Ngā Mokopuna

Case Study for the Aotearoa Design for Biodiversity Guide
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Location: Te Herenga Waka, 42 - 50 Kelburn Place, Victoria University, Wellington.

Project Type: Education

Project Timeframe: January 2022 - 2026

Date of Completion: 6 December 2024

Architects: Tennent Brown Architects
Construction: L.T.McGuinness
Structural Engineers: Dunning Thornton Consultants
Services / Building System Engineers: 335 Building System Engineers

Broader Team: Rider Levett Bucknall, Wraight + Associates, The Building Intelligence Group, Oculus, Morphum Environmental, Holmes Fire, Protech.

Site Context

Ngā Mokopuna is in the Kelburn campus precinct of Te Herenga Waka Victoria University of Wellington. The redevelopment replaced five villas at 42–50 Kelburn Parade and is connected to the Te Herenga Waka marae grounds [1]. The building is a three-storey, 3099m² mass-timber structure designed to meet the Living Building Challenge. Its sustainability systems (energy, water and materials) and courtyard/landscape treatments result in an energy and water positive building, reduce embodied carbon, and support low-impact site ecology. The site is long, narrow and steep, situated in a constrained urban setting, so ecological interventions focus on elements such as external planters for evapotranspiration, shading, and creating connected interior and exterior spaces that support regenerative design goals [2]. The integration of planting into the architecture was also a response to the site's spatial constraints. Architect Ewan Brown, Director of Tennent Brown Architects, noted that the steep and restricted site meant ecological strategies needed to work vertically rather than relying on large ground-level planting areas [3].

Ngā Mokopuna. Photograph by Andy Spain, 2024.

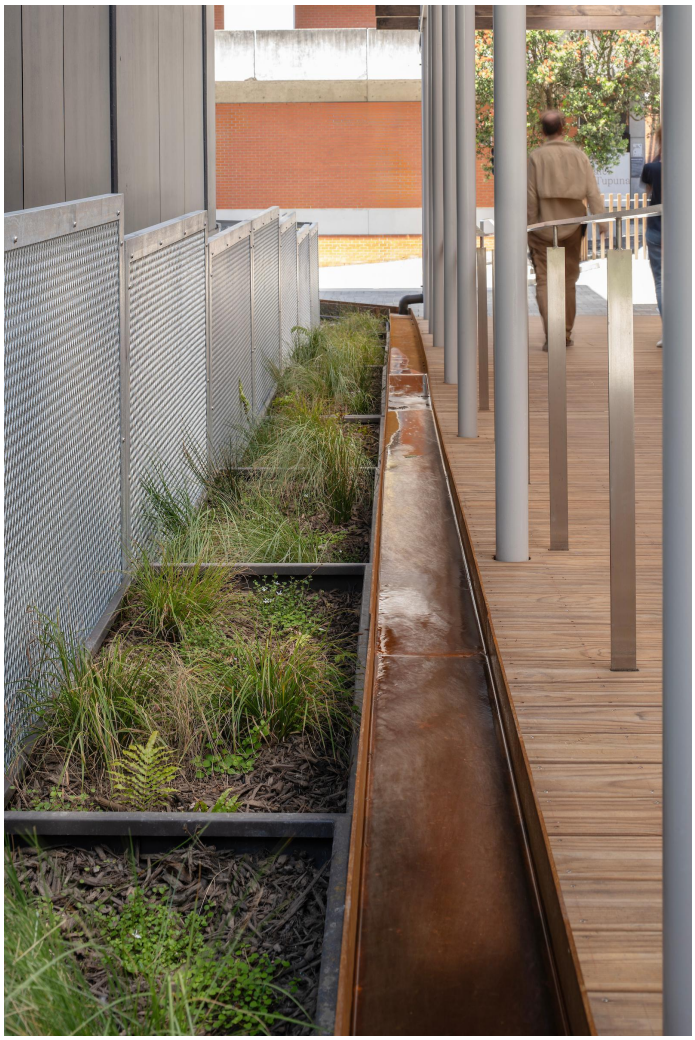
Context of Place: Taiao, People, and Culture

The ecological context of Ngā Mokopuna is within an urban hillscape that is both constrained and generative. The Kelburn site occupies steep, mixed geology on Victoria University's Kelburn campus and is embedded in a dense city fabric, so any biodiversity response must work with limited ground area and vertical opportunities. The project team explicitly frames the building as a "pā kaiao" or a living, ecological laboratory. It integrates engineered timber, large suspended planter boxes and an ethnobotanical planting strategy so the building itself becomes a functioning habitat and contributes to carbon sequestration and urban greening. These timber elements are not simply structural: the large volume of engineered wood used in the superstructure (CLT, glulam and LVL) sequesters approximately 687 of tonnes of CO_2 equivalent and enables lighter foundations and the incorporation of soil and planting at height, which in turn creates niche planting conditions for native species suited to containers and ledges rather than extensive ground planting. The site conditions and construction approach demand biodiversity thinking that encourages layered, vertical and containerised planting, species tolerant of exposed, windy microclimates, and design for ecological connectivity at a scale appropriate to an inner city marae. According to Brown, this approach required careful species selection and soil design to ensure plants could survive exposed urban conditions while still providing ecological value [3].

The social and cultural context is led by te ao Māori values, tikanga and the marae kaupapa. Te Herenga Waka's Ngā Mokopuna is intentionally pan-tribal, a university marae seeking to foreground mātauranga Māori in form and function, and the project literature consistently names kaitiakitanga, whakapapa to Papatūānuku, and the teachings of Maui and Te Rangiahuta as organising principles. This is not tokenistic placement of Māori motifs but a deliberate attempt to make the building a cultural taonga [4]. Professor Rawinia Higgins emphasised that the marae and its associated buildings operate within long-standing relationships between the university and mana whenua, where responsibility for the space is shared through tikanga and ongoing partnership [5]. A whare whose spatial organisation, planting and materiality carry narratives of place and obligations to future generations. That cultural ambition shapes biodiversity choices. Planting palettes and typologies are selected not only for ecological function but for cultural resonance (rongoā species, kai, weaving plants, and species carrying explicit whakapapa connections for example), and the marae's role as a living lab means biodiversity action is also enabling kaumātua, students, and staff to express, embody, and learn whakapapa based stewardship. Higgins also noted that the marae environment allows mātauranga Māori to be practiced and transmitted in everyday settings, allowing students and staff to engage with ecological knowledge through lived experience rather than abstract teaching [5]. The redevelopment is likewise sensitive to the existing wharenui and marae ātea and the ongoing use of those spaces, so biodiversity measures must sit harmoniously with ceremonial flows and with the mana and authority of marae leadership.

Ngā Mokopuna. Photograph by Andy Spain, 2024.

The key drivers for biodiversity action at Ngā Mokopuna are a mixture of ecological necessity, urban pressures and cultural revitalisation. As Brown explained, the landscape strategy was shaped by the need to balance ecological ambition with the realities of a dense urban site, requiring innovative planting systems and integration with the building structure [3]. Urban intensification and limited ground area motivate creative habitat creation in planters and on terraces, while the Living Building Challenge imperatives force the project to demonstrate net positive outcomes for ecology, water and materials rather than just reduction in impact. Localised stormwater management and closed loop water systems are drivers too. Rainwater capture and reuse, reduce reliance on reticulated systems and shape planting choices toward species that tolerate differing moisture regimes and intermittent saturated conditions in contained planters. At the same time, material choices (mass timber over concrete and steel) are being used strategically to reduce lifecycle emissions and to provide opportunities for integrated planters and living systems. These material decisions therefore become drivers of biodiversity outcomes as much as structural ones. Underpinning all of this is a cultural driver; the marae's aspiration to be a living teaching environment means the project prioritises Māori ecological knowledge alongside Western ecological practice. So, in this instance, biodiversity action includes respecting and revitalising te reo, tikanga, and customary relationships to Te Taiao, species, and place. The triple pressures of urban constraint, certification ambition, and cultural responsibility, have defined a uniquely Māori approach to urban biodiversity that is both practical and intergenerational in Ngā Mokopuna.



Ngā Mokopuna. Photograph by Andy Spain, 2024.

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Te Ao Māori Drivers & Values: The Foundations

Te ao Māori provided the foundation for every stage of Ngā Mokopuna, shaping its purpose, processes, and the forms it ultimately took. The project was guided by an understanding that built spaces do not stand apart from the natural world, but are part of a wider whakapapa that connects people, whenua, and future generations [6]. This worldview framed the site not simply as a location for a new building, but as a living node within the long story of Te Whanganui-a-Tara and the communities who gather at Te Herenga Waka Marae. The design team approached the development with a sense of responsibility to honour this whakapapa and strengthen the cultural life of the marae precinct [4]. Decisions were anchored in values rather than aesthetics alone, resulting in a building that expresses cultural presence, offers safety and belonging, and empowers te ao Māori. Higgins emphasised that the project reflects broader Māori principles of kaitiakitanga and intergenerational responsibility, where buildings are understood as part of an ongoing relationship with whenua rather than isolated structures [5].

Kaitiakitanga sits at the centre of Ngā Mokopuna's design logic, functioning as both a cultural and practical driver guiding how the building interacts with land, water, materials, and people. This aligns with broader literature describing kaitiakitanga as an ethic of guardianship requiring regenerative, rather than extractive, practice [2]. For Ngā Mokopuna, this meant selecting mass timber systems, reducing carbon-intensive materials, and committing to restorative ecology on a constrained urban site. Project documentation notes that the CLT–glulam structure was chosen not only for carbon performance but also because it aligns with custodial relationships to ngahere and material whakapapa [12]. Given the site's proximity to an active marae, guardianship also meant protecting ceremonial movement, upholding the mauri of the existing wharenui, and ensuring that the development strengthened the mana of the cultural landscape; an approach consistent with tikanga-led design frameworks discussed in He Pā Mataora [7]. Cultural protocols around site disturbance, material provenance, and species selection were followed throughout, ensuring decisions honoured whakapapa and supported the wider cultural landscape of Te Herenga Waka [15].

Ngā Mokopuna. Photograph by Andy Spain, 2024.

Tikanga and mātauranga Māori reshaped project priorities in ways that depart from typical campus infrastructure. Conceived as a "pā kaiao," Ngā Mokopuna treats architecture as a teaching tool grounded in Māori ecological understanding [15]. The CLT and glulam superstructure carries genealogical and ecological narratives linking the building to ngahere systems [12]. These choices reflect tikanga in practice, emphasising reciprocity, cultural continuity, and ecological literacy.

This foundation of te ao Māori values also directly enables opportunities across four key kaupapa related to engagement opportunities with Māori. These being Maramataka, Kaitiakitanga, Tautuutu, and Whakatipu Rawa. Although Ngā Mokopuna is a built, urban marae adjacent facility, it resonates with maramataka, recognising that seasonal rhythms and ecological cycles should guide built environments [9]. By adopting regenerative design strategies such as water recycling, integrated green infrastructure, and long-term ecological stewardship, the building becomes part of a cyclical flow of giving back to the whenua, reflecting a worldview where built form participates in Taiao cycles rather than interrupting them [6].

Kaitiakitanga, already embedded as a foundational driver, as discussed, is further expressed through the building's embodied carbon reduction, its commitment to material health, and its water and energy self-sufficiency [6]. Energy needs are met via rooftop photovoltaic panels. which generate 105% of the building's electricity needs [13]. These decisions reinforce intergenerational responsibility and demonstrate how buildings can act as active guardians of whenua and wai rather than passive consumers.

Tautuutu, the principle of reciprocity, appears through Nga Mokopuna's cultural programming and resource self-reliance. A wharekai, teaching spaces, and open gathering areas create an environment where community and collective care are embedded in everyday operation [13]. The building generates more electricity than it consumes [3] and treats its own water, reducing strain on municipal systems and giving back to the wider community [11]. In this way, tautuutu is enacted not just socially but ecologically. Ngā Mokopuna offers strong opportunities for whakatipu rawa which includes growth, development and long-term capability building.

Ngā Mokopuna. Photograph by Andy Spain, 2024.

Ngā Mokopuna offers strong opportunities for whakatipu rawa which includes growth, development and long-term capability building. The building functions as a living wānanga, housing Te Kawa a Maui School of Māori Studies, Āwhina student support services, the sustainability office, marae operations and, the Office of the Deputy Vice-Chancellor Māori & Kaitiakitanga, positioning learning, cultural revitalisation, and ecological stewardship at its core [7]. Its use of engineered timber, prefabrication, and large-span structural innovations reflects a willingness to push technical boundaries while remaining grounded in kaupapa Māori values [10]. The result is a structure that not only embodies cultural and ecological principles today but also establishes a platform for future innovation, stewardship, and community wellbeing.

Design and Engagement Process

How were mana whenua, local communities, and other stakeholders involved?

Mana whenua and the marae community were embedded in the project from the outset: Te Herenga Waka framed Ngā Mokopuna as a marae-led redevelopment with pan-Māori custodianship, and the university, tangata whenua, architects and contractors collaborated to ensure the building served both ceremonial and teaching roles for the marae precinct. The university positioned the brief to "uplift mātauranga Māori" and to embed tikanga into procurement and operation, and the marae community remained an active partner through to opening [15]. The building was conceived as a complement to the existing wharenui and to strengthen the marae's cultural heart on campus. This ongoing involvement extends beyond construction: mana whenua and marae representatives are signalled in project reporting and research outputs as continuing participants in monitoring, teaching and stewardship activities around the building.

Co-design was commenced through a mix of formal hui, wānanga, site tours, interviews and iterative participatory research: the He Pā Mataora research programme documented a programme of wānanga, stakeholder interviews, construction site tours, knowledge holder workshops and the creation of teaching resources that both informed and tested design choices [7]. The project also hosted learning visits to other exemplar "living buildings," convened tāngata whenua expertise in marae tikanga and sustainability, and produced public-facing outputs (guides, videos, conference presentations) to share learnings and deepen community capacity (this is also a Living Building Challenge requirement). Design decisions were informed by repeated face to face hui/wānanga and by structured research activities that translated mātauranga and matauranga informed feedback into technical terms. [13]

How mātauranga Māori and tikanga shaped the design process itself?

Mātauranga Māori and tikanga were treated as operative design criteria, not decorative additions and this showed clearly in the brief, procurement choices, verification requirements and programme sequencing. The project translates kaupapa such as kaitiakitanga and maramataka into procedural actions. Living Building Challenge performance targets were aligned with tikanga-safe material selection, including the avoidance of red-list chemicals. Water systems were designed to enable ceremonial and practical water relationships, reinforcing the principle that wai carries both ecological and cultural responsibilities [10].

Ethnobotanical planting and dedicated teaching spaces were intentionally incorporated so that rongoā, kai and raranga practices could be taught and enacted onsite [1]. The He Pā Mataora research programme framed its work around tikanga, reo, ako and taiao, meaning that both monitoring and post-occupancy learning were shaped by Māori and ecological indicators side-by-side.

Meaningful shared decision-making requires both enablers and constraints. Enablers included an institutionally backed mandate to pursue a Living Building Challenge outcome and a clear brief to uplift mātauranga Māori, supported by strong research capacity from He Pā Mataora, which created space for wānanga, community input and knowledge translation [9]. Technical partnerships also played a major role. Prefabrication and engineered timber innovations supported cultural and ecological aspirations by lowering carbon, reducing waste, and enabling the project's planter-integrated façade. At the same time, challenges were embedded in regulatory and procedural contexts. The Living Building Challenge imposes strict water, energy and materials requirements that require significant adaptation of tikanga and operational practice [12]. Local planning constraints and supply-chain pressures for large-span CLT–GLT components added complexity. The He Pā Mataora team also reflected on social challenges of shifting established marae practices into a new technical environment highlighting the need for long-term stewardship structures and resourcing to maintain genuine Māori co-leadership beyond project handover [7].

Cultural protocols also shaped how the site itself was transformed during the project. Higgins described how discussions were held around the decommissioning of existing buildings on the site, including ceremonial processes to respectfully close and transition the earlier structures before redevelopment began [5]. These processes involved collaboration with iwi representatives and cultural leaders to ensure that demolition and redevelopment respected the tikanga and history of the marae precinct.

Biodiversity Design Strategies

Specific interventions & integration of living systems

The design incorporates integrated planter boxes ("glulam planters suspended from roof-level steel tubes and braced by CLT spandrels") as part of the building's structural envelope, enabling soft-landscape zones and vegetation to be built into a dense urban footprint rather than remain as just a separate ground-level garden [4].

Water and waste systems are deliberately designed as regenerative infrastructure rather than conventional services. The building collects rainwater via roof catchment. A waste water treatment plant (WWTP) treats black and grey water onsite vacuum-flush toilets to reduce potable water demand and treated greywater is reused for toilet flushing and for irrigating planter boxes and external planting [8]. These systems together with vegetation, water, energy, low-carbon materials, form a coherent “living system” rather than a conventional institutional building.

Waste management and material health have also been addressed: the project used only “red list-free” building materials, and waste diversion during construction diverted over 94% of construction waste (1.1 million kilograms) from landfill [6, 8]. The planter-box waterproofing system (root-resistant and durable) was chosen to support long-term planting without compromising structural or envelope integrity.

Some of these sustainability aspects directly support biodiversity and others indirectly support greater ecosystem health and capacity to support biodiversity on site and in the wider area.

Connections to wider ecological processes

Ngā Mokopuna operates as part of a wider ecological and cultural network on the Kelburn campus, functioning as a built node that reconnects people and te taiao through a Māori environmental lens. Its integrated water-harvesting and recycling systems lessen dependence on the municipal network, contributing to healthier catchment systems and reducing strain on city infrastructure, an approach consistent with Living Building Challenge water principles adopted within the project [12]. The inclusion of suspended planters and vegetated terraces introduces small but meaningful areas of green refuge within the urban setting. These planted systems can support invertebrates and urban-adapted species, while helping regulate microclimates through shading and evapotranspiration, contributing to improved ecological continuity within an otherwise hardened environment [14].

Ngā Mokopuna. Photograph by Andy Spain, 2024.

Ngā Mokopuna also expresses ecological connection through its material choices and operational systems, reflecting Māori principles of whakapapa, intergenerational care and relational responsibility to the natural world [15]. Its capacity for water recycling, onsite energy generation and regenerative material cycles aligns closely with maramataka-informed approaches to rhythm, seasonality and environmental responsiveness, supporting a way of designing that works with, rather than against, ongoing natural cycles [10]. Although the project is not framed around biodiversity corridors or large-scale restoration, it offers a significant precedent for weaving living systems into compact urban spaces. In doing so, it demonstrates how Māori ecological knowledge and architecture can operate together in urban settings to enhance both cultural expression and environmental wellbeing [2].

Outcomes

Monitoring

Ngā Mokopuna's performance is assessed through the Living Building Challenge, which requires a full year of verified operation to demonstrate that the whare meets regenerative benchmarks across energy, water, materials and health [5]. This positions the building as an active learning environment rather than a static built outcome.

The He Pā Mataora research programme extends this monitoring by incorporating tikanga, reo, and cultural practice into post occupancy evaluation, acknowledging that Māori indicators of success sit alongside technical design ones [9].

Biodiversity outcomes

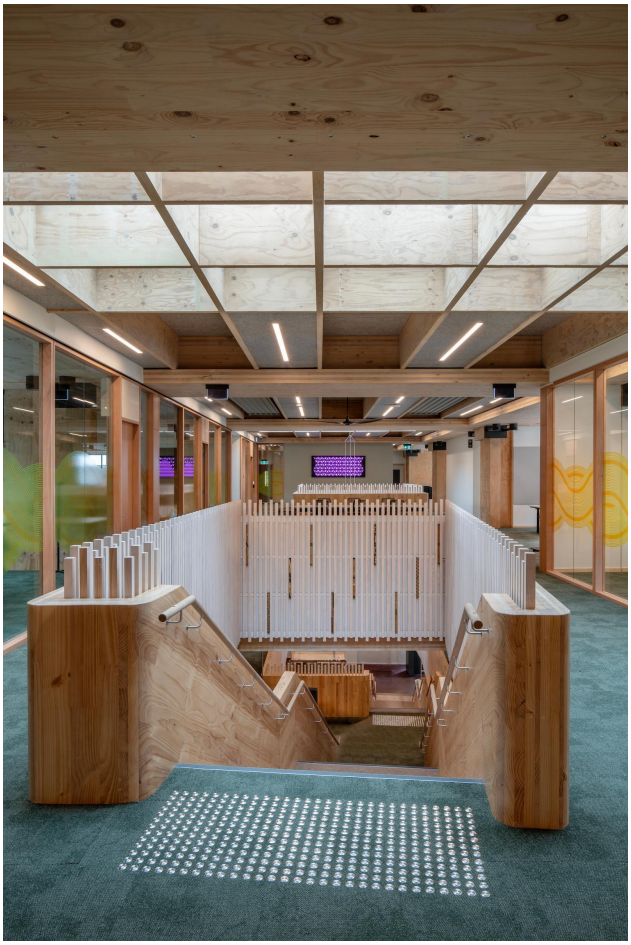
Ngā Mokopuna achieves meaningful ecological outcomes by embedding biodiversity within its structure and landscape. Although exact biodiversity figures are not available, integrated façade planters introduce vegetated pockets across multiple levels of the building, creating microhabitats and contributing to urban ngāhere conditions. These planters improve microclimate performance through shading and evapotranspiration and provide refuge for invertebrates and other urban-adapted species, contributing perhaps to ecological continuity within the campus [2]. Water systems support biodiversity indirectly by reducing stormwater discharge and enhancing catchment health, aligning with ki uta ki tai principles emphasising whole of catchment stewardship [10]. Although not a restoration project, Ngā Mokopuna demonstrates how cultural architecture can host ecological functions in compact landscapes.

Social & cultural outcomes

Ngā Mokopuna has strengthened the cultural, educational and social fabric of Te Herenga Waka's marae precinct. By accommodating teaching, research, student support, wharekai functions and sustainability operations, the building enables daily interaction within a kaupapa Māori environment [1]. Its early reception highlights its standing as a cultural landmark, with commentary recognising it as a major step for Māori-led sustainability in higher education. He Pā Mataora outputs including educational resources, reflective evaluations and community workshops extend these outcomes by documenting how tikanga and environmental practice are expressed through the building [9]. In this way, Ngā Mokopuna acts not only as an enabler of cultural life but as an active teacher, shaping environmental and cultural capability for current and future generations.

Built environment outcomes

Technically, Ngā Mokopuna has advanced the possibilities of mass-timber construction in Aotearoa's urban and seismic conditions. The building tested and implemented innovative CLT GLT assemblies, prefabricated elements and novel connection systems, demonstrating that timber can support multi-storey, institutional functions while meeting strict seismic requirements [14].



Ngā Mokopuna. Photograph by Andy Spain, 2024.

Its integrated water and energy systems, net-positive PV generation and closed-loop water treatment, show that regenerative infrastructure is achievable on a constrained campus footprint [12]. The Industry commentary from cited references identifies Ngā Mokopuna as a turning point for sustainability-led construction, noting its influence on professional practice and procurement standards. These technical achievements were shaped by tikanga-informed decision-making, demonstrating that ecological performance and cultural integrity can be mutually reinforcing drivers in the built environment [7].

Insights & Reflections

Lessons learned about processes & outcome

Ngā Mokopuna shows that complex sustainability outcomes are achievable when ecological goals, cultural values and technical requirements are aligned from the beginning. A key lesson from the project is that co-design grounded in tikanga and supported by institutional commitment creates a foundation where sustainability aspirations can be achieved without compromising cultural integrity [9]. The Living Building Challenge process further reinforced the value of transparency and continuous monitoring, embedding learning into the life of the project rather than treating evaluation as an afterthought. He Pā Mataora's approach, documenting lived experiences, tikanga considerations and technical decision-making, creates a replicable model for future Māori-led sustainability projects. This reduces uncertainty and strengthens sector capability, supporting long-term shifts in practice across Aotearoa [7].

How te ao Māori drivers and values shifted the project

Te ao Māori values didn't just influence Ngā Mokopuna, they completely shifted how the project was imagined, governed and delivered. Instead of following the usual campus development pattern, where efficiency and programme drive decisions, this project began with whakapapa, mana, and collective responsibility. Kaitiakitanga meant the team constantly asked not only if it would work but also if it was the right thing to do. Manaakitanga reshaped circulation and spatial arrangement so the building supported the mana of the wharenui and upheld ceremonial movement, rather than forcing the marae to adapt to the new build.

The project team also drew heavily on mātauranga to guide technical decisions, proving that tikanga and high-performance building systems can genuinely work together. The insistence on red-list free materials, mass-timber construction and on-site water treatment was not just about sustainability standards, it was about making sure the building upheld the mauri of the site and kept harmful substances away from a cultural space that carries intergenerational significance [12]. Even the construction process embodied these values, with contractors and engineers taking on cultural protocols and ways of working that aren't usually seen on large urban builds [4].

Ngā Mokopuna. Photograph by Andy Spain, 2024.

An important shift identified relates to governance. Mana whenua, marae leaders and the wider Māori community were embedded throughout the design and delivery phases, influencing decisions at every level [16]. This is very different from the "engagement" model used in a lot of development projects, where Māori input is sometimes limited to early concept stages. Ngā Mokopuna shows what happens when cultural authority is recognised as design authority. That approach didn't just make the building more meaningful, it made the entire project team rethink how collaboration and responsibility should work in Aotearoa's urban built environment [6].

What can be applied elsewhere in Aotearoa's urban contexts

Ngā Mokopuna offers a blueprint for how urban projects across Aotearoa can be grounded in both te ao Māori and regenerative design. The project proves that net-positive energy systems, circular water infrastructure, and biodiversity-supporting elements can coexist with intensive educational programmes in dense city settings [11]. Ngā Mokopuna demonstrates that meaningful integration of mātauranga Māori isn't something "extra" added at the end. It can be the framework that guides everything, from technical modelling, to material supply chains, to long-term stewardship agreements. When Māori governance and wānanga-based processes shape design conversations early on, buildings naturally become more relational; they become places that care for people, culture, and te taiao at the same time, including biodiversity.

The project also shows the value of documenting and sharing knowledge. Because Ngā Mokopuna created a clear record of its process through case studies, videos, public guides, and research partnerships, it provides an example for others wanting to do the same [1]. That kind of openness helps normalise kaupapa Māori design approaches and gives professionals practical examples they can build on. Across Aotearoa's urban environments, where climate change, population growth and cultural revitalisation are pushing people to rethink how cities work, Ngā Mokopuna stands as a reminder that architecture can be both technically ambitious and culturally anchored. It shows that when te ao Māori leads, buildings can be created that don't just perform well; they teach, connect, and carry responsibility forward in a way that feels genuinely grounded in place [1].

Acknowledgements

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Reference List

1. Te Herenga Waka Victoria University of Wellington. (2019). *The Living Pā ambassadors* [Video]. YouTube. https://www.youtube.com/watch?v=UfdqzaP4Xts
2. Te Herenga Waka Victoria University of Wellington. (n.d.). *Ngā Mokopuna – The living building*. https://www.wgtn.ac.nz/maori-at-victoria/marae/nga-whare/nga-mokopuna
3. Brown, E. (2025). Interview on the landscape design and ecological strategy of Ngā Mokopuna. Interview conducted by D. Dean and M. Pedersen Zari, 16 December 2025.
4. Midrise Wood Construction, MPI, Red Stag (2024). The Living Pā - Wellington - Case Study (web version). https://www.midrisewood.co.nz/s/2024-03-Living-PA-Case-Study-Final.pdf
5. Higgins, R. (2025). Interview on cultural context and mana whenua engagement for Ngā Mokopuna. Interview conducted by D. Deans and M. Pedersen Zari, 16 December 2025.
6. Archipro. (2024). *Ngā Mokopuna: A new chapter in sustainable learning – ColorCote case study.* ArchiPro. https://archipro.co.nz/article/nga-mokopuna-a-new-chapter-in-sustainable-learning-colorcote
7. Harmsworth, G., Awatere, S., & Pauling, C. (2013). Using mātauranga Māori to inform freshwater management. Landcare Research Policy Brief: Integrated Valuation and Monitoring Framework for Improved Freshwater Outcomes (C09X1003). 5p. https://www.landcareresearch.co.nz/assets/Publications/Policy-Briefing-Guidance-Papers/Policy-Brief-7-Using-Maori-to-inform-freshwater.pdf
8. Red Stag TimberLab. (2024). *Living Pā case study*. Red Stag TimberLab. https://redstagtimberlab.co.nz/living-pa-case-study/
9. MacDonald, L., Waiwai, J., Davis, K., & He Pā Mataora Research Team. (2024). *He Pā Mataora: Learning to live with the Living Pā (Final report)*. Deep South National Science Challenge. https://deepsouthchallenge.co.nz/wp-content/uploads/2024/09/He-Pa-Mataora-Learning-to-live-with-the-Living-Pa-Final-Report.pdf
10. Master Builders Association of New Zealand. (2025). *Sustainability Award – 2025 results.* https://www.masterbuilder.org.nz/CPA/Entries%20and%20Results/2025_results/Sustainability_Award/CPA/Results/Results_2025/Sustainability_Award.aspx
11. Sprinkler Design. (n.d.). The Living Pā – Ngā Mokopuna project.
12. Equus Industries. (2024). *Case study: The Living Pā*. Equus. https://equus.nz/project-references/case-study-the-living-pa/
13. The Building Intelligence Group. (2025). *Ngā Mokopuna.* https://tbig.co.nz/nga-mokopuna
14. LT McGuinness. (2023). *Victoria University Living Pā – Project details*. LT McGuinness. https://ltmcguinness.co.nz/project/vuw-living-pa/
15. Harmsworth G. & Awatere S. (2013). Indigenous Māori Knowledge and Perspectives of Ecosystems. In Dymond J.R. ed. *Ecosystem services in New Zealand – conditions and trends*. Manaaki Whenua Press, Lincoln, New Zealand. Pp 274 – 286. https://www.landcareresearch.co.nz/assets/Discover-Our-Research/Environment/Sustainable-society-policy/VMO/Indigenous_Maori_knowledge_perspectives_ecosystems.pdf
16. Tennent Brown Architects. (2020). *Ngā Mokopuna.* Tennent Brown. https://tennentbrown.co.nz/projects/maori/nga-mokopuna