevailing air movement. Above the horizontal datum, portions of the wall breathe through imperceptible 100-millimetre gaps shaped by wrapping copper around a stainless steel substrate. Below the datum, battened tallowwood panels lift open to meet a low awning, spilling the interior out to the landscape while deepening the protective threshold of this edge.

The materially conservative, environmentally efficient and technically expressive approach taken by the architect sidestepped expectations that the building would "look like a turtle centre." Richard Kirk observes that there was no precedent for that, just as there was no precedent for a naturally ventilated building with zero light spill. Instead, inspired by the practicality of much rural and regional building, the centre demonstrates a precise and poetic mastery of function and technique that is at once solemn and mysterious, generous and adaptable: an inventively restrained distillation of requirements into an elegantly resilient architecture for research, wildlife support and public education. Through the ancient cycle of birth and return at natal Mon Repos, the building will quietly grow its own protective patina, visibly manifesting the passage of another 50 years of turtle research and conservation.

— Sheona Thomson is an architecture and design academic in the School of Design at Queensland University of Technology.

Credits

Project
Mon Repos Turtle Centre

Architect
Kirk
Brisbane, Qld, Australia

Project Team
Richard Kirk, Andrew Magub, Peter Webb, Karl Eckermann, Alex Collins, Michael Croft, Jonathan Ward, Caryn Streeter, Fedor Medek, Ikhwan Johari, David Gowty, Cathy Hua, Adelaide Hampson, Dylan Harland, George Stratford

Consultants

Building certification and access consultant	Certis Group
Interpretive consultant	Focus Productions
Landscape consultant	TCL
Programmer	Rowles Time Management
Retail FFE design consultant	March Studio
Structural, civil, traffic, services, electrical, lighting, hydraulic, fire, ESD and acoustic consultant	Arup

Aboriginal Nation
Built on the land of the Taribelang people of the Gureng nation

Site Details

Project Details

Status	Built
Completion date	2019
Design, documentation	16 months
Construction	12 months