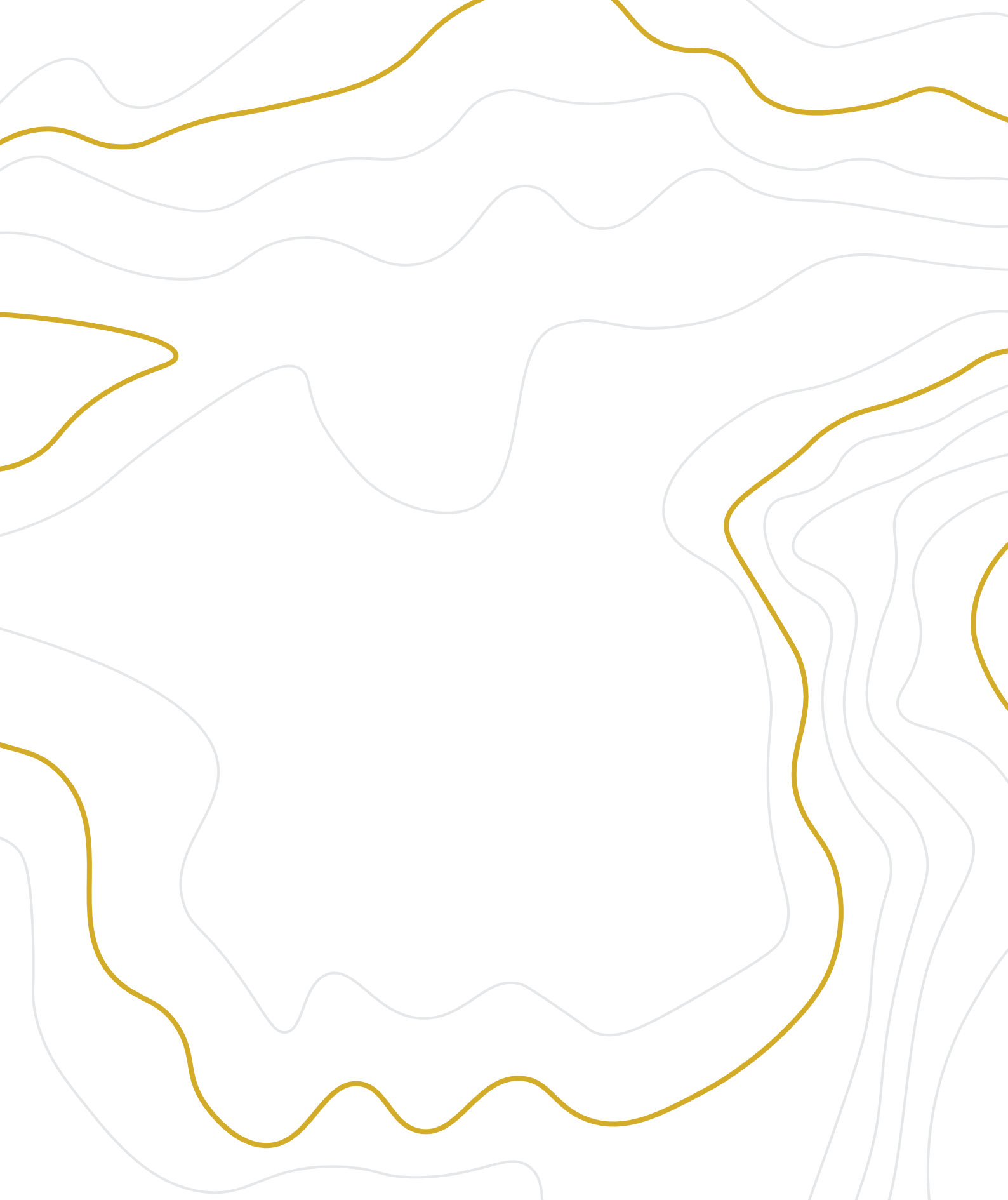


Peer-reviewed Articles

Introduction

Dr Renata Jadresin Milic

The peer-reviewed section of this issue comprises eleven analytical and speculative papers on pedagogical innovation, fabrication investigations, industry collaboration and architectural research. These are grouped in four categories: Original Research Articles; Review Articles – original, detailed and critical research previews; Short Communications – preliminary original research articles; and Commentary / Critique / Polemical Articles.

Ryan Western and Daniel K. Brown's paper "The Hand of the Engraver" opens the issue. It examines and contextualises derelict landscapes across New Zealand that have scars too advanced for remediation, as a result of the way we dwell. An original contribution of this design-led research project proposes that by building upon these scars, rather than ignoring or hiding them, they can be reinterpreted as lessons that can help future generations to learn from past mistakes.

In "My History is Not Mine," May Myo Min and Daniel K. Brown discuss a design-led research investigation that focuses on architecture as a representation of cultural loss. With a desire to address the problem of many Eastern cultures having their own unique architectural histories rewritten and in danger of becoming lost, this investigation tests the methodology of using oral narrative (in this case, a series of Burmese superstitious tales from childhood) as a framing device to establish an architectural narrative about cultural loss.

In "Anti-social Distancing: Revisiting Auckland's Unitary Plan," David Turner analyses some of the early changes to Auckland's suburban fabric and identifies two typologies preferred by developers under the new regulations. The paper includes a discussion of the merits of these choices in light of the intentions expressed by the opening sections of The Auckland Unitary Plan and its broader objectives.

Cameron Moore, in the paper "If You Copy, You Will Be Caught and a Mess Will Remain," provides a synthesised contribution on an alternative approach of design studio teaching at Unitec's School of Architecture. As the only architecture school in New Zealand that has run a classical studio, Moore proposes that this can be seen as a point of difference with the other architecture schools, and indeed a confirmation of Unitec's 'real-world learning' philosophy.

In "The Eternal Present of the Mythical Event," Daniel K. Brown examines how speculative architectural installations strategically 'curated' into neglected architectural contexts can help to engender an encapsulation of a cultural story that the new interventions help to embody. Brown proposes that through community-based and collaborative creative practice, such architectural research can critically explore seemingly intractable contemporary architectural problems such as the loss of cultural, heritage and place identity in our evolving urban environments.

In "Architecture as a Tool for Inclusion and Community Building: Women in Fabrication at Zayed College for Girls," a case study of a collaborative design practice that empowers female high-school students, architecture students and young architects through design and construction is reviewed by Priscila Besen, Yusef Patel, Alice Couchman and Peter McPherson. The innovative research methodology with applied educational activity has the potential to initiate a more inclusive approach to bridging the divide between secondary school and

university levels of learning, and to lay the foundations for further projects.

Neill McCulloch, Yusef Patel and Sēmisi Potauaine, in "EDFAB: Design and Building of a Plywood Research House," reflect on the Eco-digital Fabrication Research Project, a collaboration between researchers and students from The University of Auckland's and Unitec's Schools of Architecture. The research sought to investigate and develop a new housing typology using off-the-shelf materials and simple digital fabrication machinery, and to radically challenge conventional construction processes and relationships by proposing an alternative fabrication process to address problems of affordability, personalisation, energy performance and indoor comfort.

Xinxin Wang, Lúcia Camargos Melchiors and Matthew Bradbury, in "Onehunga Waterfront and Climate Adaptation: A Unitec Landscape/Architecture Studio," discuss the potential of a joint studio for landscape and architecture students to develop design strategies for a waterfront development that adapt to the environmental challenges of climate change. The authors developed a studio methodology to help students build collaboration and capacity to address real-world problems, with a collaborative approach that included engagement of multiple stakeholders: government agencies, practitioners, the community and mana whenua.

Based on research conducted in downtown Auckland, in "Diverse Morphology: A Study of Chancery Square," Alyssa Haley and Cesar Wagner investigate the way urban compositions influence our perceptions of space, and the psychological effects spatial elements have on their occupants. The paper identifies urban aspects that stimulate the use and perception of such open spaces; in particular, enclosure, the outdoor room, datum lines, here and there, compression, release, deflection of sightlines and occupied territory.

In "An Untraditional Perspective of Tradition: The Lessons of Gummer and Ford in Architectural Education and Designing for New Zealand," Milica Mađanović, Cameron Moore and Renata Jadresin Milic propose a three-stage research project (2020–2023) devoted to the work of architects Gummer and Ford (who, as one of the most prominent practices in New Zealand architectural history, are still strikingly under-researched in New Zealand architectural historiography). The authors reflect on the project's aims to create links between historical research, architectural education, design practice and the New Zealand community.

The peer-reviewed section of this issue concludes with Hamish Foote and Annabel Pretty's paper "Psalm," inspired by the exhibition of sculptures by Bronwynne Cornish and paintings by Hamish Foote in 2019. This paper reflects on the relationship between art and science, the role of art as a means of communication, and the underpinning content of Foote's images: the topical and critical issue of genetic bottlenecks within the endemic avian community.

We hope that this series of investigated problems and the conclusions the authors have come to, in their papers for this first edition of the peer-reviewed *Asylum* journal, will help to dispel the usual stereotypes related to the interpretation of research within the disciplines of architecture and landscape architecture.

Original Research Article

The Hand of the Engraver

Ryan Western and Professor Daniel K. Brown
Images by Ryan Western

Abstract

The manner in which we dwell leaves scars upon the landscape that are often left behind long after occupancy ceases. Many derelict landscapes across New Zealand have scars too advanced for remediation. This design-led research project proposes that by building upon these scars, rather than ignoring or hiding them, these scars can be reinterpreted as lessons that can help enable future generations to learn from past mistakes. Quartz Reef Point in Central Otago has been selected as the site for this design-led research investigation; it is an abandoned strip mine that appears so violated that it has lost all apparent means of restoration or reuse. The damage at Quartz Reef Point strip mine has been caused by 'scratching' the surface of the site so severely that natural systems have suffered inexorable damage. In the art of engraving, the surface of a copper plate is also deeply scratched – and the resulting 'damage' to the plate allows a story to unfold. This investigation looks at how the art of engraving can be applied to architectural design processes in ways that help tell the story of severely damaged sites such as Quartz Reef Point. Hans-Jörg Rheinberger's book *The Hand of the Engraver: Albert Flocon Meets Gaston Bachelard* is used to establish a framework for this investigation. In this book, the architectural engraver Albert Flocon shares dialogues with the architectural philosopher Gaston Bachelard – two distinct points of view about storytelling. The investigation proposes that when these two points of view are integrated with the voice of the architectural designer, the investigation author, new approaches for meaningful architectural interventions can be discovered to help bring the story of Quartz Reef Point to life for future generations. Using Rheinberger's book *The Hand of the Engraver* as a generative starting point, the investigation asks the research question: How can the engraver, the philosopher and the architectural designer be brought together to explore new ways of looking at scarred landscapes that not only reinvigorate them, but also offer their tales as important lessons for the future?

Introduction

Countless scarred sites scattered across Aotearoa, particularly open-pit mining environments, evidence humanity's unsustainable damage to environmental systems; often the damage is so severe that returning such sites to their original natural state is not economically feasible. This research proposes that future generations

can learn from these sites by strategically incorporating narrative allegorical architectural interventions into scarred landscapes in ways that help provide new opportunities for the site while also enhancing didactic engagement. Jerome Bruner, senior research fellow at New York University, outlines a framework that he argues is necessary to advance a successful fictional narrative. Architectural heritage theorist Jennifer Hill discusses how retaining visible scars in the built environment can offer insights into how the ongoing transformations of a site contribute actively to the narrative of place. Environmental psychologist Jonathan Sime argues that contextual elements of derelict sites, in combination with a fictional narrative, can culminate in an enhanced 'sense of place' through unexpected architectural responses. This investigation integrates the theoretical arguments of Bruner, Hill and Sime in a design-led research approach to the reinvigoration of severely scarred landscapes. Architectural elements and environmental scars are conceptualised as overlapping, each advising the other. In this way, the investigation looks to communicate contextual narratives in a way that not only revitalises place identity, but also enables us to fully engage a site's heritage and learn from past mistakes.

The Allegorical Narrative Framework

In the art of engraving, the surface of a copper plate is deeply scratched, and the resulting 'damage' to the plate allows a story to unfold. This design research investigation looks at how the art of engraving can be applied to architectural design processes in ways that help tell the story of severely damaged sites. The research site is the historic open-pit mining area of Quartz Reef Point in Central Otago, where severe damage has been caused by 'scratching' the surface of the site so severely that natural systems have suffered inexorable damage. Preserving the story of such sites is essential to help enable future generations to learn from past mistakes.

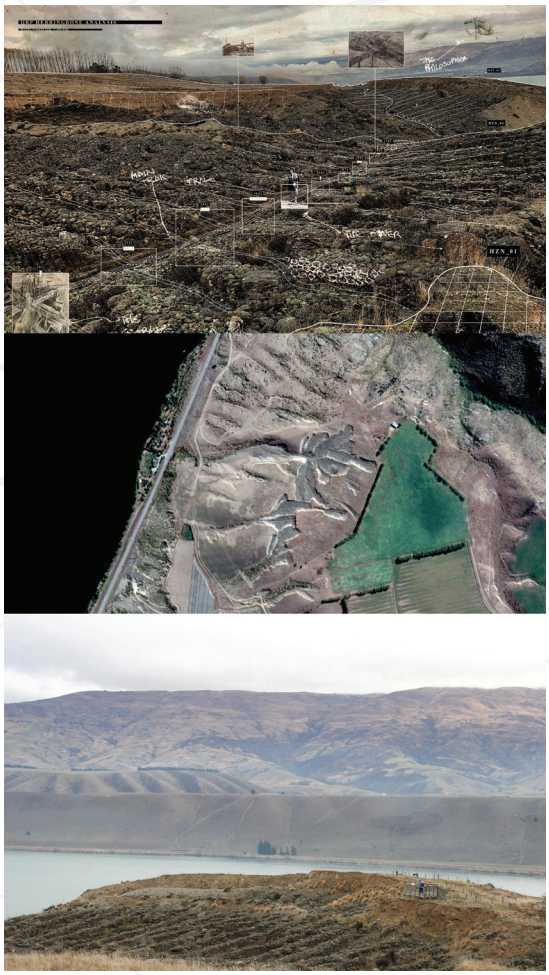
Hans-Jörg Rheinberger's 2016 book *The Hand of the Engraver: Albert Flocon Meets Gaston Bachelard* is used to establish a framework for this investigation. In this book, the architectural engraver Albert Flocon shares dialogues with the architectural philosopher, Gaston Bachelard – two distinct points of view about storytelling. When added to the voice of the architectural designer, the investigation author, three points of view are represented. The investigation proposes that when these three points of view are integrated, new approaches for meaningful architectural interventions can be discovered that help bring the story of Quartz Reef Point to life for future generations. This design-led research investigation asks: How can the engraver, the philosopher and the architectural designer be brought together to explore new ways of looking at scarred landscapes that not only reinvigorate them, but offer their tales as important lessons for the future?

This investigation examines how, through processes implicating narrative, drawing and making, architecture can be conceived and designed as a multi-layered story to help convey a stronger understanding of place. Through this implication, visitors can be equipped to more fully engage with their surrounding context, achieving a stronger understanding of 'place.' Rosemary Ross Johnston, in her article "Landscape as Palimpsest, Pentimento, Epiphany," argues that our landscapes represent important heritage stories: "stories of the present that may unravel into past, stories not only of now but then, not only of here but there."[1] She proposes that a landscape site is similar to a palimpsest or pentimento, representing a range of stories exposed as layers that unfold as a greater metanarrative of place.

Methodology

The research methodology has a strong emphasis on analysing contextual relationships and identifying critical patterns – strategically building upon temporal patterns of change that are implied by contextual relationships in our built environment and surrounding landscapes. Derived from Albert Flocon's *The Hand of the Engraver*, dry-point engraving is one of the principal tools integrated throughout the methodology as a means of addressing the design-based research objectives. An iterative design approach is used to encourage the incorporation of making and drawing as a means to engage allegorical architectural narrative. Jane Rendell argues that "In much design research the process operates through generative modes, producing works at the outset that may then be reflected upon later."[2] Peter Downton, in his book *Design Research*, argues that this

1. Rosemary Ross Johnston, "Landscape as Palimpsest, Pentimento, Epiphany: Lucy Maud Montgomery's Interiorisation of the Exterior, Eteriorisation of the Interior," *CREArTA* 5, 1 (2005): 13.
2. Jane Rendell, "A Way with Words: Feminists Writing Architectural Design Research," in *Design Research in Architecture: An Overview*, ed. Professor Murray Fraser (Farnham, UK: Ashgate, 2013), 117.



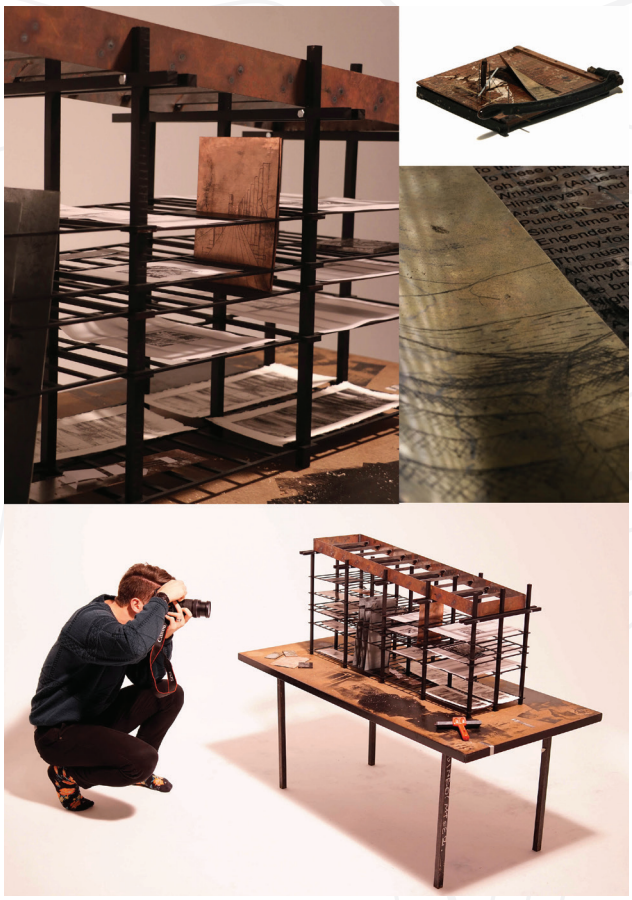


Figure 1. (Left) Quartz Reef Point. Centre image: Google Earth
Figure 2. (Above) Concept-design installation experiment.

approach allows unexpected findings to emerge from the processes, made possible within an iterative framework.

A 'research through design' approach enables the design process to become the research instead of a design 'test' to validate the research.[3] This methodology integrates research throughout the design process, using the construction of models, drawings and engravings based on three key themes: narrative, drawing and physical making.

Process

The architectural design research examines how the engraver and the philosopher might dwell together upon and within the deep scratches of Quartz Reef Point (Figure 1). Concept design began with a speculative installation experiment (Figure 2) representing an architectural translation of a drying rack for engravings. The aim of the process was to progressively cultivate a design where the philosopher and the engraver exchange a dialogue interwoven by the design interventions of the architectural designer, each with a character and point of view that are distinct yet complementing one another.

The engraver inhabits the cracks and scratches within the landscape, embedded in the earth. He/she understands how to bring some scratches to life while inviting others to fade, in order to tell a meaningful tale. The philosopher inhabits and defines the ephemeral realm, the threshold condition. He/she inhabits the liminal zone between the architecture and the engraver's scratches. These personas take on the

3. Peter Downton, *Design Research* (Melbourne: RMIT Publishing, 2003), 75.

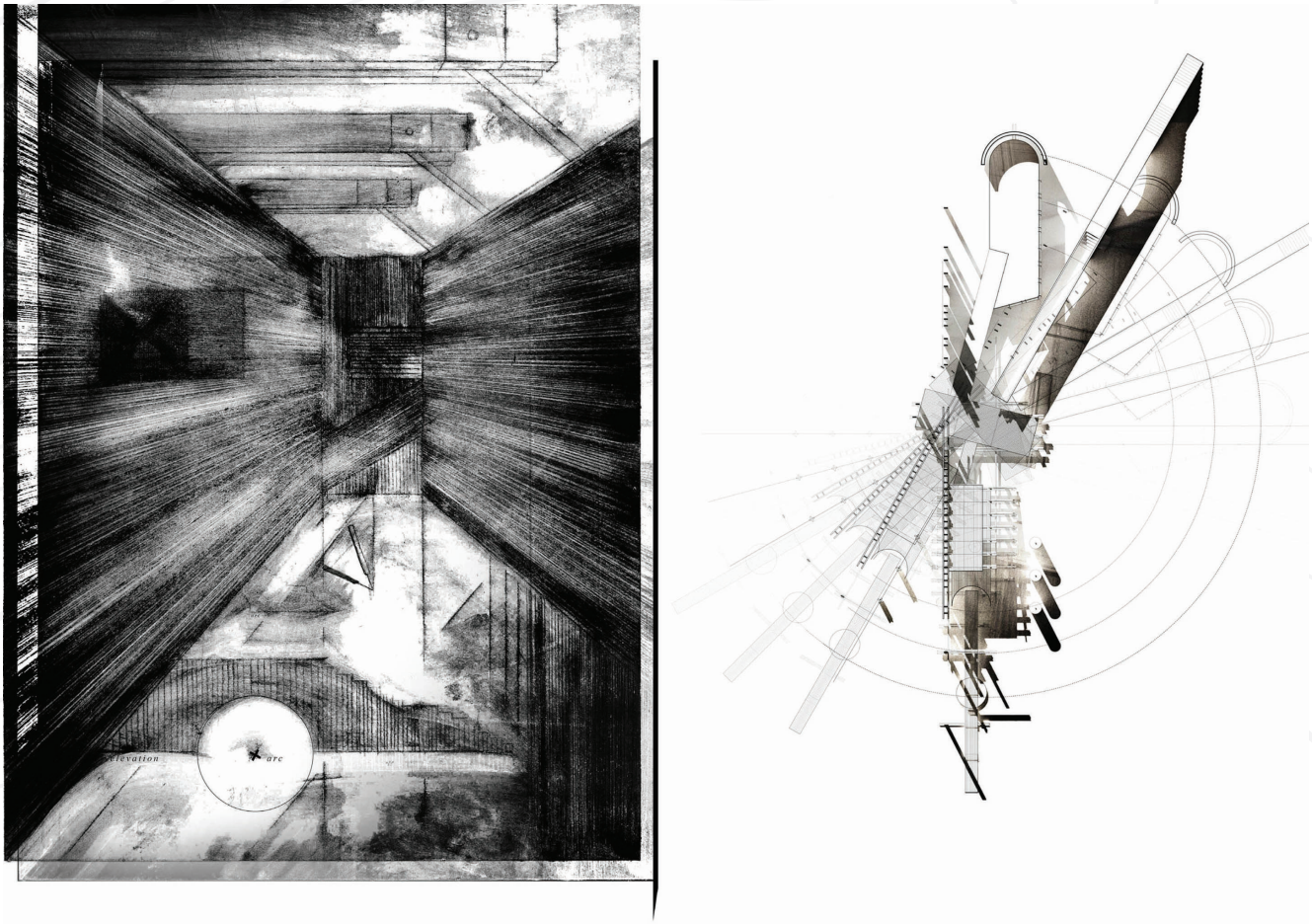


Figure 3. Copper-plate engraving testing dialogues between the philosopher, the engraver and the architectural designer.

dual roles of both context and architectural inhabitant. The design experiments applied and tested different hierarchies and levels of dominance, in combination with materiality and scale, for the narrative personas. They establish strategic framed views and exhibit relationships and dialogues between themselves as architectural inhabitants that might otherwise never be witnessed or understood.

Discussion

The iterative design experiments were referred to as 'excavations.' Each design excavation can be viewed as a progressive shift in thinking, in accordance with the non-linear and 'searching' nature of the design process. Whilst initial concept schemes do not all fully appear in the final design, they are equally important and relevant to arriving at the development of the design. As artist Sol Lewitt writes in the article "Paragraphs on Conceptual Art," "steps – scribbles, sketches, drawings, failed works, models, studies, thoughts, conversation – are of interest. Those that show the thought process of the artist are sometimes more interesting than the final product."[4] The author acknowledges that the unusual framework of this research project was replete with obstacles, but failed experiments nevertheless provided important new insights. The research was abductive in nature as well as speculative. Doubts arose at various stages of the process, when trying to interpret the two-dimensional nature of an engraving into the three-dimensional representation of a set of architectural interventions. Similar doubts pervaded when considering how to manifest the distinctly unique voices

4. Sol Lewitt, "Paragraphs on Conceptual Art," *Artforum* (June 1967): 848.

of the engraver, the philosopher and the architect within the arrangement of 'curated' architectural interventions. It required patience and critical reflection throughout the process, as doubts were eventually assuaged through unexpected experimental outcomes.

Preliminary design experiments were conceived as copper-plate engravings (Figure 3), each building on previous design excavations in relation to a contextual master plan. Programmatic traces began to emerge that address both *The Hand of the Engraver* narrative and the contextual 'scratches' that define Quartz Reef Point.

The developed design scheme (Figure 4) is a physical model that consists of five interrelated interventions: 01) Gateway, 02) Observatory, 03) Vessel, 04) Bridge and 05) Burin (the engraving tool used by engravers to scratch a copper plate). Each of these five allegorical architectural interventions works individually as well as collectively to address the research objectives. This allegorical architectural investigation developed the five architectural interventions as a way that unveils some of the seminal stories that have contributed to the site's identity over time; the five interventions themselves represent the present chapter of the site's ongoing story. Through architectural form, materiality and programme, a narrative-driven response looks to add another chapter to a derelict site, while strengthening and incorporating the fundamental chapters already contributing to its sense of place. These developed design experiments explore how a narrative can be activated in relationship to site: what Rosemary Ross Johnston refers to as "stories of the present that may unravel into past, stories not only of now but then, not only of here but there."[5] The three personas – the engraver, the philosopher and the architectural designer – become realised through architectural form, materiality and framing devices.

Figure 4. Model and perspectives of developed design scheme.

The Tangible and the Intangible

Both tangible and intangible characteristics of the five design research interventions begin to formalise allegorical notions of the engraver, philosopher and the architectural designer with varying degrees of success, as a means of enhancing didactic engagement within the allegorical architectural project. The engraver inhabits the scarred landscape within architectural foundations as a physical connection with the land. Formal qualities of printing press details are translated into structural elements directly implicating the engraver. The philosopher, who floats above, slightly disengaged from site, provides an additional point of view through framing devices and orientation shifts. The philosopher is also represented as intangible nuances: light, shadow, atmosphere. The architectural designer is realised through the implications of the grid (or ordering device) and the bringing together of the philosopher and the engraver.

5. Johnston, "Landscape as Palimpsest, Pentimento, Epiphany," 13.

Figure 5. Observatory intervention.

The final design incorporates both Diachronicity and Hermeneutic Composability from Jerome Bruner's narrative criteria.[6] Through the refinement of a master plan, (architectural) parts are composed in a way that can be interpreted as a whole. By looking at each building individually, a greater, overall metanarrative is revealed. The developed design uses a parallel fictional narrative to establish a speculative design driver. From this fictional narrative, in conjunction with the unique stories relating to this derelict site, a rich and multi-layered sense and understanding of place begins to be awakened. Forms and characteristics draw from both the earlier design excavations and printing press details, translating design outcomes and aligning them with an allegorical and narrative character of locality. The developed design confronts an increasingly relevant issue for Quartz Reef Point and similar sites across Aotearoa. The five interventions reappraise Quartz Reef Point, reframing the way damaged and derelict sites are viewed. The architectural interventions do not attempt to 'fix' or 'right the wrongs' evident at Quartz Reef Point. Rather, in alignment with Bruner's Normativeness criterion, the scheme allows the place to be witnessed in a manner that values past events, in order for lessons to be learnt by future generations (a consoling of the plot). In this way, narrative architecture highlights and encourages discourse surrounding the environmental impacts of mining sites such as Quartz Reef Point.

The Observatory

As an important final phase of this design-led research, the Observatory architecture was developed in greater detail (Figure 5). The manner in which the Observatory is composed allows the tangible and intangible characteristics of place to manifest and establish a didactic architectural outcome. To dwell within this architectural intervention, the story of place is presented in a new light, as Zumthor describes in his book *Thinking Architecture*: "For if the intervention is to find its place, it must make us see what already exists in a new light. We throw a stone into the water. Sand swirls up and settles again. The stir was necessary. The stone has found its place. But the pond is no longer the same."[7]

One axis of the Observatory showcases the cause of the site's physical erosion, using a framing device on axis with John Bull Creek to the north, which was the source of the water-fuelled mining. On the opposing axis, the effect of the erosion is showcased, depicting the vast scene of land erosion and mineral depletion. The further through the Observatory one progresses, the more the impact of the sluice mining can be seen – a stark narrative of cause and effect. The viewing deck tells this story of place at a detailed scale with framed observation portals that continue down to the scarred landscape below.

A highly pitted and eroded railway sleeper represents the scarred site. To fully understand the physical model, the viewer must physically engage with it, kneeling to view the refined underbelly of the sleeper and touching the rough and smooth surfaces of the timber. Ephemeral qualities begin to draw parallels to uncanny characteristics found within Quartz Reef Point. The installation model encapsulates a 'presence' when experienced as an object in space. Peter Zumthor begins to unpack this concept by arguing that, "there is an intimate relationship between our emotions and the things around us."[8]

The speculative design of the Observatory was conceived to enter into a narrative dialogue with its environment.

6. Jerome Bruner, "The Narrative Construction of Reality," *Critical Inquiry* 18, 1 (Autumn 1991): 6–11.
7. Peter Zumthor, *Thinking Architecture*, 2nd expanded ed. (Basel, Switzerland: Birkäuser, 2006), 18.
8. Ibid, 85.

Designing as a means of investigating the philosopher, the engraver and the architectural designer meant that the developed design outcome takes on anthropomorphic qualities. As Zumthor writes, "Buildings are bodies and need to be built accordingly: as anatomy and skin, as mass and membrane, as fabric, shell, velvet, silk, and glossy steel."[9] The narrative methodology proved useful in linking architectural form and the physical place of Quartz Reef Point. Understanding the foundational pieces as the engraver scratching at the top surface of the copper plate translates into contextual issues that represent the site's story. Tracing the centre line of the site's herringbone pattern (scars), the architecture itself becomes an active participant in the story of place, fundamentally tied to the landscape. The Observatory draws formal vocabulary from both the initial installation model and formal details derived from printing presses, as a means to develop an architectural response to the idiosyncratic nature of the deep scratches that now define Quartz Reef Point. This language is used to engage print and place-making within the final design excavation.

Conclusion

For this allegorical architectural research investigation, a literary context was tested as a way to help a derelict site come to life and share its story about place identity for future generations. *The Hand of the Engraver* was engaged as a generator for the narrative thread within the research methodology. Three seminal theorists, Jerome Bruner, Jennifer Hill and Jonathan Sim – along with related case studies – contributed to the research's iterative series of 'design excavations.' The first design excavations initiated the research process, in particular showcasing the benefits of 'making' as a research method and producing early works that are reflected upon later. Whilst not contextually sited, these initial conceptual design experiments helped to establish a vocabulary of place that was built upon further in following design work.

Throughout the design excavations, there was an aspiration to arrive at a synergy between landscape and architecture. The final developed outcome is a master plan of five intimately related interventions that work together within the master plan to tell the story of Quartz Reef Point. Engraving is used as an allegory for scarred and damaged New Zealand landscapes and the irreversible nature of some of humankind's most devastating encroachments on the natural environment. The final scheme works to bring a 'dead' place back to life by evidencing the most important stories of its ever-transforming place identity through narrative architectural design.

A series of discoveries was made throughout the course of the design research. Perhaps most potent was the role of design when interrogating the narratives of place that remain alive, even beneath a landscape that appears to be beyond repair. Neither the physical nor the intangible characteristics that contribute to the greater story of a place could have been as fully brought to life again if not for the role of design, particularly through the narrative capacities of drawing and making as principal strands of the methodology. In conjunction with this, the importance of unveiling the multiple chapters of the site's story, as a driver for an allegorical architectural project, was central throughout the design process. The richness and authenticity that intangible characteristics can bring to architecture can be seen throughout this design research, from the early installation model, through to the contextualised final scheme.

The research addresses scarred landscapes within the context of an abandoned New Zealand mining site. Were the investigation to proceed further, there are opportunities to explore other forms of derelict and abandoned landscapes and the scratches they leave behind. Due to the multi-disciplinary nature of this design-led investigation, and the speculative character of the design outcomes, the findings suggest applications that extend beyond the scope and initial research objectives. This series of design excavations arrived at one speculative, alternative way to occupy and bear witness to the Quartz Reef Point landscape. In doing so through architectural design, the often-inharmonious relationship between people and untouched places is highlighted. Within the context of this investigation, an allegorical architectural project was excavated and interrogated, to help us to better see the world, understand, and hopefully learn from, humankind's relationship to place identity.

9. Ibid, 86.

Authors

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Ryan Western is an architectural graduate from Victoria University of Wellington, where he gained both his Bachelor of Architectural Studies and Master of Architecture (Professional) degrees. Ryan has a passion for the relationship between vivid Aotearoa landscapes, the intrinsic stories they hold, and the architecture that sits within.

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Original Research Article

My History is Not Mine

A Speculative Allegorical Approach to Experiential Architecture

May Myo Min and Professor Daniel K. Brown
Artwork by May Myo Min

Abstract

This design-led research investigation focuses on architecture as a representation of cultural loss. Globalisation has spread Eurocentric modernist architectural principles across most cultures. In a very real sense, many Eastern cultures are having their own unique architectural histories rewritten, even erased, and are in danger of becoming lost. This investigation tests the methodology of using oral narrative (in this case, a series of superstitious Burmese tales from childhood) as a framing device to establish an architectural narrative about cultural loss in architecture. The research investigation reflects on the structure and semiotics derived from the abstraction of superstitions for challenging speculative architecture to give a voice to its own story about critical cultural loss. It reinterprets some of the most 'ordinary' Western elements of modern architecture – room, wall, ceiling, floor, threshold, window, etc. – through an Eastern lens, with the goal of obviating or reducing Western precepts. Eastern stories in the form of 'oral narrative superstitions' are used as provocateurs, starting points that help the project explicitly move away from traditional modernist architectural forms and relationships. The three design stages of the methodology progress iteratively: from physical analogue models derived from the abstraction of oral narrative superstitions; to digital animations as a narrative tool for reinterpreting these design ideas as shifts in spatial conditions over time; and finally, to the virtual gaming environment to enable agency in which the participants can construct their own experiential narrative outcomes.

Introduction

Many Eastern cultures are having their own unique architectural histories rewritten by modern architecture, even erased, and are in danger of becoming lost forever. This design-led research investigation addresses this problem by using Eastern stories in the form of 'oral narrative superstitions' as provocateurs, starting points, that help the project explicitly move away from traditional modernist architectural forms and relationships. It challenges conventional notions of architectural design, using a methodology that shifts experimental outcomes from the formal and visual to the spatial and experiential, through the architectural application of allegorical narrative storytelling. The research engages a virtual, time-based approach, which deviates from formalist

architectural design processes, in order to privilege the investigation of shifts in spatial conditions and experiential perceptions over time. The principal research question asks: How can architecture find ways to defy presumptive norms in relation to cultural archetypes, as well as methods of inquiry about architectural form, experience and space? It achieves this by looking at ways that experiential cultural artefacts can be engaged as a conceptual framework to generate an allegorical architectural project, and how the digital gaming interface can be used to help architectural design methods better explore the experiential as a design generator. The investigation posed three research objectives. Research Objective 1 explores how culturally scripted ideas can be explored and expressed through allegorical methods in the conception of an evocative architectural framework that deviates from Eurocentric modernist principles and constructs. Research Objective 2 explores how narrative architecture can activate allegory within the experiential as a tool for reinterpreting notions of 'traditional' architectural elements through shifts in spatial conditions over time. Research Objective 3 explores how digital gaming environments can be actively engaged in the architectural design process to enable agency to actively participate in the experiential narrative outcomes.

Theoretical Framework

This investigation explores how the allegorical architectural project synthesises design and theory through visually creative, critical articulation of concepts. In her article "The Fall: The Allegorical Architectural Project as a Critical Method," Dr. Penelope Haralambidou writes that "the allegorical architectural project [is] an experimental practice, pointing to ideas impossible to grasp through the profession or in purely discourse-based theoretical investigations."[1] This investigation seeks to redefine conventional notions of architectural elements through speculative means and situates itself as an allegorical project that explores these challenges. In Haralambidou's article, she critically reflects upon three principal traits of allegory in architecture: Figurative Geometries; Progress and Journey; and Invitation for Interpretation. These three traits establish a multi-layered theoretical background for the development of this design-led research investigation.

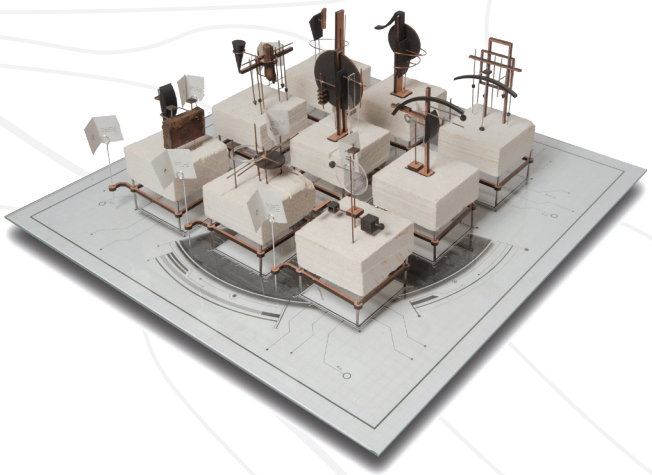


Figure 1. Nine model artefacts on conceptual game-map base plinth.

Figurative Geometries enable architectural narratives to engage meaning through allegory; Progress and Journey – understood as a sequence of events – introduce the importance of time, experience and shifting spatial conditions in an allegorical narrative; and Invitation for Interpretation introduces the importance of agency and cultural sensitivity/negotiability within a meaningful allegorical narrative experience.

Design Stage 1

Design Stage 1 explores the first Allegorical Architectural Project, Figurative Geometries, using physical models (Figure 1). It explores how the oral narratives can be materialised into physical models through allegorical methods, using superstitions as cultural drivers for the conception of an evocative architectural framework. According to Haralambidou, "Allegory is a structure of thought where meaning is not grasped directly but through metaphor, that often takes the guise of narrative and story-telling."[2] Allegory offers unique and creative design opportunities for conveying metaphorical meaning in works that contain encrypted ideas. It offers a meaningful layer upon which complex thoughts and ideas can be founded, as it acts as the provocateur that drives the design motive towards a meaningful and unique direction. Haralambidou builds her discussion of the figurative geometry on the views of American literary critic Angus

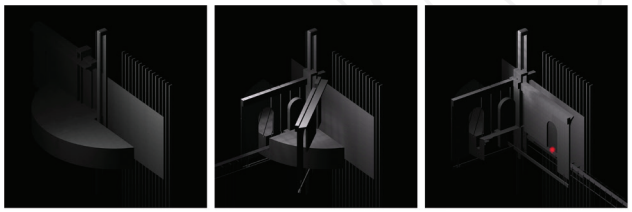
1. Penelope Haralambidou, "The Fall: The Allegorical Architectural Project as a Critical Method," *Critical Architecture* (September 12, 2007): 226.
2. Ibid.

Fletcher, who describes allegory as 'figurative geometry' – the abstraction of personages and everyday objects to signify meaning and relationships.[3] This notion of the figurative geometry is employed as a tool in the first design stage of this investigation to generate architectural artefacts that are abstractions of Eastern superstitions; these become provocateurs that set up a conceptual framework from which design ideas are conceived, developed and transformed.

Design Stage 1 is represented by a set of preliminary design explorations that focus on developing morphologies of sculptural artefacts through the abstraction of nine selected superstitions drawn from Eastern culture. The supernatural and mystical nature of superstitions provides an evocative allegorical conceptual framework for generating early preliminary design concepts for this design research. Figure 2 briefly outlines the abstraction process involved using design to extract the fundamental essence of each of nine superstitions. Each physical model attempts to formally express the concepts of each superstition into the morphological properties of an 'architectural artefact.' This design exploration series is a generative exploration using unconventional provocateurs to arrive at evocative outcomes – outcomes that actively avoid adhering to traditional architectural precepts. Their unique attributes offer opportunities rich with symbolic allegorical meaning and potential to develop the series further into innovative outcomes through the following two design stages.

		SUPERSTITION	MODEL CONCEPTS
1.	*Singing Old Man*	When singing while eating, one may grow up to marry an old man.	Aged piece + kinetic piece (growth | ascension)
2.	*Whistling Snakes*	Whistling at night will invite snakes into one's home.	Eaves = snake [Eastern temple symbolism] Sound waves travelling outwards
3.	*Umbrella Ghosts*	Opening umbrellas indoors is an invitation for ghosts.	Umbrella arch opens outside of framed member
4.	*Mirror Nightmares*	Sleeping with feet facing a mirror will incite bad dreams.	Sleeper | Mirror | Dreamer in chaotic nightmare realm
5.	*Fingernail Ghosts*	Clipping nails at night will provoke ghosts.	Ghosts passing through | Scraped traces | framed house | night time
6.	*Baby Tooth*	Throw broken baby tooth upwards when it's a bottom tooth or downwards when it's the top so that the new teeth will know which way to grow.	Scale | balance | growth
7.	*Elbows of Misfortune*	Don't rest elbows on the dining table, or else one may end up poor.	Resting | Vertical entrapment
8.	*Twitching Eye*	A twitching eye means someone is missing them.	Separation | Longing | Distance
9.	*Sleep Paralysis*	When one experiences sleep paralysis, it is because a ghost is sitting on them.	Horizontality | Pinned down | Floating | Suspended | Idle

Figure 2. List of nine selected superstitions and their abstraction process.



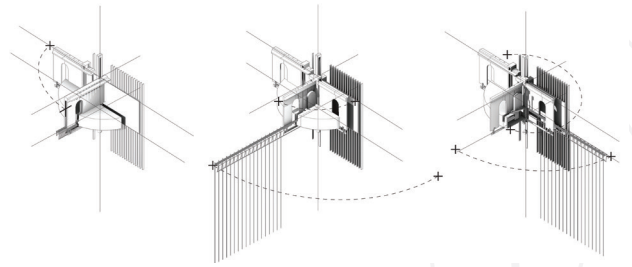


Figure 3. Design exploration of shift in spatial condition: Intervention #6 The Hinged Room.

Design Stage 2

Design Stage 2, Narrative Architecture, explores the second Allegorical Architectural Project trait, Progress and Journey, using animated space (Figure 3). It explores how the allegorical artefacts from Design Stage 1 can be translated as spaces shifting over a course of time as a tool for reinterpreting 'traditional' notions of architectural elements.

The second principal trait of allegory extracted from Haralambidou's writing is the notion of progress – a sequence of events understood as a journey. She discusses Walter Benjamin's analysis of allegory and how he casts it as primarily an experience – an experience of the world not as permanent, but temporary, fragmentary and enigmatic.[4] This design stage focuses on the formation of temporal spaces that are experienced through the notion

3. Angus Fletcher, *Allegory, the Theory of a Symbolic Mode* (Ithaca, NY: Cornell University Press, 1964), 231.
4. Haralambidou, "The Fall," 226.

of the journey where time is a fundamental element in the construction of an architectural narrative.

Progress and Journey are explored in the second design stage of this investigation series through animated schemes where events unfold over the course of time, causing changes in the formal outcomes and shifting the spatial conditions. This stage introduces time as a factor that shifts the spatial conditions of the formal outcomes conceived through Design Stage 1. Time is an important aspect of how we experience and understand architecture, but time is rarely used to explore and question spatial and experiential qualities and how they may change over the course of time as new events unfold. This stage employs the digital animation medium as a tool to interrogate how conventional norms in architecture can be reinterpreted and challenged, by observing the effects of changes in spatial conditions unfolding over time. The architectural outcomes are challenged against the notion of time and redefined as temporal spaces bound by a sequence of events, as Haralambidou's notion of an experience of Progress and Journey.

The design investigation series in Design Stage 2 introduces time as a factor that shifts the spatial conditions of the formal outcomes conceived in Design Stage 1. Figure 4 outlines nine design explorations carried out through the animated schemes in Design Stage 2 – each a development of the nine artefacts from Design Stage 1. The design explorations interrogate how the formal outcomes of the nine artefacts can be framed to redefine and reinterpret 'traditional' architectural elements – room, floor, wall, threshold, etc. – within a time-bound medium. Figure 5 demonstrates a scheme for drawing links between the nine interventions as a method of joining them together to co-exist within the game environment in the next stage.

Design Stage 3

Design Stage 3, Experiential Architecture, explores the third Allegorical Architectural Project trait, Invitation for Interpretation, using a game environment (Figure 6). It explores how the digital gaming environment can be used as a tool to enable agency in which participants are invited to construct their own architectural experiential narrative journeys within the construct of an allegorically scripted environment.

According to Haralambidou:
The work succeeds if it triggers many interpretations, because it is not the artist alone who performs the creative act: the viewers make their own contribution. It is clear, however...that [the artist] sees the work presented as a riddle or an enigma not only to the viewer but also to the author. Therefore, the work of art is an allegory in receiving, interpreting, but also in making.[5]

The third principal trait of allegory as mentioned in Haralambidou's article is the ability of the work to invite interpretation.[6] Allegorical architectural works are structured so as to be understood in similar ways to a work of art, where meaning is not able to be grasped directly but through metaphors, and thus these works prompt an open-ended interpretation from the receiver. Invitation for Interpretation, as discussed by Haralambidou, establishes ambiguity in the work, offers multiplicity of outcomes and answers, and both the artist and the receiver contribute to the creative act. This concept is introduced into the project as an element of agency within a computer gaming medium. Within the constructed journey of the game, the player is free to navigate through the environment to discover new spatial player relationships from a point of view that would differ from other players' experiences. Even as the architectural designer of the animated sequences, the final outcomes of the journey are unexpected by me and create a work of art that is "an allegory in receiving, interpreting, but also in making."[7]

Design Stage 3 introduces the digital gaming environment as a medium within which the Design Stage 2 outcomes are framed, experienced and tested in relation to narrative theory. The nine interventions conceived in Design Stage 2 are organised within a fabricated context of a nine-square grid, where they each contribute their individual allegorical narratives – conceived through the animated schemes in Design Stage 2 – to the construct of the narrative experience of the game environment in this stage. Design Stage 3 introduces self-positioning of the participant as a vital tool for interpreting and navigating through one's own experience within the constructs of architectural

5. Ibid, 230–31.
6. Ibid, 231.
7. Ibid.

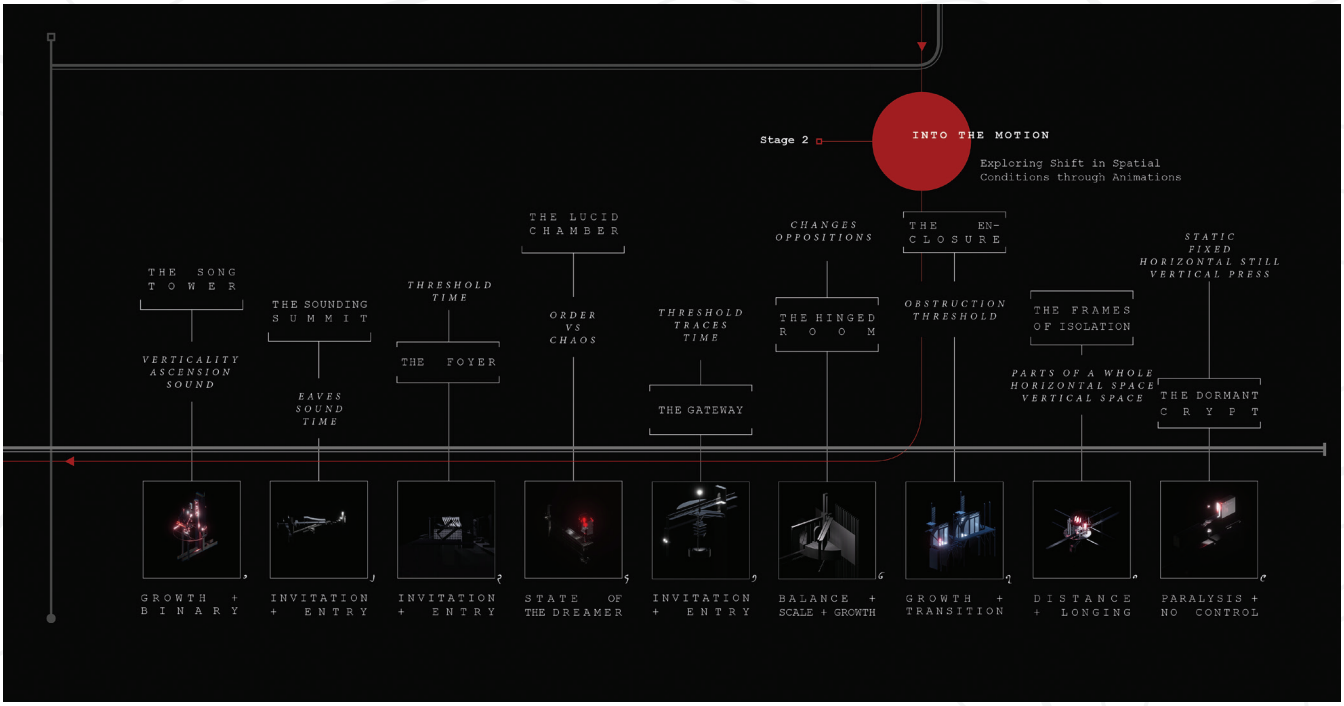


Figure 4. Design scheme of animated spaces in Stage 2.

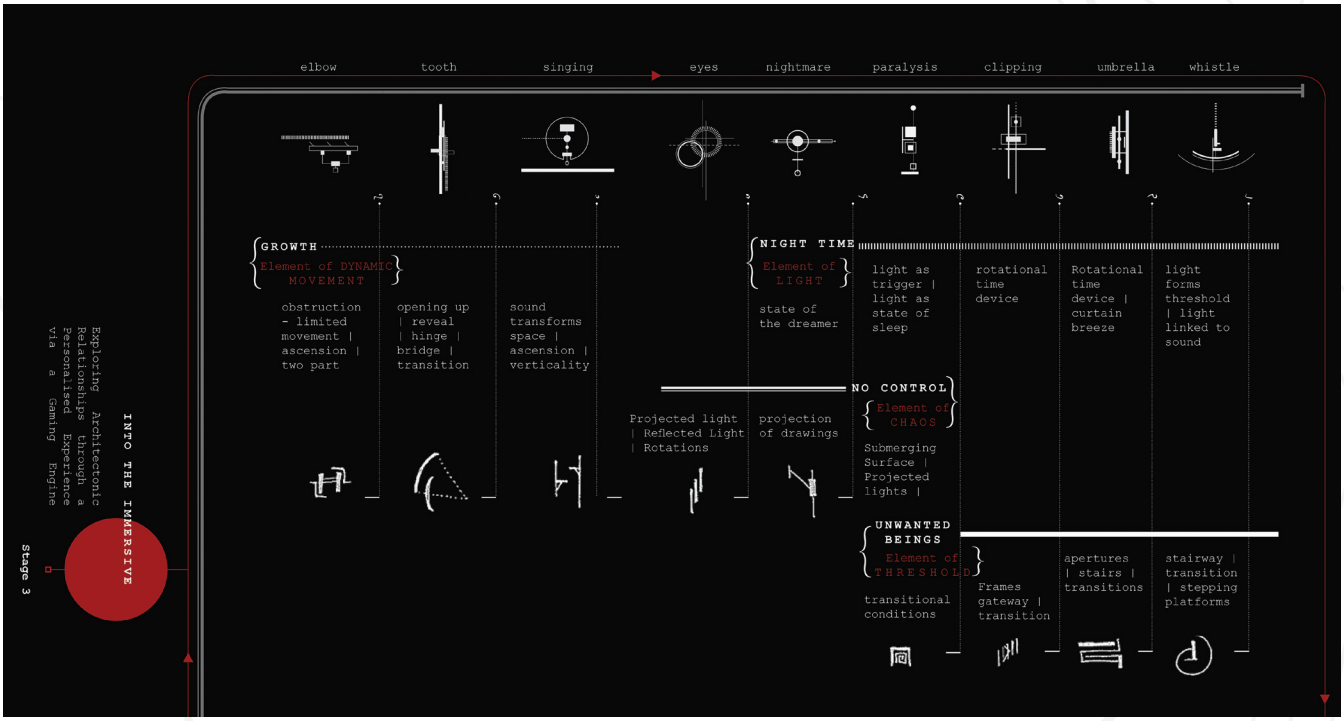
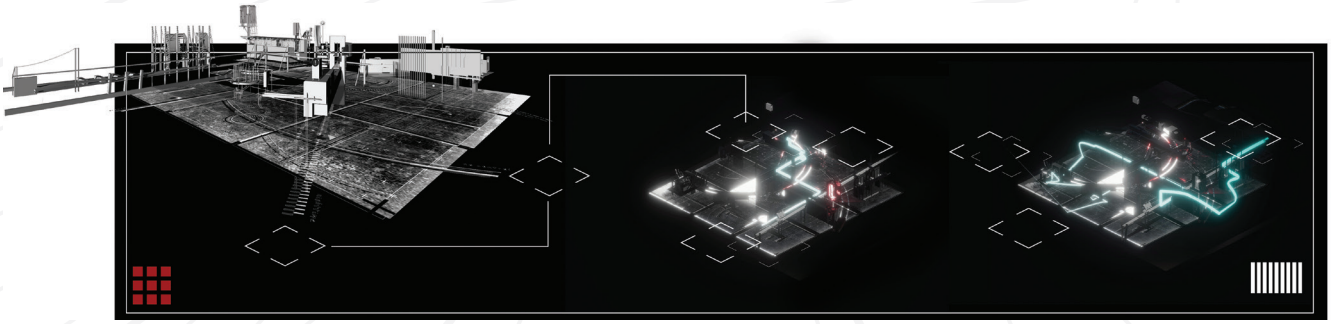


Figure 5. Design scheme to combine animated spaces in Design Stage 2.



spaces. It aims to introduce a personalised experience that further challenges the conventional ways that architecture is perceived, with the intention that through this shift in perception, the elements of architecture in question could be further redefined through the diverse perceptions of various participants (Figure 7).

The element of agency employed in this stage was actively tested with public participants in a flash exhibition (Figure 8) that tested user participation in the game environment. It allowed observation of the many different ways each participant chose to navigate through their own experience, and how agency resulted in a range of spatial and experiential outcomes.

Conclusion

In this day and age, our personal identities and cultural identities, which are the vital constituent parts that make us unique as individuals, can often become slowly engulfed by the ideals of the Eurocentric world. Eastern culture in particular is rapidly losing much of its rich and unique identity with the influx of Western ideals and the adverse effects of globalisation.

This design-research-led investigation seeks possible solutions to mitigating the loss of unique cultural identity in contemporary architecture. It does this by collecting culture-specific superstitious beliefs and abstracting and reinterpreting their allegorical symbolic meanings within the construct of an architectural experiential narrative. It also invites a renewal of architectural agency through the use of computer gaming as an architectural design investigation medium. In gaming, agency allows for different experiences and outcomes for each player, and it offers a unique construct that is theirs and theirs alone. Traditional methods of designing architecture often struggle to incorporate agency as an important issue needing to be addressed by the design process.

Figure 6. Game masterplan with player-route mapping.

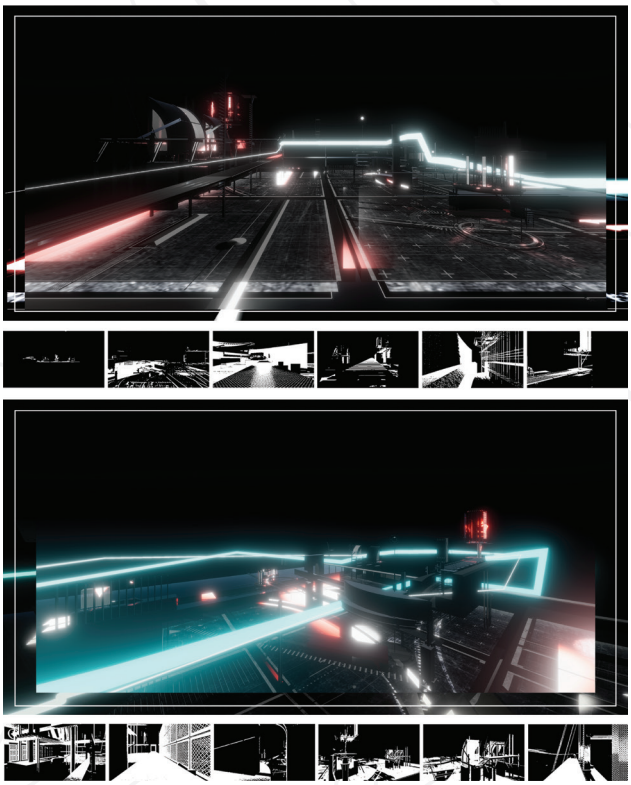


Figure 7. Game-play screenshots.

The architectural vocabulary arising from the superstitions in Design Stage 1 enabled important architectural elements, such as threshold, spatial enclosure, visual axes, etc., to be speculatively redefined, placing the viewer into an experiential realm in Design Stage 3, through the use of virtual gaming technology, which has often been ignored in traditional architectural design approaches. The goal of the investigation was to invite architectural design to become an experiential canvas upon which a person's unique culture can be situated and a personal anecdote applied. The methodology, shifting from physical models,

Figure 8. Flash exhibition testing how agency redirects spatial outcomes through user participation.

to animations, and finally to the game environment, offers a unique set of design outcomes that challenges the conventional design process while also allowing concepts from a unique set of cultural ideas to become manifested in the allegory of the design.

It was essential that this issue be addressed and explored through design, as the questions are focused on notions of cultural concepts shifting into an architectural narrative experience. The principal aim of the investigation was to test an architectural design method that prioritises the experiential and challenges some of the 'norms' within which Eurocentric modern architecture have been traditionally situated. The formal outcomes of the preliminary designs, although other-worldly, attempt to move towards a way of generating architectural concepts derived from unique cultural elements. They represent possible approaches to conceiving and testing a new and contemporary process for retaining important cultural values through architectural allegory.

Burmese poet Zeyar Lynn's poem "My History Is Not Mine" helped set up the premise for this investigation to be based as a search for personal identity. The poem is a lament, proclaiming that academics and historians write our history for us. The poem reflects upon historians prescribing identity, which can lead to a loss in individualism and unique cultural identity. Lynn writes: "I have not written my history. They have written it for me, those academics. They have written their own versions… My history has just begun. I am going to write my own history."[8]

By positioning itself to be drawn from an autobiographical genesis, the investigation opens an opportunity for the researcher to invite users to participate in a self-positioning exercise within a controlled landscape of personalised artefacts. The participants are invited to navigate through their own narrative journeys to construct and negotiate meaning and perceptual understanding of a world constructed through the abstraction and interpretation of a cultural lens. This design research *My History is Not Mine*[9] awaits endless possibilities, endless interpretations and endless journeys to be experienced by new participants. "My history has just begun. I am going to write my own history."[10]

8. Zeyar Lynn, "My History Is Not Mine," in *Bones Will Crow: 15 Contemporary Burmese Poets*, ed. Ko Ko Thett and James Byrne, 148–49 (London: Arc Publications, 2012).
9. May Myo Min, *My History Is Not Mine*, 2020, http://cargocollective.com/danielkbrown/My-History-Is-Not-Mine.
10. Lynn, "My History Is Not Mine."

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Original Research Article

Anti-social Distancing

Revisiting Auckland's Unitary Plan

Dr David Turner

Abstract

Planning systems in Auckland have been revised over a decade of complex realignments that followed the amalgamation of the region's seven cities into a single planning administration. The city's Unitary Plan, which came into force in November 2016, introduced new rules for housing design across the region, coordinating regional policies for the development of form, growth and density. Since 2016 these policies have been guided by two main drivers: planning for sustainability in the context of an annual rate of growth of 2.5 percent, and an underlying but potent principle of deregulation wherever possible. Sustainable cities, according to current theory, need to be more densely developed than Auckland is, and a healthy market economy needs to have a minimum of 'red tape.' To serve both objectives, intensification and deregulation, a new category of higher density housing, terraced housing and apartment buildings, has been introduced, stipulating maximum building heights and minimum floor areas but with no other density controls.

This paper identifies two typologies preferred by developers under the new regulations: small apartment blocks and stand-alone, or 'detached' houses. The paper discusses the merits of these choices in light of the intentions expressed by the opening sections of the Unitary Plan, and its broader objectives. Conclusions suggest that some aspects of deregulation need to be revisited to protect the city's housing stock from over-dense developments using inappropriate house types.

Introduction

The Auckland Unitary Plan (AUP) that came into force in November 2016 revised the rules for housing design across the city's region, introducing new paradigms, and unifying regional policies for the development of form, growth and density around a general objective of urban sustainability. Two of the Plan's three prime purposes are stated:

(1) [The Plan] describes how the people and communities of the Auckland region will manage Auckland's natural and physical resources while enabling growth and development and protecting the things people and communities value; (2) [the Plan] provides the regulatory framework to help make Auckland a quality place to live, attractive to people and businesses and a place where environmental standards are respected and upheld.[1]

1. Auckland Council, "Chapter A. Introduction," in *Auckland Unitary Plan Operative in Part 2*, https://unitaryplan.aucklandcouncil.govt.nz/Images/Auckland%20Unitary%20Plan%20Operative/Chapter%20A%20Introduction/Chapter%20A%20Introduction.pdf.

The Plan proposes to intensify the city, aiming to achieve a 30:70 balance between peripheral new house-building and developments within the existing metropolitan urban limit (MUL).[2] These policy settings are intended to contain sprawl, are endorsed by all the principal participants in the political arena as well as iwi and community groups, and align with urban planning theories that advocate for sustainable 'compact' cities. Crucially, the AUP dispenses with density classifications in large areas of Auckland's older central suburbs: development is now regulated by rules that reduce earlier minimum site sizes, set-backs and external space, and increase allowable building heights.

It is suggested here that after three and a half years the objectives of the AUP are visible, and can be qualitatively evaluated as preliminary evidence of new housing developed through the mechanisms of this legislation. The many dimensions of sustainability that contribute to the AUP's general objectives include issues that are touched on, but not explored in detail in this paper: here, a review of the early stages of the forms of urban housing emerging from the Plan is proposed, focusing on an analysis of two typologies: stand-alone house types, and low-rise walk-up apartments. The central concerns are those fundamental to housing development: identity, privacy and, in New Zealand's housing culture, the protections for ownership and property value enshrined and underwritten in legislation.

Housing Under the AUP

The scale of change proposed in the AUP, particularly the density of housing, its spatial proximities, permitted heights and relationships to the street, is introducing the city's residents to radically new conditions. The Plan continues to recognise and prioritise the socioeconomic value associated with private property ownership, but the city's way of urban life and its physical landscape are changing rapidly.

Generally, these new conditions have been accepted without protest. Auckland's traditionally wooded suburbs that have been endowed by mature backyard planting from three or more generations are steadily disappearing, as council protection, even for native trees, is removed. More of the city's suburban surface is becoming impermeable: when Joni Mitchell protested that "they paved paradise / and put up a parking lot" she could have had twenty-first century Auckland in mind. Auckland's inflated property values are affected by intensification, in some cases negatively, and although 'nimby-ism' is occasionally evident it is not a significant obstacle to the AUP. Responses to increased physical proximity have varied: the impact of a large building on a single-storey street, consented under the AUP without notification, has occasionally attracted some alarmed comment, but there is general acceptance in the community of both the policy to intensify, and of the outcome.[3] In combination, and along with technologies that are changing work and retailing patterns, and increasingly well-used public transportation systems, these intensifying strategies are transforming Auckland's urban characteristic: the city is moving towards the spatial style of the Pacific rim cities we admire, including Sydney, Melbourne and Vancouver. Auckland is visibly, and in real time, outgrowing its suburban history.

Intensification Housing Typologies Under the AUP

From a small range of typologies that can be used in higher density housing the standard is being set by two generic models: a variation of the three-storey walk-up apartment block used in Australia (known there as the 'six-pack' block), and two-storey stand-alone houses on single sites, taking advantage of the relaxation of previous rules governing minimum section sizes. A third, higher-density typology, 'row' housing in blocks of terraces in two- or three-storey form, is also used widely, but is excluded from this analysis for reasons of editorial space.[4] Housing terminology continues to be imprecise, but these typologies define most new housing under the AUP.

Small apartment blocks make the greater visual impact on typical low-scale neighbourhoods. The typology is being used extensively by Kainga Ora (formerly Housing New Zealand), often replacing two or three detached houses from the state housing stock with up to twenty apartments.

2. The AUP is a continuously changing document, operative in part in all stages of application; this paper refers to the Plan as it stood (July 14, 2020) but uses previous versions where subsequent alterations to wording do not affect the meaning or intention of the Plan relating to housing development.
3. In the latest summary, Newsroom collated opinions from politically left and right commentators in Dileep Fonseka's article, "The 'Lefties' Who Want Less Housing," Newsroom, August 28, 2020, https://www.newsroom.co.nz/the-lefties-who-want-less-housing.
4. Hobsonville, Stonefields and Long Bay all develop to a master plan in which house types are mixed.

This ratio achieves the AUP's intensification objective by increasing density from nine or ten dwellings per hectare (dph)[5] to 70–100 dph, using a house-type that meets the demands of smaller households, and one that involves lower maintenance and capital costs.[6] Three-storey apartment blocks in this density range are able to include practical ratios of parking on site, usually one space per unit, without expensive underground garaging, and can manage good standards of privacy between units, adequate outlook from habitable rooms, and a modest provision of public external space for residents.

The production of these buildings has resulted in changes to the traditional systems and structure of the building industry. Apartment building projects are now using non-traditional technical solutions to multi-storey housing construction, including prefabricated panelised cross-laminated timber (CLT) systems, and hybrid construction that integrates precast or poured concrete elements with timber framing. From observation it would seem that speed of construction and cost saving are significant advantages with these methods. Although it is a surprise to see weatherboard cladding on some of these developments, external wall choices in the post-leaky-building era are justifiably conservative, and weatherboards help to preserve a suburban aesthetic; visually, they mitigate the impact of large new buildings on suburban streets.

Alongside advances in their building technologies, housing providers have evolved their operational systems with the AUP: rather than scores of builders producing a handful of units per year, some developers now have the capacity to supply hundreds of units, with many variations. The apartment typology is most suited to either corner sites or sites with long street frontages, using a dual aspect cross-ventilated plan with vertical circulation between paired apartments at each floor level. This model is appearing extensively in the public housing sector. Where the typology has been designed on a deep, narrow-fronted site (with, for instance, a standard 15–18m suburban street-edge dimension) the preferred dual-aspect plan is less able to maximise the value of its basic characteristics.

Figure 1. 15–23 Rawalpindi Street, Mt Albert. Photograph: Tektus A&R

The main alternative plan is arranged with access from a balcony served by vertical circulation (stairs and lifts if included) at the ends of the block. This imposes severe compromises on privacy of rooms opening onto the balcony in cross-ventilated plans, but is an economic model widely used in the private sector. Developers in this sector include Ockham Residential, who are carrying out joint developments with iwi, and NZ Living, a company that has rationalised its plan designs to minimise uncertainty in project pricing.

A selection of examples of apartment blocks built and occupied since the AUP was adopted in 2016 includes 15–23 Rawalpindi Street, 1 Tasman Road (both in Mt Albert, the latter a fast-tracked CLT project), and 30–34 Hutchinson Avenue (New Lynn), all Kainga Ora schemes; and NZ Living's 340 Onehunga Mall Road.[7] These four projects have replaced fourteen single-storey dwellings with a total of ninety-three apartments, at an average density of 95 dph, and between them supply housing for up to two hundred and forty people in a mix of public and private units (Figure 1).

Typology Selection and Density

The second typology to appear in significant numbers is the stand-alone two-storey house occupying a minimum area of land. Under previous regulations stand-alone housing was limited by minimum site area to densities of less than 30 dph, and it represents suburban housing

5. In this study, density is measured using the net residential system, which includes half of the road frontage providing access to the site in the site areas calculated, following the AMCORD 1995 definition; site areas are therefore not those stated in the application details. Commonwealth Department of Housing and Regional Development, *AMCORD: A National Resource Document for Residential Development* (Canberra: Australian Government Publishing Service, 1997), https://www.creationcorporation.com.au/AMCORD/AMCORD/AMCORD.PDF.
6. Linda Meade et al., for Deloitte (2018), identified this development model as the least expensive form of construction. Linda Meade et al., *Cost of Residential Housing Development: A Focus on Building Materials* (Auckland: Deloitte Touche Tohmatsu, 2018).
7. "Welcome to 340 Onehunga Mall," NZ Living, 2019, https://www.nzliving.net/340-onehunga-mall/.

Figure 2. 125 Point Chevalier Road: north boundary, south access drive and site plan diagram. Photographs: Tektus A&R. Map: Google Earth

Figure 3. Flat Bush: a typical block on Greenbrooke–Woodberry Drive. Map: Google Earth

in the sense that individual, rather than shared, values are explicit. It aligns with a suburban-oriented market preference for separate buildings, which appears to stem from embedded preconceptions – that separate buildings continue the habit of individuation through separate land titles, and that the owner can make independent decisions about maintenance, or even in the longer term, demolition and replacement.

Other perceptions include the notion that the typology offers greater privacy, and this has been encouraged by the real estate industry in the belief that detached houses have higher value. Stand-alone houses attract investors, largely for these reasons, thus expanding the potential market for the developer.

Scores of 'infill' projects in this form are now appearing on suburban sections. The standard model is a two-storey detached house, with its floor space maximised according to now reduced set-back and height-to-boundary regulations: a total of up to 1000m2 of new housing might replace the 100–120m2 of the earlier building. Side yards in the new layouts are governed not by dimensions that provide for privacy, but by the minimum space needed for building access. There are no gardens: private open space is reduced to under a metre of land between house and fence, and a shared concrete driveway for the secure on-site car parking that identifies the new house with the suburban model.

Typically, at 125 Point Chevalier Road a 617m2 section with one house (density 14 dph) has been redeveloped for four stand-alone units. Under regulations in force before 2016 the permitted intensification density would have been 28 dph; four units now increase the density to 56 dph. The new regulations are illustrated by their external spaces, shown in Figure 2.

The 1700ha Flat Bush development offers many further examples of the house type, where they were initially justified by a fashionable planning theory that advocated for higher densities in suburban housing. One typical block, between Greenbrooke Drive and Woodberry Drive, illustrates this layout type and demonstrates that density cannot be increased beyond the range of 22–25 dwellings per hectare without a reduction of unit sizes (Figure 3).

Several Australian-based volume house-builders familiar with this type of compressed layout are active in Auckland's supply process. Their approach is illustrated by the 2008 Celestial Court scheme of ninety-one houses in

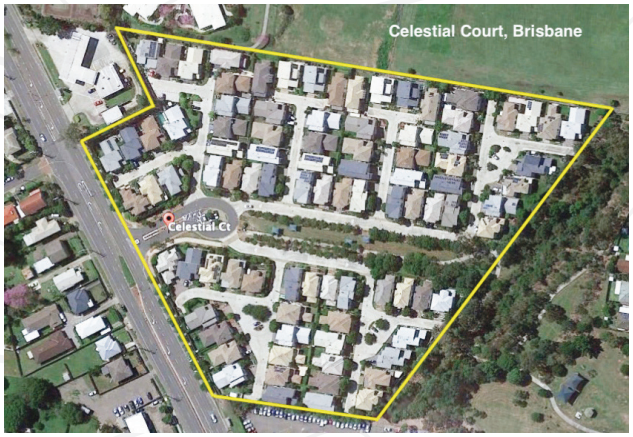

Figure 4. Celestial Court, Brisbane, 2008.

Brisbane, located in a mid-priced central neighbourhood. An overland flow-path occupies the core of the site, with housing on the remainder at a net residential density of 22 dph overall, and 30 dph excluding the area of the park (Figure 4). Houses in this block are large two-storey units with some single-storey extensions, double garages, and small set-backs; side yards are less than one metre wide, and rear spaces are minimal for any domestic purpose. More recent urban housing in Australia gains higher densities in layouts that use a mix of apartments and terraced house-types. An example in the same suburb as Celestial Court is Surbiton Court, in Carindale, completed in 2016. This layout has a density of approximately 50 dph for the two-storey terraced housing (excluding the mid-rise apartment blocks), achieving more efficient land use and providing more privacy and more useable external spaces (Figure 5).

Problems associated with these higher-density detached layouts have been anticipated in studies in Australian planning for some time. The extreme reduction of private external space that results from loss of set-back rules, coupled with the developer's readiness to increase floor areas for sales purposes rather than any apparent domestic practicality, has been criticised in Australian literature for some time, particularly in Victoria.[8] A gradual tightening of design guides appears to be the main response by the authorities. Public interest in developments built for the investment market in Australia also has a smaller influence on supply than in it does in New Zealand, where, for politically ideological reasons, the tax system

Figure 5. Surbiton Court, Brisbane, 2016.

is more generous towards this 'build to rent' element of new housing. Investors, who currently represent about 40 percent of the market for new higher-density houses in Auckland, are thought to have been among the buyers of the Point Chevalier development.

Typology, Density and Urban Form

Earlier in this paper the highest density possible with the detached house-type in Auckland prior to the AUP was stated to be 30 dph, measured by the net residential system including space needed for the apportioned road space that connects a development to the rest of the city. The Flat Bush average density achieved by this typology is similar to the net density figure for the Celestial Court, Brisbane, example, at about 22 dph with slightly higher density possible in some cases.

For the purposes of the AUP, developers using this typology are presented with significant and irreconcilable disadvantages when sustainability criteria are applied.

8. Robert Birrell, Kevin O'Connor, Virginia Rapson, and Ernest Healy, *Melbourne 2030: Planning Rhetoric Versus Urban Reality* (Melbourne: Monash University ePress, 2005).

Higher density detached house-type layouts illustrate the loss of the social amenities that initially defined the attractions of detached housing: the very qualities inherent in the typology are progressively diminished as density and unit sizes increase. Firstly, many layouts sacrifice privacy – distances reduce to the point of extreme discomfort, with windows close to boundaries and exposed to windows in the adjoining property. Private enclosed gardens for children, the washing, the dog and the lemon tree are dispensed with. At twenty-five dwellings per hectare, housing development does not make intensive use of land or contribute to the housing numbers needed in cities pursuing intensification policies: these schemes are evidence that detached housing is capable only of a model that supplies large floor areas at sub-urban densities. Within the present demographic pattern of progressively lower occupancy rates, housing at this density does not populate the suburb with enough people to satisfy the policy's purposes.

Anti-social Distancing in the Processes of Intensified City Planning

Many intensification developments have been completed in the four years since the AUP was adopted; numerous others are in progress. At this stage it is relevant to ask what building forms the policy-makers intended when they agreed to abandon density constraints on housing development.

A fundamental principle of urban planning is the legally ordered spatial arrangement that aims to treat every property owner fairly, an intention that is justified by social and political theory in an egalitarian society such as that in New Zealand. Conscious of manipulations of development rules in the past, the Plan's authors have to anticipate consequences in order to eliminate loopholes and opportunities for short-cuts; this particularly applies to those that create disadvantage for neighbours and other developers.

The Unitary Plan came with expectations that it had taken account of changes in the way we want to live, shop, work, drive and form neighbourhood relationships. Although consultation with industry helps in this process, it is unlikely that all possible outcomes can be predicted, and it is hard to believe that the housing standards of these sub-quarter-acre stand-alone mini-projects has been anticipated.

Intensification policies address a catalogue of interconnected environmental issues that have validated the compact city planning concept overseas, and the AUP's stated objectives will be gradually achieved: higher population density, fewer encroachments on productive land, lower levels of investment in roads, sewers and power lines. There are more people to use public transport services, and the shorter commuting distances suited to electric bikes and scooters reduce car dependence, traffic congestion and noise, and improve air quality. However, policies also need to ensure that housing quality reaches the highest possible standards for the city's future.

Conclusions and Implications

While development controls related to the key principles of the AUP involve complex design and planning decisions, two issues stand out in this analysis. Privacy has been one of the defining characteristics of the New Zealand housing culture since urban settlements became the way of life for the majority,[9] and is proving to be a problematic amenity at higher densities: apartments can be designed for privacy but it is less attainable with detached house-types.[10] Rapoport's concept of affective density – the perception of crowding that registers excessive proximity, of a sense of ownership, of identity, of opportunity to be separate as well as part of the community, and of self – is thoroughly compromised by over-close spatial planning.[11] As examples described here show, detached layouts at densities that reduce privacy to a gesture of meaningless separation are now permitted without notification under the AUP.

The more serious issue, however, is the effect on the future of the intensification programme, when property development rights are extended to other owners. An inescapable consequence is that once the right to develop in this pattern is granted, the same rights can be claimed by neighbouring properties.

9. Gael Ferguson, *Building the New Zealand Dream* (Palmerston North: The Dunmore Press, 1994).
10. David Turner, "Planning for Higher Density: Concepts of Privacy in Auckland's Culture of Housing" (PhD thesis, The University of Auckland, 2010), https://catalogue.library.auckland.ac.nz/permalink/f/ta4ieu/uoa_alma21195771330002091.
11. Amos Rapoport, "Toward a Redefinition of Density," *Business and Behaviour* 7, no. 2 (1975): 133–58.

Several problems stem from this extension to others. Firstly, the city needs a natural environment with a quantum of trees, gardens and grass to sustain bird and insect life and provide shade, with landscape to cool the heat island, and soft ground to absorb rainfall. Most of this provision comes with private property, but none is protected in the planning model that allows stand-alone housing at higher densities. Secondly, and while there is private profit to be gained, neither the city nor the community benefits: these projects, although dense within their own sites, only raise neighbourhood densities to twenty or so dwellings per hectare. Density increases at this level will not meet Auckland's targets of 70 percent of supply within the MUL.

Furthermore, they will not achieve the Plan's ambition of comprehensive urban sustainability; rather than break down the highly fragmented pattern of ownerships in the suburban grid (which obstructs economically viable intensification), such developments will multiply that fragmentation, making future consolidation more problematic.

Reversing legislation is difficult. But in the present circumstances of a weaker economy, a temporary result of the coronavirus pandemic, it is possible to call a halt to small over-compressed developments, and to insist that future housing is informed by examples of high-quality higher-density housing seen in Europe, Australia and New Zealand. A density ceiling that relates house-types to site areas would reset the parameters for intensification projects on small sites, and reinstate some of the objectives of the AUP's sustainable agenda.

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Original Research Article

If You Copy, You Will Be Caught and a Mess Will Remain

The Role of Formal Precedent in Design Studio

Cameron Moore

Abstract

It has been eight years, or nearly two generations of students, since the last classical studio was run at Unitec. In the six-week vertical studio, the students got a valuable addendum to their regular design studio education. The point of departure from contemporary studio is the absolute reliance on formal architectural precedent in the students' design methodology and consequently, their final presentations. The primary learning objective was not necessarily how to design a classical building, but the experience of designing in a paradigm where explicit formal references were demanded, not as a starting point, but as an integral part of the design process. After the site analysis and understanding the functional and spatial requirements of the brief, every other decision the student makes could be – or at a beginner's level, should be – informed by an architectural canon established 4500 years ago that has since spread to all continents. This paper reflects on an alternative approach of design studio teaching at the Unitec School of Architecture. As the only architecture school in New Zealand that has run a classical studio, it can be seen as a point of difference with the other architecture schools, and indeed a confirmation of Unitec's 'real-world learning' philosophy.

Introduction

It has been eight years, or nearly two generations of students, since the last classical studio was run at Unitec. In the six-week vertical studio the students got a valuable addendum to their regular design studio education. From this experience a number of students went on to realise their capstone design (five-year Bachelor of Architecture) or their research project (Master of Architecture) in the classical tradition. According to the International Network for Traditional Building, Architecture and Urbanism, Unitec was the only New Zealand school among only a few architecture schools in the world to offer this type of education,[1] and even published a book, *Traditional Architecture: Work from the School of Architecture*, in 2003.[2]

The point of departure from contemporary studio was

1. "Institutions | INTBAU," accessed October 5, 2020, https://www.intbau.org/resources/institutions/.
2. Branko Mitrovic, Rau Hoskins, and Carin Wilson, *Traditional Architecture: Work from the School of Architecture* (Auckland: Unitec School of Architecture, 2003).

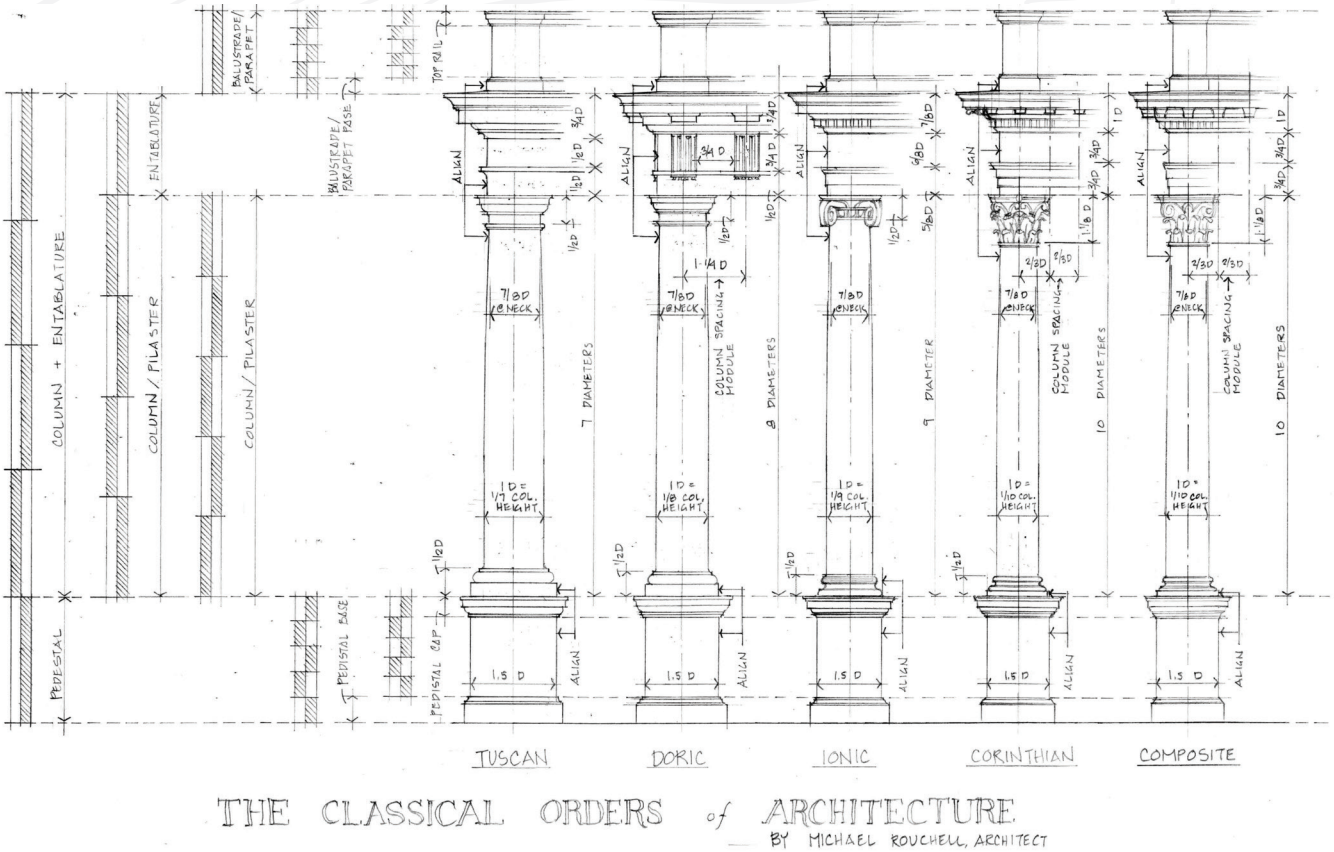


Figure 1. The Classical Orders of Architecture, by Michael Rouchell from W. A. Williams Architects, New Orleans. https://mrouchell.wordpress.com/2013/03/11/the-classical-orders-a-simplified-approach-and-some-liberties-taken/.

the absolute reliance on formal architectural precedent in the students' design methodology and consequently their final presentations. The primary learning objective was not necessarily how to design a classical building, but the experience of designing in a paradigm where explicit formal references were demanded, not as a starting point, but as an integral part of the design process. After the site analysis and understanding the functional and spatial requirements of the brief, every other decision the student made could be – or at a beginner's level, should be – informed by an architectural canon established 4500 years ago that has since spread to every continent.

In *The Language of Classical Architecture*, John Summerson ventures that it is always a mistake to try to define classical architecture, but he puts forth a loose definition nonetheless. It rests on two broad meanings. The first meaning is "a building whose decorative elements derive directly or indirectly from the architectural vocabulary of the ancient world…columns of five standard varieties, applied in standard ways [the five orders]." He acknowledges this is only a "skin-deep" description that allows one to "recognise a certain category of building, the category we call classical." The second meaning concerns the aims of classical architecture to demonstrate "harmony of parts" in its design. This is achieved through careful interrogation of the building's proportion by "the conspicuous use of one or more of the orders as dominant components."[3] A system of carefully proportioned ornamentation also differentiates the five orders from each other, as it is well described by Robert Chitham: "Each order is constructed of a series of components [structure and ornament] standing in a clear though not immutable, proportional relationship with one

3. John Summerson, *The Classical Language of Architecture*, revised and enlarged edition (London: Thames and Hudson, 1980), 8.

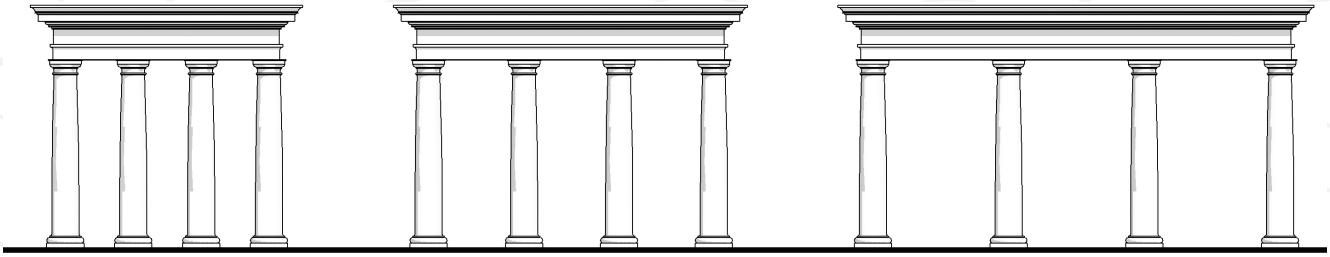


Figure 2. Intercolumniations from Vitruvius in the Tuscan order. Note one can always find satisfactory precedent for any intercolumniations between 1.5 and 4 in the canon. Diagram by the author

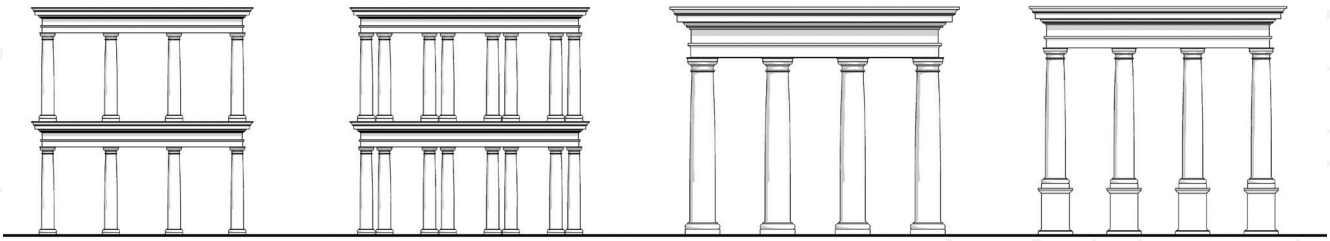


Figure 3. Basic manipulation of the order. Diagram by the author

another, and peculiar to that order…thus as a whole form a complete system analogous to a language, abiding to the rules of grammar and syntax, capable of being used in a literate manner, but vulnerable to illiterate abuse."[4]

The Five Orders

The illustration above from 2013 shows the orders with a consistent height (a useful resource for designers as floor and ceiling heights are usually known).[5] The five orders are based on a post and lintel structural system, and although they date back to Ancient Greece, they have been constantly interrogated, modified, and tweaked up until the present day. They differ in their proportional relationships, with the diameter of the column shaft setting the scale of the rest of the order, thus the building. For example, in the Tuscan order the column height is seven times its base diameter, while the Corinthian column height is ten times its base diameter. In addition to this, suggested proportions for the remaining structural system and the ornamentation are again proportioned to the diameter of the column, which is referred to as the module. From a design perspective, after the initial site survey and analysis, establishing the function and brief for the building, deciding on the module is the first architectural design decision. The second decision is how much space to allow between the columns, with Vitruvius noting the space between the columns can range from two and a half column diameters to four diameters.[6] With these first two steps, the proportional and structural system can be derived for the entire building (or part thereof), and the design joins a family. Due to functional, structural, and site constraints (and perhaps simply having good taste), it is very rare that a module and an intercolumniation as shown above will be enough of a starting point to fulfil the brief, so some manipulation is needed as well – see below for some examples.

Precedent as a Design Method

Once the basic proportional system has been established, the building still needs to be designed. As Steven Semes writes, in *The Elements of Classical Architecture*:

4. Robert Chitham, *The Classical Orders of Architecture*, 2nd edition (Amsterdam: Architectural Press, 2005), 10.
5. Michael Rouchell, "The Classical Orders – A Simplified Approach and Some Liberties Taken," *Michael Rouchell on Traditional Architecture* [blog], March 11, 2013, https://mrouchell.wordpress.com/2013/03/11/the-classical-orders-a-simplified-approach-and-some-liberties-taken/.
6. Chitham, *The Classical Orders of Architecture*, 102.

[C]lassical design arises from understanding composition based on a hierarchical formal system governing the interrelations of parts and wholes: every part is also a whole, and every whole is also a part. The relations among the parts, and between the parts and the whole, are developed in accordance with the requirements of structure, the demands of symmetry, and the play of inflection. Fundamentally, the particular character and identity of each part determines the patterns that relate parts to one another, not an imposed, abstract organizational system extrinsic to them. The wall of a building is never just a planar surface: it is a composition of distinct elements, such as doors, windows, columns, cornices, stairs, balustrades, etc., each of which has a name, a history, and a formal as well as a pragmatic role to play in the whole. Every classical building is made up of such conventional, even commonplace, elements. Through the art of composition, they are given expressive character and synthetic unity.[7]

Of course, composition, the relationship of parts, the play of inflection, requirements of structure, and resolving planar surfaces are all at least obliquely taught in contemporary design studio. The difference is in the explicit application of formal design elements into the student's design. As Semes implies, a wide knowledge of previous solutions to specific design problems is invaluable to the way the student resolves their current design dilemma. For example, how to organise the composition of a façade in a satisfactory way on a sloping site with pedestrian access while also allowing enough light into the interior of the building, or functional requirements that are impinging on the circulation system that are in turn putting pressure on the ceiling heights. These problems have been solved before, and what makes this formal study efficient and appealing to students is that the problems have been solved in the same architectural language that the student is learning. And that language is "the cumulative product of centuries of thought and experimentation. Their artistic refinement has no individual author but is the result of the directed attention of many minds from varied civilizations and times."[8] The classical language not only allows for experimentation, creativity, and personal expression, but actively encourages it by making it part of the canon, like a new word or a particularly good turn of phrase. See Roy Lippincott's design (right) for the Old Arts/Clock Tower Building on Princes Street (1926) for a local example.

Figure 4. Old Arts Building, The University of Auckland, by Roy Lippincott, 1923–1926. Note the proportions, formality, and personal expression inherent in the design.
Image source: Wikimedia Commons

7. Steven W. Semes, "The Art of Composition," in *The Elements of Classical Architecture*, ed. Henry Hope Reed (New York: W. W. Norton & Company, 2001), 16.
8. Richard Sammons, "The Importance of the Parallel in Architectural Studies," in *The Elements of Classical Architecture*, 14.

Figure 5. Remuera Public Library, architect William Gummer, 1926. Photograph by the author

Knowledge through Secondary Sources

Knowledge of precedents starts with contemporary classical design guides like Robert Adam's *Classical Architecture – A Complete Handbook*, Branko Mitrovic's *Learning From Palladio*, and Jean-François Gabriel's *Classical Architecture in the Twenty-First Century*, among many others. From an analysis of the canon, these books offer practical advice on common design problems from application of symmetry, massing and various functional aspects, and give the reader examples to follow, exercises to do, and often further readings. They follow in the style of common well-illustrated architectural handbooks from the 1900s to the 1930s such as William Ware's *American Vignola*, Nathaniel Curtis's *Architectural Composition*, and Howard Robertson's *The Principles of Architectural Composition.*

Knowledge through Applied Observation

The crucial next step is student-led enquiry, in which the student discovers buildings they personally respond to and understanding of why that is so. How the architect of that building solved or avoided design problems becomes the focus of the observation or investigation. New Zealand architect William Gummer called this process 'architectural research,'[9] in which the student "live[s] in the age, and interprets the mind of the designer…. We follow his thoughts, we benefit by his mistakes as well as by his successes. While we have been working almost unconsciously, the full import of the terms, proportion, breadth of design, scale, character, use and placing of enrichments, comes to us, and so our perception and intuition, and sense of fitness of things is developed."[10] Or more pragmatically, Gummer's mentor the the Royal Academy of Arts, Reginald Blomfield, states, "The point of interest for the student is how the space is spanned by the vaults, how the thrusts are met, the actual dimensions of the masonry, the proportions of wall to window, in short, the actual details of the building."[11] Today the channels of observation are endless, from the guidebooks above, monographs, books, journals, Wikipedia, social media, and Google Image search, all one needs is an internet connection to access buildings from all times all over the world. However, to get the largest breadth of information on a building, visiting and sketching is still essential. "Notice how frequently in good buildings the details such as doors and windows reflect the line of the general building. Notice the conscious dignity of the Law Court, the joyous note of

9. William Gummer, "The Threefold Application of Architectural Education," *N.Z.I.A Proceedings* (March 20, 1920): 42–48.
10. William Gummer, "The Study of Architecture," *Building Progress* X, no. 9 (May 1, 1915): 293.
11. Reginald Theodore Blomfield, *The Mistress Art* (London: E. Arnold, 1908), 10.

the Theatre, the arresting form of the Church. All these and much more if we only have the eyes to see, have their lesson, and are ever helpful in making the mind sensible to the subtleties of Architectural Design."[12] Auckland has a large collection of good, prominent classical buildings, usually making up the majority of 'most impressive'[13] or 'iconic'[14] lists of buildings in the city.

The reliance on precedents acts as both a guiding hand and as reasons for design decisions, yet – due to varying functional requirements, responsiveness to the site, and limitations and opportunities of the material palette – it

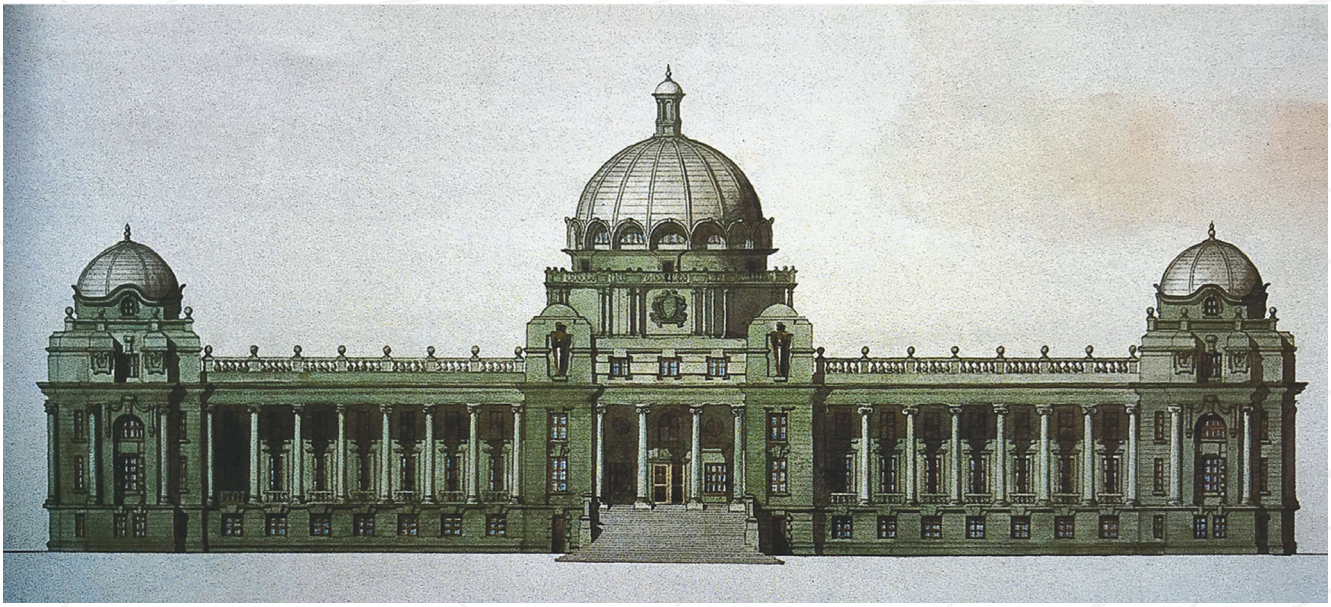
Figure 6. Aotea Train Station, Auckland City, by Alexander Brieg, 2013.

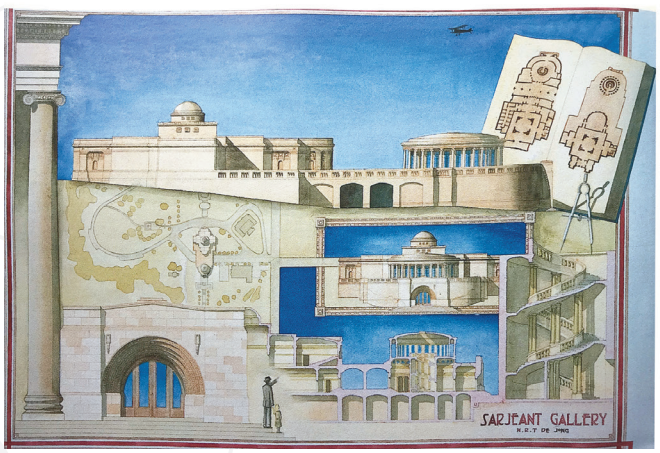
simply doesn't allow for a 'copy-and-paste' mentality. As Edwin Lutyens puts it, "I have the cheek to adopt [the Doric Order.] You can't copy it. To be right you have to take it and design it…. You cannot copy: you find if you do you are caught, a mess remains. It means hard labour, hard thinking over every line in all three dimensions and in every joint, and no stone can be allowed to slide."[15]

Some Students' Work and Their Experiences

Unitec's classical studio was started in the late 1990s by Branko Mitrovic and ran through to the early 2010s. In the earlier days, three students were offered full scholarships to, and attended, the University of Notre Dame – the preeminent classical architecture school in the United States: Dan Phillips, Damon Brider and Wouter Boer. All are currently in the United States working as classical architects.

12. Gummer, "The Study of Architecture," 296.
13. Thalita Alves, "The Most Impressive Buildings in Auckland, New Zealand," Culture Trip, accessed July 27, 2020, https://theculturetrip.com/pacific/new-zealand/articles/the-most-impressive-buildings-in-auckland-new-zealand/.
14. "Iconic Buildings in New Zealand by Votes," Mini-Kiwiland, accessed July 27, 2020, https://minikiwiland.co.nz/most_iconic_buildings_in_new_zealand_by_votes.php.
15. Summerson, *The Classical Language of Architecture*, 27.





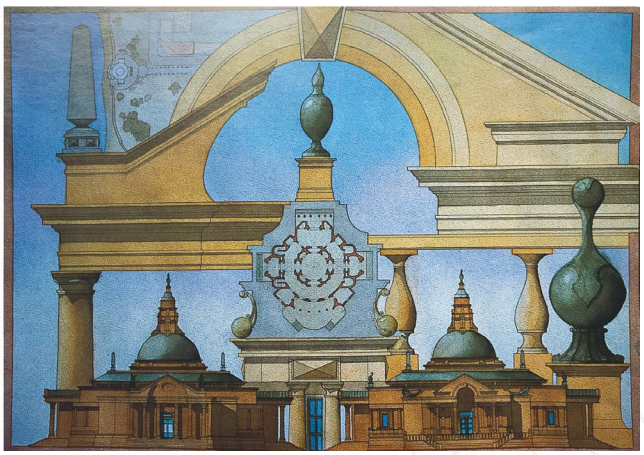


Figure 7. Top: Completion of the Parliment Buildings by Mark Boyack. Left: Expansion of the Sarjeant by Neil de Jong. Right: Proposed Gallery in Devonport by Damon Brider. From Branko Mitrovic, "Accounts Rendered," Architecture New Zealand *(March–April 2000): 54–58.*

Another student, Alexander Brieg, was offered a scholarship in 2016, which he turned down to open a classical architecture studio in Christchurch. It's safe to say that exposure to classical architectural design profoundly influenced the professional trajectories of these four students.

Obviously, for the majority of students, the influence is more subtle. Current residential architects Melanie Bourke (2003 graduate) and Karl Newby (2012 graduate) say that having an understanding of classical principles has helped in practice, not only in additions and renovations of historical buildings, but for getting the 'right' proportions when designing new buildings. From a broader educational point of view, both also placed a value on having a taste of previous generations' values and methodologies. In addition, Bourke mentions learning how to compose and traditionally watercolour an analytique drawing, and Newby recalls that it was during his time in classical studio that he was first encouraged to use an iterative drawing process when designing, something he still does today.

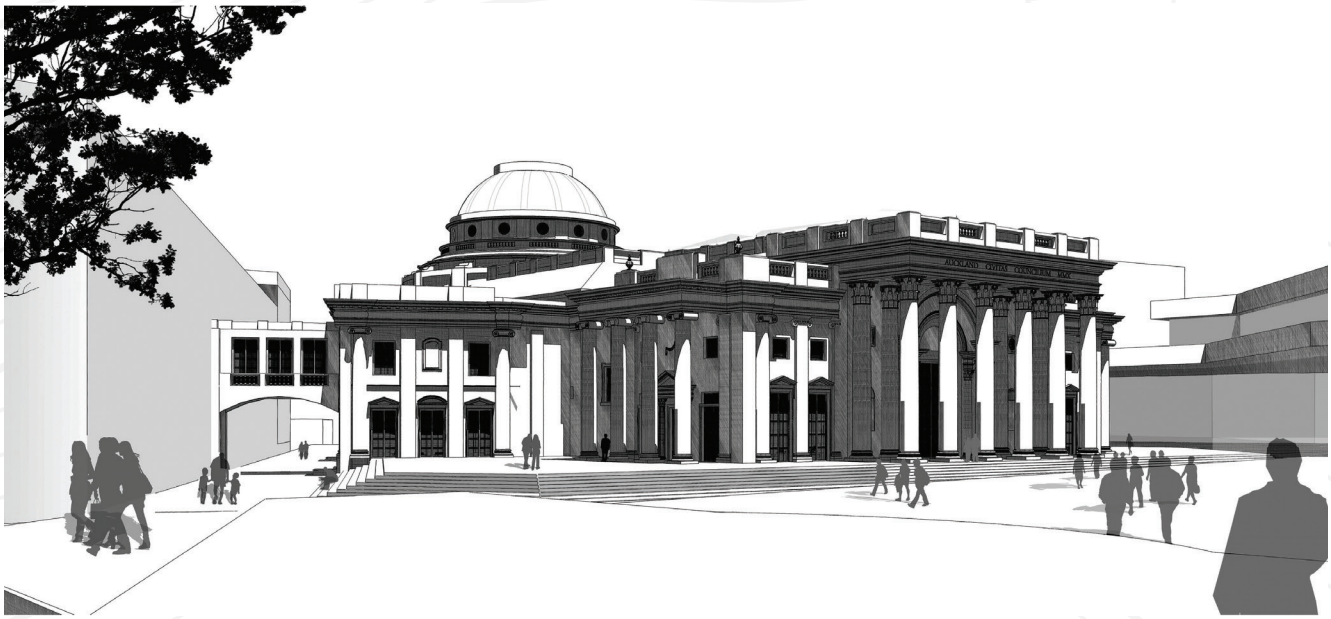


Figure 8. Auckland City Council Chambers by Karl Newby, 2012.

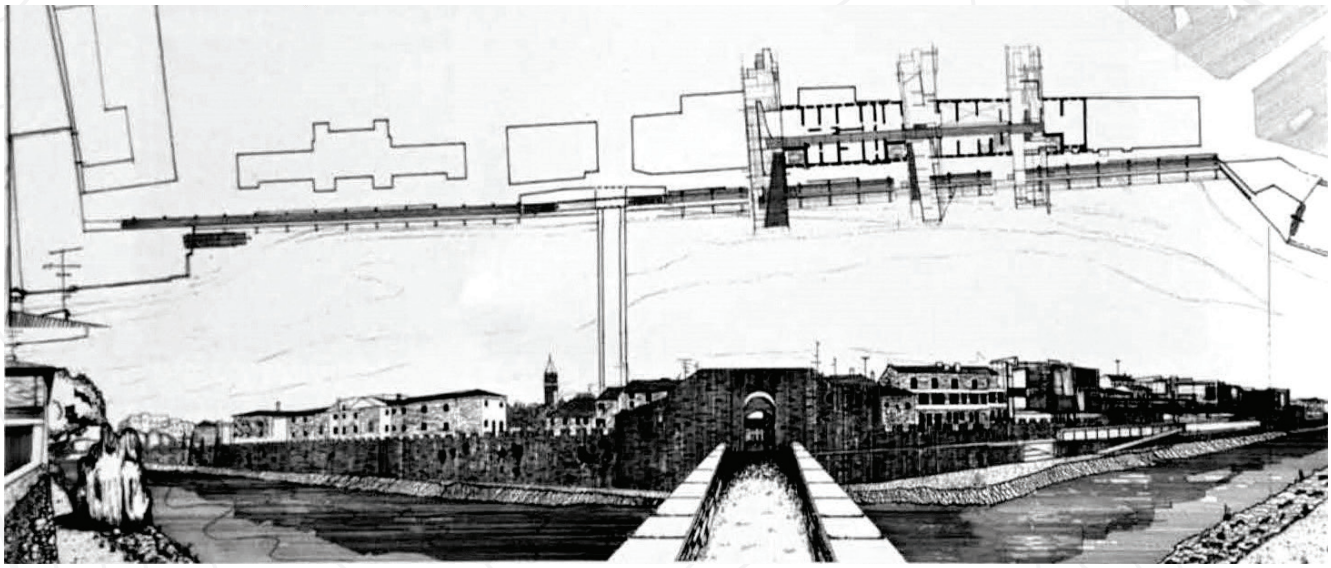


Figure 9: The Apothecary, Prato, Italy, by Melanie Bourke, in Mitrovic et al, Traditional Architecture*, 24.*

Conclusion

Classicism has an outsized role in the history of architecture in the Western world, and by extension, New Zealand. Beloved buildings in the main centres – in Auckland, the Town Hall and The Civic Theatre; in Wellington, the Houses of Parliament, and The National War Memorial, Museum and Art Gallery; in Christchurch, the Bridge of Remembrance and the Catholic Cathedral – are all classical buildings. It has been eight years or so since Unitec ran a classical studio, the only architecture school in New Zealand that has run one. It was valuable to Unitec as a point of difference with the other architecture schools, and certainly fits into Unitec's 'real-world learning' philosophy.

Moreover, while some Unitec faculty have this design knowledge, it is not being taught, so how would it be possible to know if there are students who might otherwise better engage with this type of design methodology? And, finally, there is value to the students who, in six weeks, realise that there is another way to design buildings. And those students, as William Gummer would say, "increase in resource."

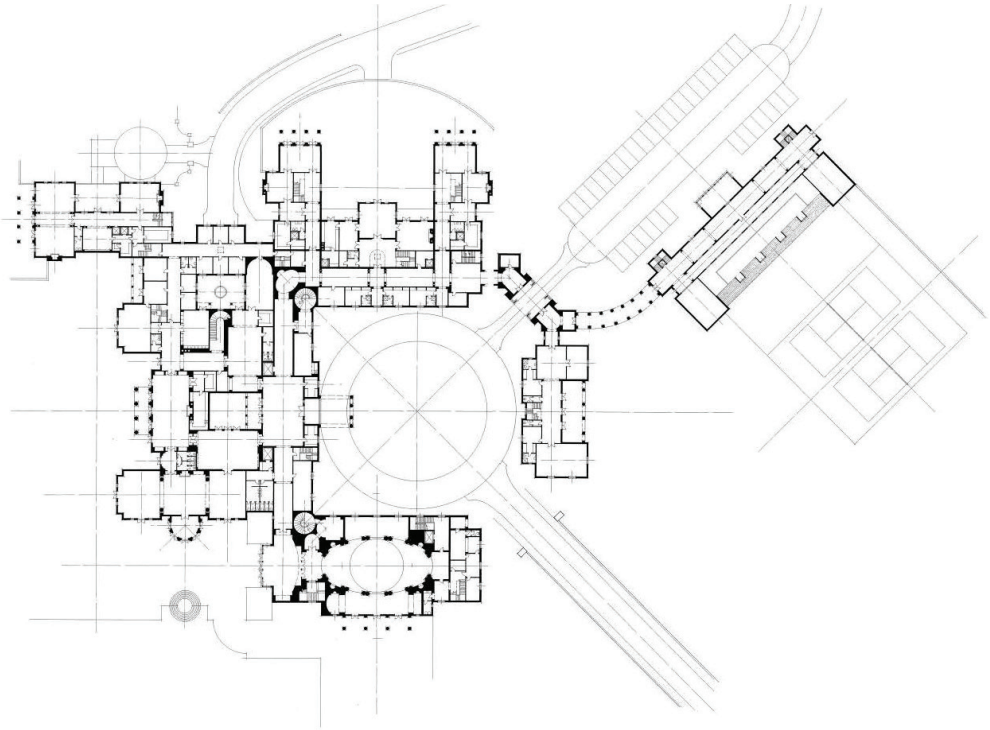


Figure 10. Governor General's Auckland Mansion by Chad McMan. This project was published in The Classicist, An American Arts and Architecture Journal.[16]

16. Richard John, ed., *The Classicist No. 8* (New York: Institute of Classical Architecture and Classical America, 2010).

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The Eternal Present of the Mythical Event

Re-establishing Place Identity with Speculative Installations that Reawaken Heritage Stories

Professor Daniel K. Brown

"It is the eternal present of the mythical event that makes possible the profane duration of historical events." *Mircea Eliade*

Abstract

This paper proposes that speculative architectural installations strategically 'curated' into neglected architectural contexts can help to engender an 'immediate and a timeless realm,' an encapsulation of a cultural story that the new interventions help to embody. The research method investigates historical and cultural narratives that were once associated with selected architectural and urban sites that have lost their place identity over time. Design-led research experiments examine how place identity can be rejuvenated by strategically curating objects, digital animation and sound into these architectural contexts in ways that bring their essential stories to life again, allowing cultural and heritage memories to be collectively experienced and shared. The research concludes that speculative architectural installations provide an opportunity to reach a much wider public audience than traditional academic scholarly approaches alone. Through community-based and collaborative creative practice, such architectural research can critically explore – and help to mediate and mitigate – seemingly intractable contemporary architectural problems such as the loss of cultural, heritage and place identity in our evolving urban environments. The research that looked at a derelict urban site in Rome played a significant role in convincing the Rome City Council that strategic application of cultural, mythological and historical experiences is a viable cost-effective way to culturally revitalise neglected and derelict public spaces.

Introduction

This paper examines the problem of the loss of cultural and heritage narratives that are needed to define place identity. It investigates how neglected architectural and urban sites can be revitalised by strategically 'curating' speculative architectural installations into neglected architectural contexts to re-establish critical links to their lost essential stories. In an online interview in 2010, Lebbeus Woods reflects upon the important role speculative architecture can play in responding to 'seemingly intractable problems,' but he stresses that there is an inherent risk when speculative design is disassociated from an architectural context's essential stories:

Figure 1. Kristin Jones, Daniel K. Brown and Erika Kruger, Solstizio d'Estate*, Tiber River, Rome, launch date June 21, 2005.*

When you take architecture away from the narratives of history, from the signs and symbols giving social existence agreed-upon meanings, you are putting a big responsibility on individuals to give meaning by the actions. The architect makes the first move by investing space with his or her understanding of the conditions and demands of reality.[1]

This paper reflects on a body of research conducted over a fifteen-year period that examines how contextualised speculative interventions can renew place identity by reawakening a site's lost essential narratives. The place identity research from 2005–2010, conducted in Rome, Venice and New York, is referred to as *Tevereterno*. The related research from 2010–2020, conducted primarily in New Zealand, is called *The Eternal Present of the Mythical Event in New Zealand and Beyond*. Plaques and signage are the most common approach to reminding communities about cultural and heritage narratives that once defined place identity. These stories are typically summarised in text and graphic images. This research article proposes that contextualised speculative art installations provide an opportunity to return place identity into the experiential and observational realms.

A two-part research method is common to all projects presented in this article. In part one, cultural, mythological and heritage stories relating to a specific architectural context are collected and researched; in part two, which involves on-site testing, the stories are critically interrogated in relation to how they might be reawakened in the selected architectural context using digital animation, projection, object and sound. The selected architectural context plays a key role as the 'setting' for the reawakened cultural narrative.

Tevereterno: The Eternal Tiber River Project

In 2010, New York installation artist Kristin Jones and the author were invited to showcase a 2005–2010 retrospective of our architectural research in the host Italian Pavilion of the 2010 Venice Architecture Biennale. We called the exhibition *Tevereterno*, which translates as 'The Eternal Tiber River Project.' The Italian Pavilion selected work that "unveils a vision of architecture as civil art capable of generating solutions for a society in the midst of deep-seated change."[2]

The research site for *Tevereterno* in 2005 was a dilapidated and abandoned half-kilometre stretch of the Tiber River, in the centre of historic Rome between the Sisto and Mazzini Bridges, that was completely overgrown and visited only by drug addicts and criminals. Our principal research question asked: "How can such a site in the heart of Rome, by blurring the boundaries between art and architecture, be rejuvenated into an important civic centre for the capital city that can help renew place identity for its people?"

1. Lebbeus Woods, interviewed by Sebastiano Olivotto, "AS IT IS: Interview with LW 2," April 22, 2010, https://lebbeuswoods.wordpress.com/2010/04/22/as-it-is-interview-with-lw-2.
2. "Italian Pavilion at the 12th International Architecture Exhibition – People Meet in Architecture | La Biennale di Venezia," September 15, 2010, https://www.1fmediaproject.net/2010/09/15/italian-pavilion-at-the-12th-international-architecture-exhibition-people-meet-in-architecture-la-biennale-di-venezia.

Figure 2. (From top left, clockwise) a) Daniel K. Brown and Erika Kruger, Four Arias at the Edge of Darkness, *Tiber River, Rome, June 22, 2006; b) Kristin Jones and Daniel K. Brown,* Luminalia, *Tiber River, Rome, June 22, 2007; c) Daniel K. Brown and Erika Kruger,* Intermezzo, *Michelangelo's Palazzo dei Conservatori, Capitoline Hill, Rome, April 21, 2009; d) Daniel K. Brown and Kristin Jones,* Fluviale, *Venice, November 21, 2010.*

The *Tevereterno* site was the only straight segment of the Tiber River. It was also the same size as the ancient Circus Maximus, now only a trace upon the landscape, which had once been the most important centre for public gatherings in the ancient Roman empire; no site in Rome fulfils this vital function today. In seeking to return such a site to Rome once again, the research looked at reawakening the neglected site's essential cultural and heritage stories.

According to legend, Rome was founded by Romulus and Remus, who were suckled as infants by a she-wolf. The first of the six research experiments for Tevereterno, called *Solstizio d'Estate*[3] (Figure 1), was conceived to reawaken the she-wolf on the *Tevereterno* site as a rejuvenated symbol of Rome's identity. We researched ancient illustrations, carvings, amulets and coins, selecting twelve historical images of the she-wolf that represent her transforming over time. We enlarged the images to 8 metres high, cut them out of sheets of polyethylene, and attached these she-wolf 'stencils' in chronological order to the 13-metre high Tiber River embankment walls. Using high-pressure hoses, centuries of patina were washed away to reveal the she-wolves that had always lived upon the ancient walls. At sunset on the night of the summer solstice, 2758 candles were lit along the Tiber embankments to commemorate the number of years since the legendary founding of Rome. More than 4000 people attended the opening, and the work remained visible for over five years before gradually being enveloped by patina once more.

From 2006–2010, *Solstizio d'Estate* was followed every year by a new, full-scale, design-research experiment. *Four Arias at the Edge of Darkness*[4] (Figure 2a) presented the Roman she-wolf on the Tiber River walls as the digitally projected embodiment of the four elements of nature. *Luminalia*[5] (Figure 2b) reawakened the serpent of fire of the ancient Roman god of medicine; one thousand candles lined each bank of the Tiber River, while the serpent was formed from another thousand candles floating in the centre of the Tiber, taking life from the currents and carrying light into the darkness. *Intermezzo*[6] (Figure 2c) was projected onto the façade of Michelangelo's Palazzo dei Conservatori on Rome's Capitoline Hill to reawaken the she-wolf for the Birth of Rome celebrations. *Fluviale*[7] (Figure 2d) projected the waters of Venice onto the façades of her architecture to reflect upon the importance of ensuring the sustainability of our waterways.

Each of the design outcomes relating to *Tevereterno* required extensive background research on the ecology, mythology and history of the place where it was situated. Each of the outcomes explored ways to rejuvenate neglected architectural and urban spaces by reawakening a culture's myth lines. The retrospective of our work at the 2010 Venice Architecture Biennale had a significant impact on convincing the city of Rome to begin transforming the dilapidated Tiber River site into a permanent public arts area beginning in 2011. The significance, originality and international esteem of the research outcomes of the *Tevereterno* project were further evidenced by these works premiering on opening or closing nights of highly competitive major international festivals such as the Birth of Rome Celebrations, the New York River to River Festival, and the European Festival of Music; substantial external funding; audience numbers ranging from over 1000 on Capitoline Hill to 170,000 at the Venice Architecture Biennale; and positive reviews in international publications.

The Eternal Present of the Mythical Event

In *The Sacred and The Profane*, Mircea Eliade reflects: "It is the eternal present of the mythical event that makes possible the profane duration of historical events."[8] The *Tevereterno* projects represent our response to reawakening a mythological event as a way to renew place identity for our research sites. In his book *Material Thinking: The Theory and Practice of Creative Research*, RMIT Professor of Design/Urbanism Paul Carter uses the metaphor of weaving to reflect how stories and myths participate in place identity:

The warp is composed of the threads extended lengthwise in the loom. These can be thought of as the culture's myth lines, the grand narratives in terms of which it defines its sense of place

3. Kristin Jones, Daniel K. Brown, and Erika Kruger, *Solstizio d'Estate*, Tiber River, Rome, launch date June 21, 2005, http://www.danielkbrown.com/?p=1338 and http://www.danielkbrown.com/?p=1715.
4. Daniel K. Brown and Erika Kruger, *Four Arias at the Edge of Darkness*, Tiber River, Rome, June 22, 2006, http://www.danielkbrown.com/?p=181 and http://www.danielkbrown.com/?p=200.
5. Kristin Jones and Daniel K. Brown, *Luminalia*, Tiber River, Rome, June 22, 2007, http://www.danielkbrown.com/?p=204 and http://www.danielkbrown.com/?p=1847.
6. Daniel K. Brown and Erika Kruger, *Intermezzo*, Michelangelo's Palazzo dei Conservatori, Capitoline Hill, Rome, April 21, 2009, http://www.danielkbrown.com/?p=209.
7. Daniel K. Brown and Kristin Jones, *Fluviale*, Venice, November 21, 2010, http://www.danielkbrown.com/?p=1218 and http://www.danielkbrown.com/?p=1284 and http://www.danielkbrown.com/?p=239.
8. Mircea Eliade, *The Sacred and the Profane*, trans. Willard R. Trask (New York: Harper and Row, 1963), 2.

and identity. But these linear narratives can neither cohere to form a pattern nor be subverted and overturned, unless the shuttle of local invention is at work, casting its woof-thread back and forth, over and under the warp-threads. Only in this way can cultures collectively gain agency over their story lines, learning to become themselves at this place.[9]

In their book *Memory and Transformation,* Blerck et al. describe landscape as "stratified heritage" laden with values, stories, myths, practices and the memories that we associate with them. The identity of the landscape – and our identification with the landscape – arise directly from these collective stories and memories.[10] In his article "Building Memory: Ontology in Architecture," Jeff Malpas argues that there is no place identity without memory:

Place and memory are integrally connected such that they cannot be understood independently. Place and building are likewise tied, because architecture is always a response to place. The inquiry into the ontology of architecture must therefore include an inquiry into the relation between memory and place. Simply stated, there is no place without memory, no memory without place, and, since there is no architecture without place, neither is there architecture that is not engaged with memory.[11]

In her article "Writing Spatial Stories: Textual Narratives in the Museum," Suzanne MacLeod, Senior Lecturer in the School of Museum Studies, University of Leicester, UK, argues that a curated museum exhibit places objects into strategic contextual relationships that, when experienced together, tell a story. We interpret and critically engage these stories through collective and personal memory. MacLeod proposes that, in the same way that successful museum exhibitions can engender a story, architectural artefacts can be 'curated' to reawaken essential stories of cultural heritage that contribute to place making. She contends that in a landscape, historic fragments are simply larger than those in a museum, and their stories "more epic in scale, grounded as they are in collective and personal memory."[12] The strategic curating of contextual architectural artefacts together with new design interventions can contribute to storytelling, the combined elements becoming recognisable as an encapsulation of an essential narrative. In his article "Notes on the In-between," Fred Koetter proposes:

The artifact – city, building, painting, whatever – has then, in the best sense, its own double obligation. It may act as a positive instrument for the qualification of human association (artifact as in-between 'table') and at the same time it may in itself present an encapsulation of the same uncertain drama of reality which it helps to qualify and stimulate. The artifact, in other words, may operate as both active agent and as a means of record-keeping, occupying a realm which is both 'immediate' and potentially timeless.[13]

The Eternal Present of the Mythical Event in New Zealand and Beyond

The two-part methodology that had been applied to the *Tevereterno* projects from 2005 to 2010 was also applied to place identity-related research projects in New Zealand from 2010 to 2020. Background research was undertaken that interrogated important cultural, mythological and heritage stories relating to a specific site, followed by on-site testing of a speculative installation proposition that would enable a story to be experienced and remembered. The first New Zealand heritage architectural site selected was the Museum of Wellington, located on the capital city's harbour edge.

In 2010, the Museum of Wellington commissioned the author to create a new work for the New Zealand International Arts Festival, to be located in their main exhibition space on a three-storey-high atrium wall of the heritage building. The author's proposal *Vessels*[14] (Figure 3) was inspired by a passage in Book II of Dante Alighieri's epic poem *The Divine Comedy*. This passage, written by Dante in the early fourteenth century, predicted that directly opposite Jerusalem in the great oceans of the Southern Hemisphere lay an island, above which shone a constellation of stars in the shape of a cross.[15] The island directly opposite Jerusalem was approximately where New Zealand lies today. The reason this discovery was particularly inspiring, as a cultural and mythological story

9. Paul Carter, *Material Thinking: The Theory and Practice of Creative Research* (Melbourne: Melbourne University Press, 2004), 7.
10. Henk van Blerck, Olof Koekebakker, and Bert van Meggelen, *Memory and Transformation* (Rotterdam: NAi Publishers, 2008), 17.
11. Jeff Malpas, "Building Memory: Ontology in Architecture," *Interstices: Journal of Architecture and Related Arts 13* (2012): 11–21.
12. Suzanne MacLeod, "Writing Spatial Stories: Textual Narratives in the Museum," in *Museum Making: Narratives, Architectures, Exhibition*, ed. Suzanne MacLeod, Laura Hourston Hanks, and Jonathan Hale (London and New York: Routledge Taylor & Francis Group, 2012), 21–33.
13. Fred Koetter, "Notes on the In-between," *Harvard Architecture Review* (Spring 1980): 71.
14. Daniel K. Brown, *Vessels*, Museum of Wellington, February 26–March 21, 2010, http://www.danielkbrown.com/?p=212.
15. Dante Alighieri, *The Divine Comedy*, trans. Henry Wadsworth Longfellow, Purgatorio: Canto I, 22–27; Canto II, 1–9, https://www.gutenberg.org/files/1002/1002-h/1002-h.htm#link2H_4_0006.

Figure 3. Daniel K. Brown, Vessels, *Museum of Wellington, February 26–March 21, 2010.*

relating to New Zealand place identity, was that Dante's epic poem goes on to declare that atop this island still sits the original Garden of Paradise. This discovery became the inspiring mythological narrative tale that *Vessels* sought to convey to New Zealanders.

Vessels initially required background research in the humanities, interpreting passages and symbolism from a great piece of literature. But in the second stage of the methodology, *Vessels* required a very different type of research: the setting up of an off-site testing lab, soon followed by on-site, full-scale experimentation. Like the form of the sacred island described in *The Divine Comedy*, *Vessels* was structured as seven terraces suspended upon the museum's atrium wall. Thirty-three glass *vessels* of water were placed upon the terraces, representing the thirty-three 'cantos' or 'songs' of Book II of the poem. The glass *vessels* were designed to vibrate in response to the movements of visitors in the museum. When no visitors are present, the work falls still. But when visitors gather, the vibrations send a myriad of light reflections from the glass bowls – in this way representing the sacred vessel in *The Divine Comedy* that reflects light so "radiant" that the eye can barely endure it.[16] The radiating light in *Vessels* was conceived to awaken our recognition of New Zealand as the earthly Garden of Paradise.

16. Ibid, Canto II, 38–39.
17. Daniel K. Brown, *Pulse*, LUX Light Festival, Wellington, August 21–30, 2015, http://www.danielkbrown.com/?p=3488 and LUMA Southern Light Project, Queenstown Botanical Gardens, Queenstown, June 3–5, 2016, http://www.danielkbrown.com/?p=4792.

Figure 4. (Left to right) Daniel K. Brown, a) Pulse, *LUX Light Festival, Wellington, August 21–30, 2015; b)* Edge of the Universe, *LUX Light Festival, Wellington, May 18–27, 2018.*

Vessels was followed every year by a new, full-scale, design-research experiment. *Pulse*[17] (Figure 4a) was a sound and light animation sited beneath the wharf cut-out outside the Museum of New Zealand Te Papa Tongarewa in Wellington. The installation unveiled the *pulse* of nature still beating beneath the concrete paving of our capital city, returning it to the awareness of the community once more.

Edge of the Universe[18] (Figure 4b) explored the 'seemingly intractable problem' of introducing urban youth to life lessons that can be conveyed through poetry. Each evening after sunset, letters of the alphabet cascaded like a waterfall from the cornice of an urban shed on the harbour edge of Wellington. As the falling letters gain in intensity and momentum, they spell out selected lines from six poems by New Zealand writers, before disappearing into the water below. When integrated together, the selected lines invite a larger, new story to unfold – a story about the importance of taking risks, learning from mistakes, trying to make a difference, seeing the light within the darkness, and gaining wisdom over time.

Te Toi-o-ngā-rangi[19] (Figure 5) was selected by the Christchurch Art Gallery in 2019 to activate its auditorium space for an event that coincided with Matariki, the Māori New Year. In Māori mythology, Te Toi-o-ngā-rangi is the uppermost of the twelve heavens and the most sacred of them all.[20] By transforming an architectural interior into an experiential journey through the twelve heavens of Māori legend, visitors are able to witness what architectural critic Anthony Vidler refers to as "a moment too brief to inhabit – except in imagination,"[21] and engage what Lebbeus Woods refers to as the "narratives of history [and] the signs and symbols [that give] social existence agreed-upon meanings."[22]

As Taylor, Preston and Charleson reflect in their article "The Myth of the Matter: Parallel Surfaces of Seismic Linings":

It is necessary to understand myth not as fable, fiction, or illusion but rather in its original sense as that which is the most real. In this sense myth, unlike history with its necessary intellectual detachment from matters in the present, is a living presence supplying models for human behaviour and, by that very fact, giving meaning and value to life. "It is the eternal present of the mythical event that makes possible the profane duration of historical events."[23,24]

18. Daniel K. Brown, *Edge of the Universe*, LUX Light Festival, Wellington, May 18–27, 2018, http://www.danielkbrown.com/?p=4840 and LUMA Southern Light Project, Queenstown Botanical Gardens, Queenstown, June 2–5, 2017, http://www.danielkbrown.com/?p=4880.
19. Daniel K. Brown, *Te Toi-o-ngā-rangi*, Light Boxes Wellington, Vivian Street, Wellington, from January 27, 2020, http://www.danielkbrown.com/?p=5052; Christchurch Art Gallery Te Puna o Waiwhetū, May 24, 2019, http://www.danielkbrown.com/?p=5026; HighLight Carnival of Lights, Hutt City Events Centre, October 25–28, 2019, http://www.danielkbrown.com/?p=5156; LUMA Southern Light Project, Queenstown Botanical Gardens, June 1–4, 2018, http://www.danielkbrown.com/?p=4983.
20. Elsdon Best, "Māori Religion and Mythology Part 1," https://viewer.waireto.victoria.ac.nz/client/search/any/any?q=Maori%20Religion%20and%20Mythology%20Part%201.
21. Anthony Vidler and Lebbeus Woods, *The Storm and the Fall* (New York: Princeton Architectural Press, 2004), https://www.zdor.ee/transportation/engineering/82052-the-storm-and-the-fall-lebbeus-woods-epub-download.html.
22. Lebbeus Woods, "AS IT IS: Interview with LW 2."
23. Mircea Eliade, *The Sacred and the Profane*, 2.
24. Mark Taylor, Julieanna Preston, and Andrew Charleson, "The Myth of the Matter: Parallel Surfaces of Seismic Linings" in *Re-Framing Architecture: Theory, Science and Myth* (Sydney: Arcadia Press, 2000), 189.

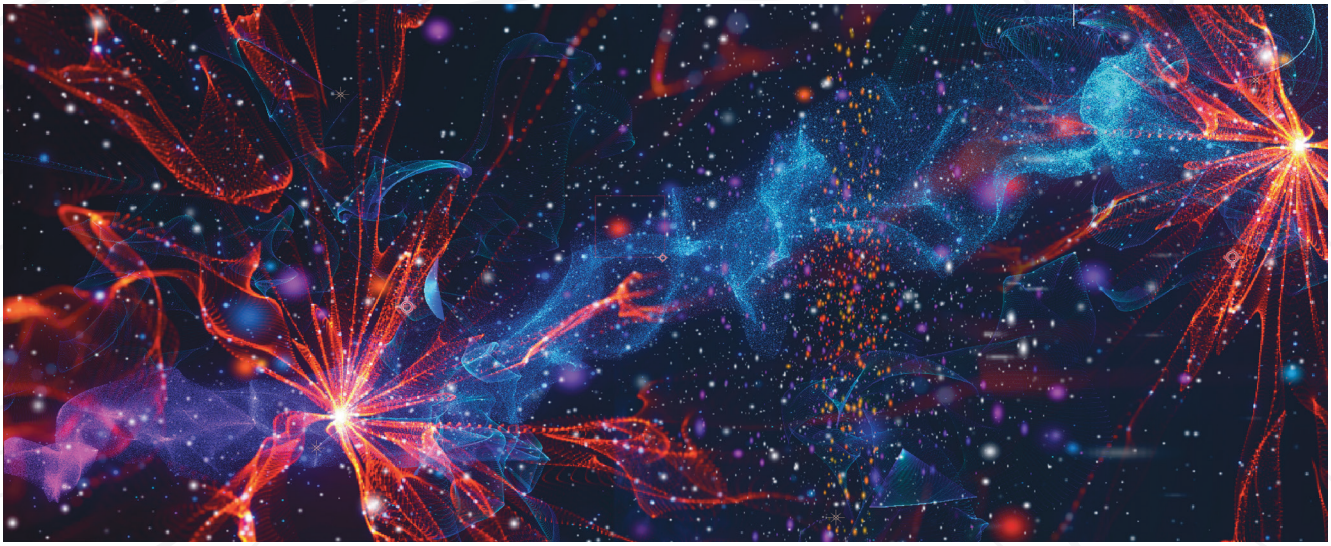

Figure 5. Daniel K. Brown, Te Toi-o-ngā-rangi*, Christchurch Art Gallery, Christchurch, May 24, 2019.*

Conclusion

This paper reflects on a body of research conducted over a fifteen-year period that examines how contextualised speculative interventions can renew place identity by reawakening a site's lost essential narratives. The research from 2005–2010 was conducted primarily in Rome, while the research from 2010–2020 was conducted primarily in New Zealand. The work in Rome was based on cultural mythologies that are universally known, while the work in New Zealand drew from 'unknown' stories arising primarily from unique stories implied by an architectural context. Both approaches received similar reactions by the community and similar professional critique: the audience experienced a site as a new realm that made them feel a strong connection to the place.

When strategically curated within an architectural context, speculative architectural installations can enable us to experience the 'eternal present of the mythical event.' They can provide a critical pathway for positioning and testing non-traditional architectural design research outcomes that are experiential, situated in the public realm, and capable of imparting cultural and heritage memory to contemporary audiences. Non-traditional architectural research in the form of speculative creative installation provides the opportunity to reach a much wider public audience than traditional academic scholarly methods. Through community-based and collaborative creative practice, such architectural research can critically explore – and help to mediate and mitigate – seemingly intractable contemporary architectural problems such as the cultural, heritage and place identity of our evolving built environments.

We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time.

Through the unknown, unremembered gate

When the last of earth left to discover

Is that which was the beginning[25]

T. S. Eliot

25. T. S. Eliot, "Little Gidding," in *Four Quartets* (London: Faber, 1958) V, lines 26–32.

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Architecture as a Tool for Inclusion and Community Building

Women in Fabrication at Zayed College for Girls

Priscila Besen, Dr Yusef Patel, Alice Couchman and Peter McPherson

Abstract

Women in Fabrication is a collaborative platform that empowers female high-school students, architecture students and young architects through design and construction. The project partnered with Zayed College for Girls to improve its built environment and interface with the community, by constructing a pavilion near the school entrance where students can wait for their parents after school. To ensure the users of the space had an active voice in the project, workshops were held at the college, where students learnt about basic principles of design and technology, provided input on the most suitable location for the pavilion and developed concept designs for this structure. They were mentored by female architecture students and young architects, as well as their everyday teachers. The design process celebrated the rich cultural diversity that is part of this community, including the application of Te Aranga Māori Design Principles, which honour New Zealand's indigenous culture, as well as the integration of Islamic traditions that are an integral part of the school's philosophy. The discussions, concepts and ideas from the workshops informed the final design of the pavilion. The design was then refined by a group of female architecture students and professionals, and constructed by them using digital fabrication technology to maximise efficiency and minimise waste of resources. Both stages of the project aimed to strengthen teamwork and leadership skills for women architects and students, and to celebrate diversity and inclusion in the design process.

Introduction

The number of women graduating from architecture programmes in New Zealand has been increasing over the last decades, reaching parity with men in 2018.[1] However, the proportion of women practising in the profession and becoming registered architects does not reflect these statistics. Although the architectural industry has come a long way in both professional and academic spheres, numbers show more work needs to be done with the

1. Errol Haarhoff, Paola Boarin, and Natalie Allen, *Architecture Graduate Progression to Practice in New Zealand: 1987-2018*, Research Report, School of Architecture and Planning (Auckland: The University of Auckland, 2020).
2. Eleanor Wenman, "No Easy Fix to New Zealand's Shortage in Tradespeople and Builders," *Stuff*, July 6, 2016, https://www.stuff.co.nz/business/103492215/no-easy-fix-to-the-shortage-in-tradies-and-builders.

uptake of female leadership and promotion within the architectural, engineering and construction professions.[2]

To address this, initiatives such as Architecture + Women NZ[3] and the National Association of Women in Construction[4] have developed valuable projects to promote and encourage women to further their careers in the profession. To further advance this agenda, academics and students at Unitec New Zealand's School of Architecture created the Women in Fabrication initiative to provide career development opportunities to women in Auckland's architecture schools. The initiative provides a platform for female students to develop, design and fabricate an industry- or community-sponsored project. The students who participate are provided with mentorship opportunities from female leaders within the construction and architectural industries.[5]

The first project undertaken was in collaboration with PrefabNZ to create the *Living and Interactive Pods* exhibition for the 2017 Build NZ | Designex expo. The same exhibit was re-envisioned for the 2017 Festival of Architecture exhibition and as 'living pods' seating for *NZ Life and Leisure* magazine's "In Your Backyard" edition. The Women in Fabrication 2.0 project was produced over the summer of 2018 and 2019 in collaboration with Futurebuild LVL to investigate the recycling of laminated veneer lumber (LVL) into an impressive product stand for the 2019 New Zealand Institute of Architects Insitu Auckland conference and the 2019 Architectural Designers New Zealand Queenstown conference.

The initiative is now in its third edition, and this article reports on the experience and learning outcomes from Women in Fabrication 3.0. The programme was developed as a collaboration between lecturers, postgraduate students and undergraduate students from Unitec and The University of Auckland, as well as architectural designers and graduates. The aim of the project was to collaborate with Zayed College for Girls to improve the school's built environment by constructing a seating pavilion near the main school entrance. Zayed College for Girls is a decile 3, state-integrated, special character Islamic secondary school for girls Year 7 to 13, located in Māngere, Auckland. Architecture students, graduates and lecturers hosted design classes and workshops at the school, to ensure students had an active voice in the project. The high-school students learnt about basic architectural design principles, digital technology, urban design and engineering concepts. The design process celebrated the rich cultural diversity that is part of the community, including the integration of Islamic traditions that are an integral part of the school's philosophy, as well as the application of Te Aranga Māori Design Principles,[6] which honour New Zealand's indigenous culture. The discussions and concepts from the classes informed the final design of the pavilion, which was built at Unitec's School of Architecture workshops. The final product was due to be exhibited at the 2020 Build NZ expo at the ASB Showgrounds before being permanently located at Zayed College for Girls. Due to the Auckland's August 2020 Covid-19 restrictions, the installation of the pavilion was delayed.

Objectives of Women in Fabrication 3.0

The main objective of this initiative is to provide a holistic approach to addressing the underrepresentation of women architects in New Zealand by critically questioning not only how design is translated into the built environment but by whom. Although there has been a lot of positive work to represent women within the architectural industry, there are still many gaps to fill. Women in Fabrication seeks to further educate both students and practitioners to acquire new expertise in the realm of emerging digital technologies, fabrication logic, making skills and female leadership. The aims of Women in Fabrication 3.0 are:

1. To facilitate and represent female role models within the architecture industry to interested young female high-school students.
2. To educate and empower undergraduate and post-graduate architecture students.
3. To provide an architectural output in support of female Islamic students following the Christchurch terror attacks.

3. Architecture + Women NZ, https://www.architecturewomen.org.nz/.
4. National Association of Women in Construction, https://www.nawic.org.nz/.
5. Alice Couchman, Yusef Patel, and Peter McPherson, "Women in Fabrication: A Platform for Inclusive and Diverse Design," in *Meeting the Challenges of Higher Density: 52nd International Conference of the Architectural Science Association*, edited by P. Rajagopalan, 453–60 (The Architectural Science Association, 2018).
6. Auckland Design Manual, "Te Aranga Principles," http://www.aucklanddesignmanual.co.nz/design-subjects/maori-design.

Figure 1. Workshop at Zayed College for Girls. Photograph: Joelle Tolentino

Approach to Working with High-school and Architecture Students

The project was divided into three stages. The first stage saw a variety of architecture students and practitioners with different backgrounds and expertise host classes and workshops at Zayed College for Girls. The classes were themed, and ranged from teaching students how to design within the urban environment, create 3D models in SketchUp, sketch concept design drawings, make cardboard models to express their ideas and explore Te Aranga Māori Design Principles. The second stage asked architecture students to refine the design concepts that Zayed College students had come up with to form a tangible architectural product. A large amount of work was required to engineer the high-school students' concepts into a single design. The third stage required architecture students to adapt the final design into a flat plywood product that could be manufactured by CNC router. Once the flat-pack plywood kit components were made, the design was tested at the architecture workshops before being sent to site for final assembly.

Community Engagement and Sustainability

Community participation was developed by working with the Zayed College for Girls Principal, Regina Rasheed, to develop a programme that best catered for the needs and values of the school. While the college provided support and facilities for the design course to take place, Unitec provided funding, materials and equipment for the project. Building industry stakeholders, such as Resene and Carter Holt Harvey Plywood will also partner with the project for the fabrication of the pavilion, sponsoring materials for the construction.

The project addresses two United Nations Sustainable Development Goals (SDGs): Goal 5, Gender Equality, and Goal 11, Sustainable Cities and Communities. Within these goals, Target 5.5, "Ensure full participation in leadership and decision making," and Target 5 B, "Promote empowerment of women through technology," were considered and implemented.[7] The project is led by women, female students had an active voice in the design, and the fabrication stage will again empower women in architecture and construction. Target 11.7, "Provide access

7. United Nations, *Transforming Our World: The 2030 Agenda for Sustainable Development* (New York: United Nations, 2015), https://www.un.org/sustainabledevelopment/development-agenda/.

Figure 2. Workshops at Zayed College for Girls – physical model-making. Photographs: Priscila Besen

to safe and inclusive green and public spaces," was also considered.[8] Once built, the proposed shelter will provide a safe place for students and a better interface with the school and its neighbourhood context. The Women in Fabrication 3.0 project was part of the international initiative Local Project Challenge, which aims to increase awareness of the SDGs and the New Urban Agenda. The project was exhibited alongside other local initiatives from 39 different countries in an online gallery.[9]

Project Findings and Reflections

The process of working with the community promoted diversity and enriched the design process, especially since this is the only Islamic girls' school in Auckland. After the Christchurch attacks in March 2019, a motivation to find ways to represent Muslim women in New Zealand became a driving force in the perception of Islamic culture in New Zealand's public places. This project highlighted acceptance and diversity within New Zealand, by bringing together people from many cultures and backgrounds to work together, collaborate and learn from each other. Unitec

students and graduates showed their willingness to celebrate diversity by working with the community to develop and produce a shelter that represents both the Islamic culture and the New Zealand architectural landscape.

The initiative provided for two types of learning activities to take place:

1. Teaching students from Zayed College about architecture, materials, technology and innovation;
2. Allowing students at Unitec to develop their design, leadership and digital fabrication skills.

8. United Nations, *Transforming Our World.*
9. "Women in Fabrication: Zayed College for Girls," Local Project Challenge, 2019, https://localprojectchallenge.org/women-in-fabrication-making-a-pavilion-for-zayed-college-for-girls/.

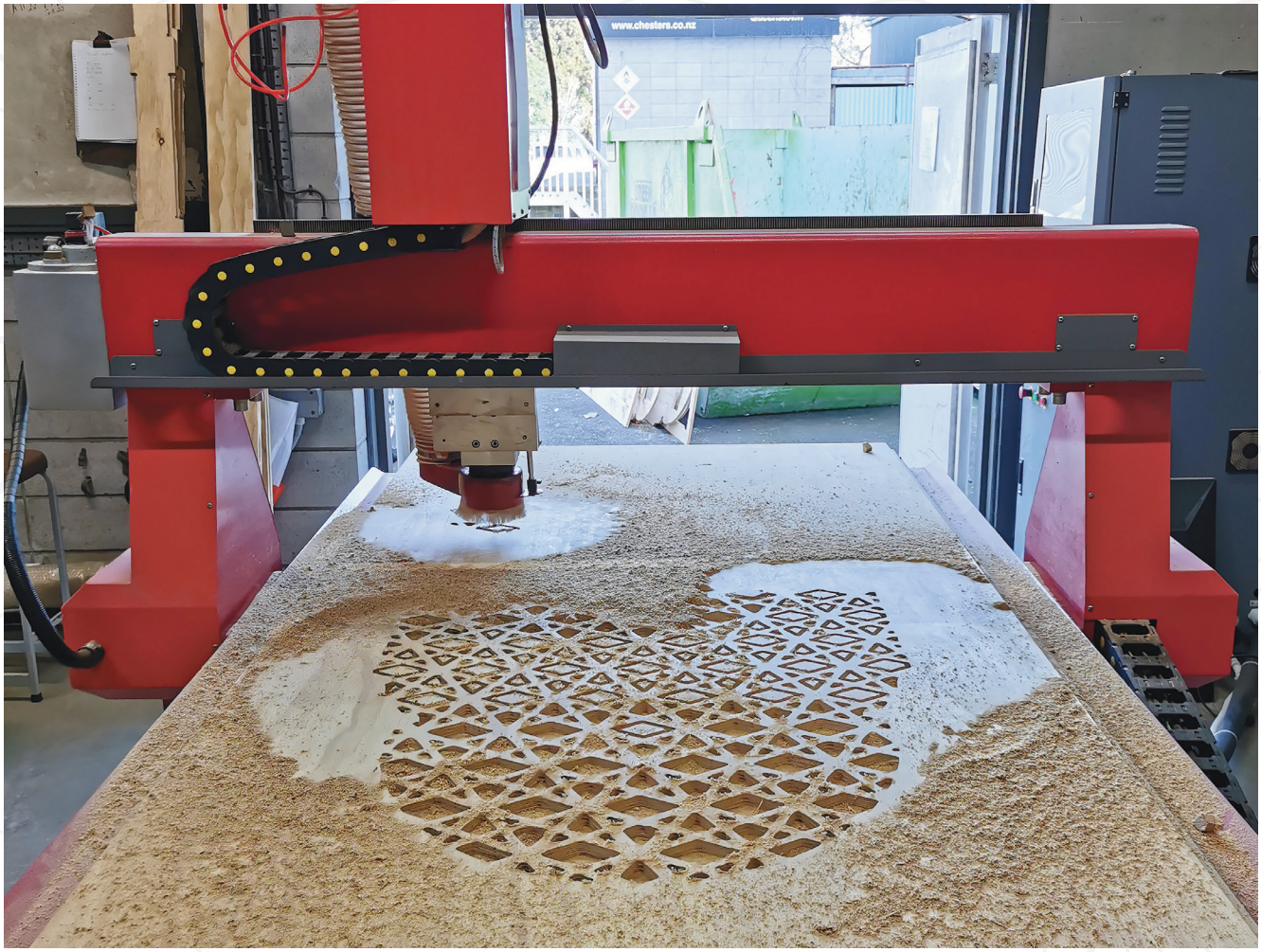

Figure 3. Fabrication of the pavilion at Unitec.
Photographs: Yusef Patel

Understanding the audience is important. High-school students are different to normal architecture students and need a variety of stimuli to engage with the design process. The high-school teachers and the lecturers found:

1. From a student's point of view we need to ensure there is enough interaction; to get them interested, lots of fun activities were required. A feedback form was given to students in the final workshop, which highlighted that the most interactive activities were more successful in providing learning outcomes, when compared to slide presentations.
2. The high-school students' imagination and naivety around architecture, design and construction can really

Figure 4. Architecture students assembling the pavilion. Photographs: Yusef Patel

help generate ideas that professionals and university students cannot come up with.

3. Model making and being creative is fun, especially for the practitioners involved with the project, who often forget about this side of architecture.
4. There is not enough collaboration between university level and high-school level. There are a lot of disconnects, and this project can help to bridge this gap. The project also enabled both the high-school students and the architecture students to develop team working skills. High-school students found that designing is difficult; they found it is even more challenging to design in groups. Interestingly, the facilitation of group work is as relevant and essential in high schools as it is in tertiary education. The importance of working in groups collaboratively is an essential skill in the workplace outside of education. Zayed College teachers highlighted that there are simply not enough opportunities to teach students how to collaborate with one another in high school. The same view could be said to be true within architecture schools, and this project showed that collaborative design work can help achieve much better results than individual practice. The diversity between the people involved in the project – different ages, education levels, cultures and backgrounds – enriched the design process and helped to create a better outcome.

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EDFAB

Design and Building of a Plywood Research House

Neill McCulloch, Dr Yusef Patel and Sēmisi Potauaine

Introduction

EDFAB: Eco-digital Fabrication Research Project was a collaboration between researchers and students from the University of Auckland's and Unitec Institute of Technology's Schools of Architecture. The research sought to investigate and develop a new housing typology with off-the-shelf materials and simple digital fabrication machinery. EDFAB aims to radically challenge conventional construction processes and relationships by proposing an alternative fabrication process to address problems of affordability, personalisation, energy performance and indoor comfort. The research investigates how simple automated technology can enhance the design process, labour, productivity, organisation and quality in ways that avoid stigmatising construction professionals.

Over the past six years, there have been four major project iterations of EDFAB. As New Zealand's construction sector is largely comprised of small-to-medium enterprises (SMEs),[1] design concepts were developed to provide a pathway for conventional building contractors to upskill and increase productivity. The purpose of EDFAB, therefore, was to investigate what possible added-value changes could be made to existing balloon-framing house methodologies with 3-axis CNC automated processes.

The original EDFAB prototype investigated the design and fabrication of a 10sqm 'plywood centric' proof of concept that was displayed at the 2014 Whau Arts Festival (Figure 1). In 2015, University of Auckland architecture students designed EDFAB 2.0, a 10sqm plywood and laminated veneer lumber (LVL) iteration on the original prototype. This prototype sought to reduce waste and simplify design complexities. The design worked on the premise of CNC milling plywood components to create modular boxes. The LVL was cut and assembled into portal frames to provide structure and flexibility to the construction system. In 2017, students furthered the research by producing the EDFAB 3.0: Living Pod for the 'Prefab NZ Interactive Display, Brought to You by Unitec' exhibit at the BuildNZ | Designex expo (Figure 2). The purpose of the iteration was to seek industry feedback and refine details from the previous iteration. In 2019, the 65sqm two-bedroom EDFAB 4.0: The Carter Holt Harvey Research House was built in a collaboration between students, researchers and

1. Ian Page, *Residential Construction and Costs*, paper for BRANZ workshop, July 9, 2009 (Wellington: BRANZ, 2009).

Figure 1. Dr Dermott McMeel working on the original EDFAB at the Whau Arts Festival.

Figure 2. EDFAB 3.0 at BuildNZ | Designex expo. Photographs: Yusef Patel

building contractors. The development sought to resolve deficiencies in the assembly process, include building contractors in the construction process and reduce the dependency on CNC plywood components by discarding the portal frame.

Design Method and Value of Research

There is no need to radically reinvent or to challenge what already exists, but rather we should work to improve and enhance current construction practices with technological innovation. Innovation within EDFAB research does not seek to replace the relevance of architects and building contractors, but rather to enhance it. EDFAB seeks to understand how to combine traditional analogue and digital workflows to ensure that experienced practitioners can participate in the digital revolution. All construction products specified within the design of EDFAB were purchased off the shelf from a local building supplier. The ultimate aim is to provide quality, compliance and effective construction management. This led to the EDFAB research team consisting of a cross-disciplinary team of students, academics and construction experts. At every major design milestone, the work was presented to the construction community at industry events for valuable feedback.

The simple file-to factory workflows enable the team to iteratively prototype their design by constructing models and mock-ups on laser cutters and computer numerical control (CNC) routers. This approach requires the researchers to firstly 'design and detail' in schemes within a virtual environment. The digital data from the virtual models or drawings is subsequently extracted to 'create and simulate' the milling 'tool paths' within the appropriate computer-aided manufacturing (CAM) software.[2] The process that the EDFAB research prescribes (Figure 3) is not dissimilar to University of California Professor Alice Agogino's series of 'design-process models,' created for NASA. At its simplest, Agogino's 'standard model,' which follows three phases: (1) define a design; (2) build to prototype; (3) test to evaluate, is used to dictate the EDFAB prototyping process. When required, feedback loops can be inserted into the model to address design errors that may be discovered during the evaluation phases.[3]

2. Lisa Iwamoto, *Digital Fabrications: Architectural and Material Techniques* (New York: Princeton Architectural Press, 2009).
3. Geoffrey Makstutis, *Design Process in Architecture: From Concept to Completion* (London: Laurence King Publishing, 2018).

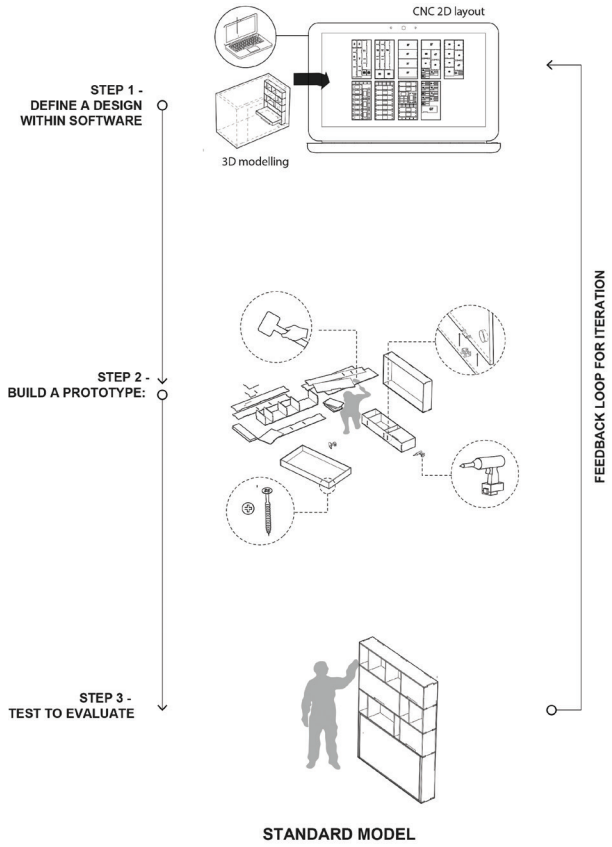


Figure 3. EDFAB prototyping and evaluation workflow.

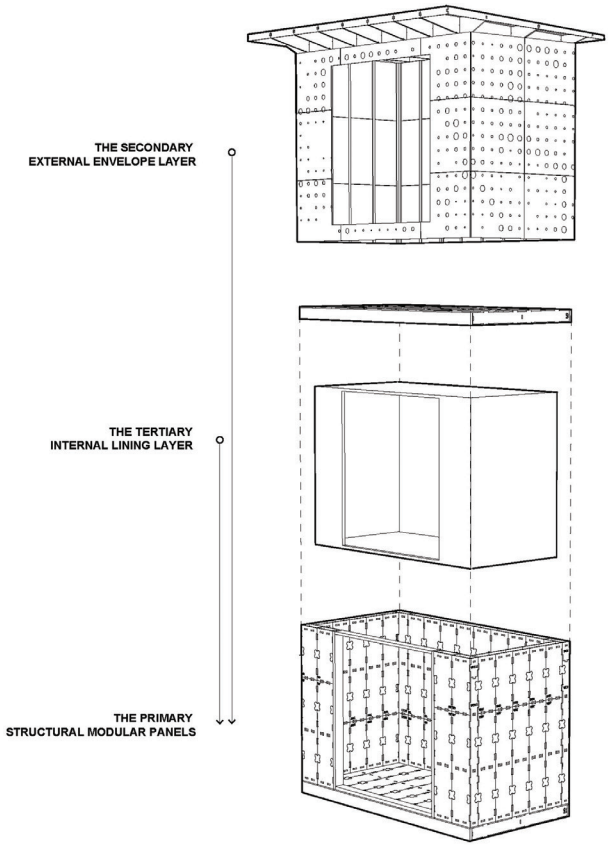


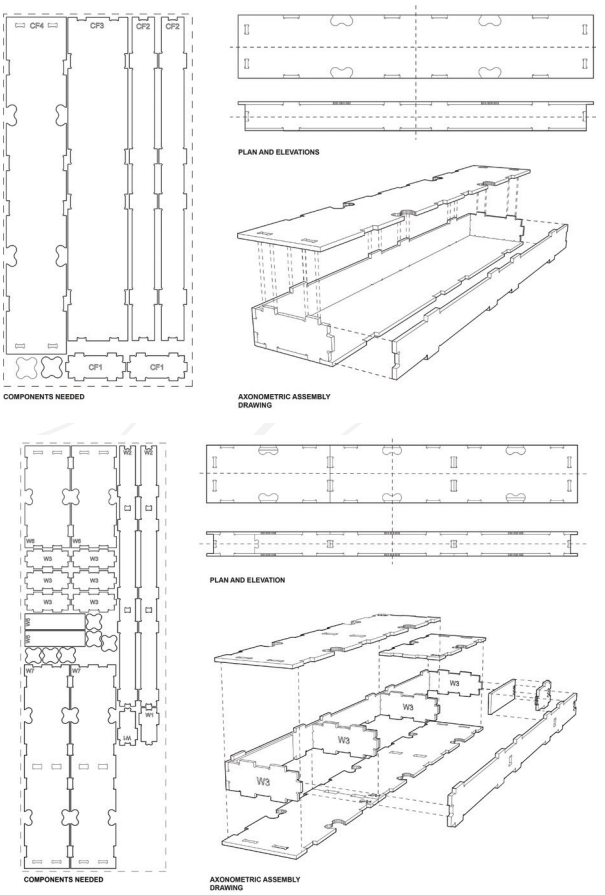
Figure 4. Three layers of EDFAB 1.0. Images: Yusef Patel

EDFAB Developments

The four major project iterations allowed for gradual improvement to the EDFAB concept in order for it to become an industry-sponsored and regulatory-approved construction system. The development also enabled efficiencies around labour, material cost and waste to be optimised, to ensure productivity could be passed on to all stakeholders. While the CNC machine produced flat-pack plywood components, all LVL framing components were cut to length by mitre saw.

The findings between the first three iterations revealed that the students, the architect and the contractor needed a highly refined workflow to be effective. These iterations did not need to obtain building consent and, therefore, everything from digital workflow, testing of design details, structure and division of labour between stakeholders could be tested without being limited by conventional process and approvals. When issues arose, they were discussed, understood and properly managed to ensure the best system could be developed for future iterations.

All the EDFAB flat-pack and timber framing elements were assembled into prefabricated panels within a workshop setting to ensure quality controls were in place. While EDFAB 1.0 and 2.0 did not incorporate pre-milling or pre-drilled holes for services, EDFAB 3.0 and 4.0 amended this design flaw to ensure the jobs of electricians and plumbers were simple and straightforward. Prefabricated elements such as Altus Smartfit windows and doors were incorporated into EDFAB 1.0 and 3.0 iterations as they allowed for low tolerance construction. Due to cost, they were not incorporated into EDFAB 4.0, to the detriment of



Figures 5 and 6. Designs for EDFAB 1.0, iteration 3.0 for the floor and ceiling panels, top, and wall panel, bottom.

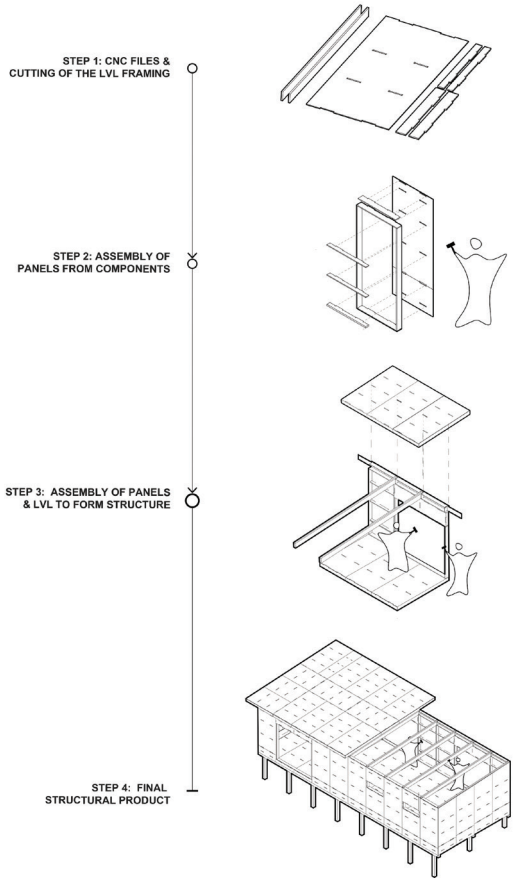


Figure 7. EDFAB 2.0 construction system. Images: Yusef Patel

quality and tolerance. The design of the architrave details had to be amended late in the construction programme, at extra cost. While EDFAB 3.0 incorporated Apex's modular wiring system, EDFAB 4.0 incorporated 'draw-wires' during the assembly process to allow the electrician to install wires with the final finished internal layer already affixed onsite. Similarly, while EDFAB 1.0 and 3.0 used Knauf blow-in-insulation onsite, EDFAB 4.0 used Knauf's Glasswool insulation, which was inserted in assembled panels in the workshop.

The greatest achievement of EDFAB 4.0 was that it furthered the research into obtaining regulatory Auckland Council building consent approvals. This required aspects such as plumbing and electrical wiring systems, and interior elements – kitchens, doors, handles and built-in furniture – to be addressed. To ensure offcuts were not disposed of into landfill, they were recycled to create the kitchen and internal door leaves.

Design–Build Studio Challenges

In any project, managing expectations from everyone involved is one of the challenges; even more so when it comes to a new system process. Funding and willingness for individuals to employ our system beyond a novelty product were challenges. From a client's perspective, there were issues around budgets and how to obtain loans. As the project was student-based, there were barriers and conflicts between the way students and professional building contractors operate. Professional contractors were at times annoyed with the variable availability of students to work

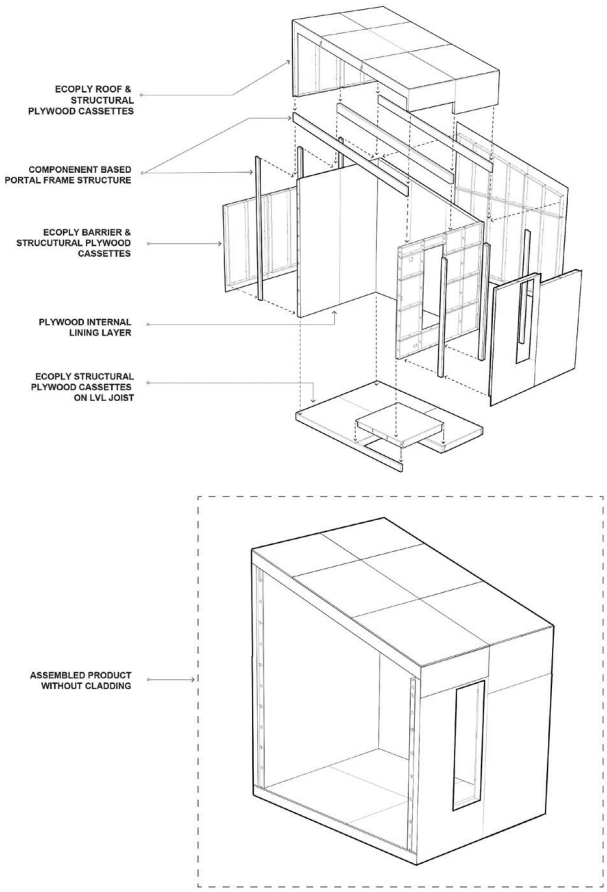


Figure 8. EDFAB 3.0 BuildNZ | Designex iteration. Image: Yusef Patel

on the project. While teaching academics understand this as a normal occurrence, and can accommodate it, it is something that contractors aren't used to, and can find difficult work around. Similarly, contractors forget that students are by no mean expert professionals. They can make simple mistakes that normally do not occur on a build project, which in turn will require the building timeline to be amended. If this is not properly communicated or accounted for by the project manager it can create problems. At times, some very minor mistakes have cost the client financially, as building contractors would turn up to site and have no work to do.

Building Landscape Comparison

The limitations of plywood mean that the modular panels are only 1200mm in width, meaning window or door

Figure 9. EDFAB 4.0 prefabricated panels being assembled and lined up ready for install onsite. Photographs: Yusef Patel

Figure 10. EDFAB 4.0 completed. Photographs: Ivan Majid

widths cannot exceed 1100mm. Future iteration will be required to overcome this engineering challenge. It is difficult to quantify whether this house is any quicker to build than a conventional house, as it was built by students over the course of a semester, and they needed to work on the project in between their classes. Elements such as foundations, cladding and windows were built or installed in a typical way, no different to conventional practice.

Integrating this building project into the students' programme and timeline put us out of competion with other projects of the same size, in terms of timeframe and critical path. This build equates to $3000 per square metre for the building component only, excluding all consents and other infrastructure. Extra costs came with site-specific items relating to this project, such as extra windows, scaffolding and shrink-wrapping.

It must be noted that the EDFAB house is a bespoke

build, with every single module manufactured to a custom design. The price is slightly above the cost of an average Auckland catalogue housebuild of $2500 per square metre.[4] The cost of the research house is on par with, and is at the bottem end of, the base price of house prefabricator Box: the cost of their houses ranges from $2500 per square metre at the economy end to $10,000 per square metre at the bespoke architectural end.[5]

Conclusion

The EDFAB research shows that the control of digital fabrication technologies is accessible and can be integrated into conventional construction practice. It is important to understand that ease of access and digital literacy levels will differ between practitioners and would-be practitioners, so the investigation sought to show that automation is not so far-fetched or intimidating. The skills and knowledge of the experienced stakeholders can be capitalised on, rather than their role being diminished or replaced by technology. Design parameters were created to test whether a product could be manufactured both by machine and hand. This was done to ensure design systems connect well with conventional construction processes to support and encourage adaptation among building practitioners. Working collaboratively with industry partners and building contractors such as engineers and installation specialists allowed us to ensure off-the-self products conformed to their code-compliant product statements. Lastly, practising architects and builders were constantly consulted to ensure that the outcomes would be realistic.

Acknowledgements

The EDFAB experiments would not be possible without Unitec New Zealand, PrefabNZ, The University of Auckland, Carter Holt Harvey Woodproducts, Apex Wiring Solutions, Adevfa Builders, Fortress Fasteners, Pro Clima NZ, Altus (formerly Fletcher Window and Door Systems), Juken New Zealand, Knauf Insulation, Holdfast, XPO Exhibitions and Eco Insulation.

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4. Greg Ninness, "The Average Size of New Dwellings Dropped from 200 Square Metres in 2010 to 158 Square Metres in 2019 While the Average Construction Cost Rose by a Third," Interest, February 10, 2020, https://www.interest.co.nz/property/103551/average-size-new-dwellings-dropped-200-square-metres-2010-158-square-metres-2019.
5. Dan Hayworth, "Compare Apples with Oranges: Understanding m²," Box, March 28, 2019, https://www.box.co.nz/2019/03/28/understanding-square-metre-cost/.

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Onehunga Waterfront and Climate Adaptation

A Unitec Landscape/Architecture Studio

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Abstract

This paper discusses the potential of a landscape/architecture student joint studio to develop design strategies for a waterfront development that adapts to the environmental challenges of climate change. The authors developed a studio methodology to help students build collaboration and capacity to address real-world problems. The collaborative approach started with the deliberate engagement of a multiplicity of stakeholders, drawn from government agencies, practitioners, the community and mana whenua. The studio approach offered architecture and landscape architecture students the opportunity to work in teams, to conduct critical research and to address critical contemporary issues through the design process.

Using the Port of Onehunga in Auckland as a case study, this paper presents the results of students' collaboration with the Auckland Council development agency Panuku in 2019 and 2020. The selected student projects demonstrate how a collaboration between landscape architects and architects can contribute to creative solutions to address the effects of climate change. This process not only inspired innovative solutions in the first master plan phase, but also informed detailed interventions in the second building and public-space design phase.

The results of the studio work demonstrate that alternative design strategies to the current generic waterfront model could be developed. These strategies explicitly address environmental problems, such as sea-level rise, to develop a more resilient waterfront development. The results of the collaborative studio project bring valuable insights for the local community in their search for design strategies to adapt to climate change. The results of the studio also contribute to the international search for alternative solutions for the design of waterfront development projects around the world.

Introduction

Climate change poses numerous environmental and social issues for urban development in coastal areas.[1] Conventional design solutions that have been advanced by professional groups, such as landscape architects and architects, are not adequate to address the complexity of the effects of climate change. To explore a more comprehensive approach for

1. Intergovernmental Panel on Climate Change, "Summary for Policymakers Chapter," in *Climate Change 2014 Synthesis Report* (Geneva: Intergovernmental Panel on Climate Change, 2014).

climate adaptation, the School of Architecture at Unitec developed a studio model to explore the potential of multi-disciplinary collaboration to design a waterfront that could adapt to these challenges. The studio was developed as a joint design course integrating landscape architecture and architecture students. A case study, the Port of Onehunga, was used as a design site to explore how this collaboration could inspire innovative climate adaptation.

The first section of this paper introduces the site, the Port of Onehunga, and the main issues addressed in the studio. This is followed by a discussion of the studio pedagogy: multidisciplinary collaboration and its benefits. Climate-adaptive solutions are presented in two sections, the master-plan phase and the detailed design phase, to demonstrate how the collaboration contributed to the development of innovative solutions. The paper closes with a reflection on the process of students' collaboration and its potential to address climate-change-related issues in real-world practice.

The Site

The Port of Onehunga is located to the south of Onehunga between an extinct volcano, Te Hopua a Rangi, and the edge of Manukau Harbour. The 6-hectare site is part of Auckland's volcanic field adjacent to Te Hopua, with Maungakiekie to the north, Te Pane o Mataaho (Māngere Mountain) to the south, Te Tatua-o-Riukiuta (Three Kings) to the west and Rarotonga (Mount Smart) to the east. The site is easily reached from State Highway 20, enabling access to the CBD and the airport. However, the access road also acts as a barrier, isolating the port from Te Hopua and the Onehunga township.

Sitting on the edge of the Manukau Harbour, the Port of Onehunga is facing a number of environmental challenges from both sea-level rise and flooding from a large impervious urban catchment.[2] Planning a waterfront development that is resilient to the environmental effects of climate change is vital to ensure the continuing viability of the new Port of Onehunga and other post-industrial waterfronts.[3] The site has strong connections to Māori, with most of the iwi associated with Tāmaki Makaurau having a connection to the site.[4] The port was built on reclaimed land over the twentieth century and completed in 1958.[5] It served as an industrial port for a number of building products and as an active fish-processing plant.

In 2019, Panuku, the Auckland Council development agency,[6] bought the Port of Onehunga and proposed the redevelopment of the area as part of an ambitious urban master plan to revitalise Onehunga.[7] The authors have worked with Panuku for two years on developing a new kind of waterfront development model that would allow for the environmental depredation occasioned by climate change – sea-level rise[8] and pluvial flooding[9] – while at the same time ensuring the expected commercial returns.[10] Acknowledging mana whenua was a critical part of the brief.[11] The development of the site would also enhance connections to the Onehunga township and Māngere, and acknowledge the rich historical, cultural and landscape features of the site. Working with these conditions, students were asked to develop a new waterfront master-plan to imagine a redevelopment of the Port of Onehunga that proritised the environmental and cultural factors.

Methodology

One of the key approaches used in the studio is interdisciplinary collaboration. Several authors have highlighted the advantages of an interdisciplinary learning process.[12] Hirt and Luescher mention the importance of

2. W. D. Shuster et al., "Impacts of Impervious Surface on Watershed Hydrology: A Review," *Urban Water Journal* 2, no. 4 (December 2005): 263–75, doi:10.1080/15730620500386529
3. Ibid.
4. Auckland Council, "The Hapū and Iwi of Tāmaki Makaurau," accessed September 29, 2020, https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/about-the-auckland-plan/Pages/iwi-tamaki-makaurau.aspx.
5. "Discover Onehunga's Rich History," Onehunga Business Association, accessed July 13, 2020, https://onehunga.net.nz/onehunga-history/.
6. "Who We Are," Panuku Development Auckland, accessed July 13, 2020, https://www.panuku.co.nz/about/who-we-are.
7. "Onehunga – News & Blogs," Panuku Development Auckland, accessed July 13, 2020, https://www.panuku.co.nz/onehunga.
8. Ministry for the Environment, "Adapting to Sea-Level Rise," accessed September 29, 2020, https://www.mfe.govt.nz/climate-change/climate-change-and-government/adapting-climate-change/adapting-sea-level-rise.
9. Ronnie Falconer, "Pluvial Flooding and Surface Water Management," in *5th EWA Brussels Conference* (Brussels: European Water Management and Implementation of the Floods Directive, 2009), http://www.dwa.de/portale/ewa/ewa.nsf/C125723B0047EC38/CC41A2CC77C52058C125768E0030232E/%24FILE/Pluvial Flooding and Surface Management.pdf.
10. Mike E. Miles, Laurence M. Netherton, and Adrienne Schmitz, *Real Estate Development: Principles and Process* (Washington, DC: Urban Land Institute, 2015).
11. "Te Aranga Design Principles," Auckland Design Manual, accessed October 2019, http://www.aucklanddesignmanual.co.nz/design-subjects/maori-design.
12. Sonia Hirt and Andreas Luescher, "Collaboration between Architects and Planners in an Urban Design Studio: Potential for Interdisciplinary Learning," *Architecture and Environmental Design Faculty Publications* Paper 1 (2007): 1–22, doi:10.1504/JDR.2007.016852; Tae Seo Koo, "Integrating Design Disciplines: Understanding the Potential for and Factors Affecting the Success of Interdisciplinary Design Education for Architecture and Landscape Architecture" (PhD diss., North Carolina State University, 2012); Miranda Suzanna Angelique De Hei et al., "Collaborative Learning in Higher Education: Lecturers' Practices and Beliefs," *Research Papers in Education* 30, no. 2 (2015): 232–47, doi:10.1080/02671522.2014.908407; Mi Jeong Kim, Seo Ryeung Ju, and Lina Lee, "A Cross-Cultural and Interdisciplinary Collaboration in a Joint Design Studio," *International Journal of Art and Design Education* 34, no. 1 (2015): 102–20, doi:10.1111/jade.12019.

interdisciplinary activities in the academic curriculum, indicating the benefits of a process in which learning occurs via conversation, collaboration and constructive conflict, because knowledge is constructed by social experiences.[13] The interdisciplinary experience also enhances cultural exchange and can contribute to mutual respect and a greater appreciation of diversity.[14] This active learning method brought a number of benefits to the teaching–learning environment.

The collaboration in the Port of Onehunga project was twofold: the collaboration between landscape architecture and architecture students; the collaborative engagement with Panuku and mana whenua. The interdisciplinary collaboration contributed to the students' learning and created a process closer to professional reality. The collaborative work between the disciplines provided opportunities for the students to discuss the project in interdisciplinary teams. This experience can enhance students' learning through explaining ideas to peers and teachers.[15] The collaboration between students and stakeholders can also broaden the clients' development scope, offering them a number of alternative solutions that can exceed their initial expectations.[16]

As the client, Panuku contributed to the preparation of the brief, gave a project introduction and led site visits, as well as provided feedback to interim presentation and the final presentation. A number of guest critics, including landscape architects, architects and urban designers from industry, were invited during the course of the project to help students understand some of the professional constraints of these complex urban redevelopments. Māori lecturers and practitioners were also invited to help students understand the importance of mana whenua in the design process and the ways to manifest their concerns and wishes through the use of Te Aranga Principles.[17] These key engagements helped to connect students to the critical social programme that the Port project offered, helping to move beyond a generic waterfront development.

Organisation of the Studio

The Port of Onehunga project was run in Semester 1 of the 2019 and 2020 academic years. Students were organised into groups, with equal numbers from each discipline. The collaboration offered landscape and architecture students an experience that is close to what they can find in their real professional life.

The studio was divided into three phases: a research report, the master plan, and a public space/building design. In the first three weeks, students worked in groups to develop a research report. This included investigating relevant case studies, analysis of the site through GIS mapping, and identifying appropriate strategies to build environmental resilience. Based on the research report, each group then explored design solutions that responded to the challenge of climate change, making connections to the Onehunga township, and acknowledging the needs of mana whenua. Students then developed a master plan for the redevelopment of the port site. The groups then split into their respective disciplines and worked individually, each developing a detailed design for a public space or a four-to-six-storey mixed-use building.

Site Investigation

The site visit was led by the client, Panuku, represented by a senior landscape architect and an urban designer. This was to help students to understand the key features and identify issues on the port site. Students also undertook a hīkoi, which was to explore the surrounding urban landscape, the Onehunga town centre and the Taumanu Reserve. Amiria Puia-Taylor, the chairperson of a community organisation, The 312 Hub, in Onehunga and representatives of mana whenua, talked to the students about the history of both the Port and Onehunga, and contemporary issues for Māori (Figure 1). Amiria emphasised the importance of water for mana whenua, contrasting the historically pristine waters of the Manukau Harbour, especially in the Te Hopua basin, and the present-day degraded and polluted stormwater from the Onehunga town centre.

13. Hirt and Luescher, "Collaboration between Architects and Planners in an Urban Design Studio: Potential for Interdisciplinary Learning."
14. Ibid; Paulo Freire, *Pedagogia Da Indignação: Cartas Pedagógicas e Outros Escritos* (São Paulo: Editora UNESP, 2000).
15. Hirt and Luescher, "Collaboration between Architects and Planners in an Urban Design Studio: Potential for Interdisciplinary Learning"; Kim, Ju, and Lee, "A Cross-Cultural and Interdisciplinary Collaboration in a Joint Design Studio"; De Hei et al., "Collaborative Learning in Higher Education: Lecturers' Practices and Beliefs."
16. Xinxin Wang et al., "Collaborative Student and Community Design in a Time of Climate Change: Planning a Flood-Resilient Waterfront in New Zealand," *ISOCARP Review 14 – Climate Change Planning* 14, no. 1 (2018): 38–55.
17. "Te Aranga Design Principles," Auckland Design Manual.

Figure 1. Students investigate the site and Onehunga. The site visit included conversations with Panuku members and Māori representatives from the community organisation The 312 Hub. Photographs: Lúcia Camargos Melchiors

Climate Adaptation in Master-plan Phase

The impact that climate change, especially the effect of rising sea level, would have on the Onehunga waterfront was a key consideration for students. The site, like many waterfronts, is particularly vulnerable to sea-level rise. A sea-level-rise simulation shows that a one-metre water-level rise would inundate most of the wharf area. A two-metre sea-level rise would cover the entire site. Students responded to these future conditions by exploring various green strategies, including: partially raising the land to avoid flooding;[18] improving pervious surfaces' ability to absorb runoff;[19] restoring local ecologies;[20] and introducing native flora to mitigate flooding.[21]

In the development of the master plan, most groups applied combined strategies to address the challenges. One group proposed a staged retreat, with a floodable landscape to acknowledge the opportunities created by the rising water level (Figure 2). The group proposed raising the northern part of the port site as a location for the new building programme, to meet Panuku's brief for a viable real-estate development. The land between the building site and the Manukau Harbour was re-formed as terraces to mimic volcanic lava flow. Three cycling and walking paths were proposed to link the site, allowing residents to explore the old structures on the existing wharf, as well as connecting visitors to the adjacent volcanic crater, Te Hopua, and Onehunga township. These connections were future-proofed by being raised above the future sea-level datum.

18. Department of City Planning City of New York, *Coastal Climate Resilience: Urban Waterfront Adaptative Strategies* (New York: Author, 2013), www.nyc.gov/uwas.
19. Jiri Marsalek et al., eds., *Advances in Urban Stormwater and Agricultural Runoff Source Controls* (Springer Science & Business Media, 2001).
20. Myla F. J. Aronson et al., "Biodiversity in the City: Key Challenges for Urban Green Space Management," *Frontiers in Ecology and the Environment* 15, no. 4 (May 1, 2017): 189–96, doi:10.1002/fee.1480.
21. Mingteh Chang, *Forest Hydrology: An Introduction to Water and Forests*, 2nd ed (Boca Raton, FL: Taylor & Francis, 2005).

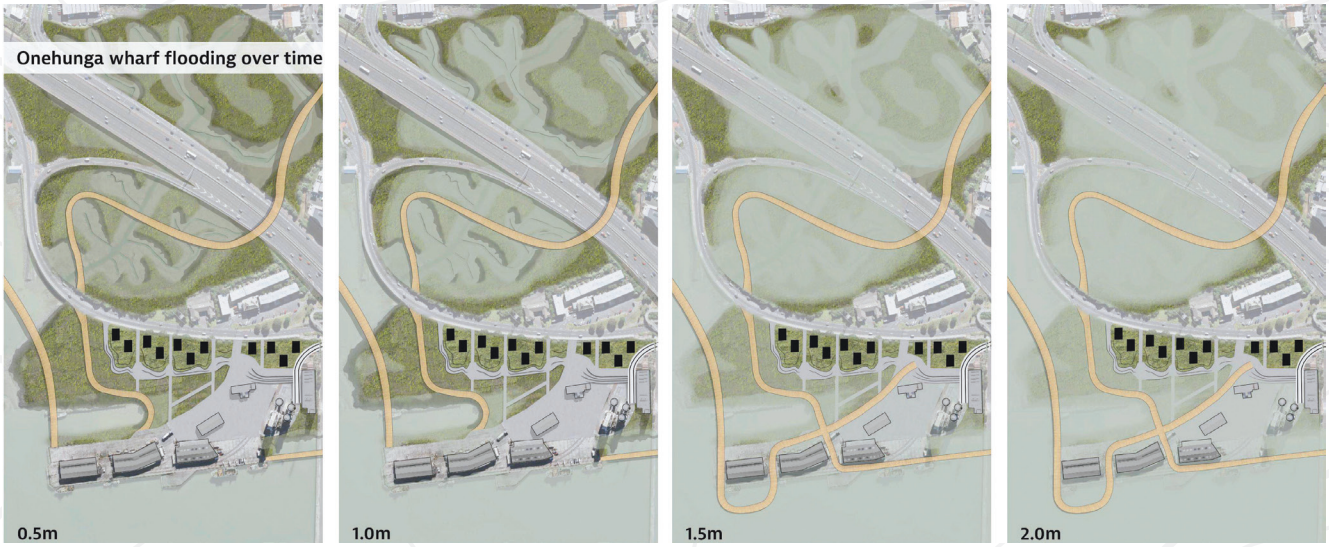

Figure 2. Staged retreat and floodable landscape in response to rising sea levels. Images: Nicholas Fortier, Christian Castle, Dilukshi Thurairajah, Xuling Zhu, Benjamin Whitehouse

Climate Adaptation in the Building/ Public Space Design Phase

The master-plan collaboration deepened the students' understanding of the complexity of building for climate adaptation. Inspired by their peers in the other discipline, students transferred their design thinking from conventional concepts to integrated solutions. Although the third phase of the project was for an individually designed building or a public space, the students kept communicating with one another and developed a number of innovative design solutions.

Public space

The landscape architecture students explored the way that making a resilient public space could support the design of a building and also adapt to the exigencies of climate change. The students found that through a close analysis of sea-level rise, a careful grading plan and a retreat strategy could be developed.

One option that students explored was to design a green buffer-zone between the buildings and the location of future sea-level rise. These spaces would also act as social spaces during fine weather and become water-retention zones during storm events. Another technique used by landscape students was to raise the building footprint above the anticipated sea-level rise. The intersection of indoor and outdoor spaces on the ground level of the building was considered, but landscape-based solutions could also be used in upper levels of the buildings. Green infrastructural devices such as green roofs[22] and rain gardens[23] could then be integrated into the design of building to mitigate the effects of climate change.

Another design solution to the effects of climate change was using a group of buildings as an elevated open public space. The design work proposed a sky garden at the second level of a building cluster (Figure 3). The sky garden not only connected the proposed apartment blocks, but also acted as a hub for pedestrians and cyclists to connect to Te Hopua, Māngere and Onehunga, even after sea-level rise. Other functions of the sky garden included the harvesting and filtering of rainwater and the provision of communal spaces for residents and visitors.

Mixed-use buildings

A number of the architecture students integrated green infrastructure techniques into the design of the mixed-use apartments. These techniques included: green roofs, permeable sidewalks and rain gardens. The architecture

22. Steven W. Peck, *Award Winning Green Roof Designs: Green Roofs for Healthy Cities* (Atglen, PA: Schiffer Publishing, 2008).
23. Nigel Dunnett and Andy Clayden, *Rain Gardens: Managing Water Sustainably in the Garden and Designed Landscape* (Portland, OR: Timber Press, 2007).

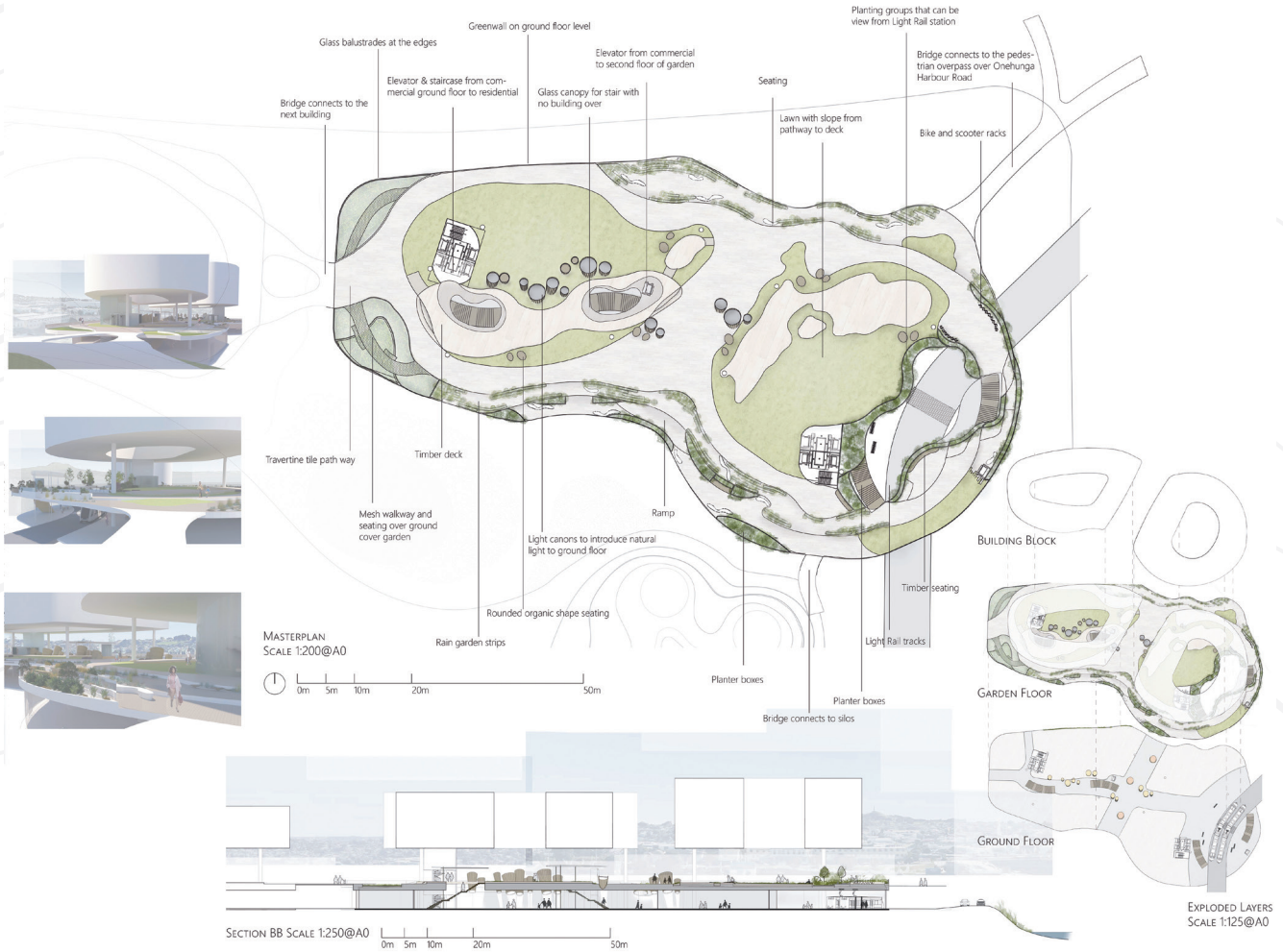

Figure 3. Integrating building with public space design. Image: Suyi Gan

students considered key elements of passive design, responding to the context and solar orientation, winds, shading and cross ventilation. Some projects proposed the use of roofs as both green and community spaces; improving stormwater management, retaining and delaying runoff and creating recreational areas for residents. Green roofs can also help to mitigate the effect of the urban heat island, creating cooler surfaces for the building envelope and helping with thermal efficiency.[24]

Other projects responded to the larger landscape, especially the Manukau Harbour, by acknowledging the extraordinary views through the design of private and communal outdoor spaces and organic materials. Figure 4 shows a building that emphasises the use of timber, a traditional element used in New Zealand's residential architecture, as cladding and brise-soleil (sun protection). A combination of private balconies and terraces responded to the views of the port and the surrounding volcanoes. These transitional spaces offered an opportunity for residents to relax and at the same time to help reduce the temperature of the building.

Integrated public space and buildings

Some groups worked collaboratively throughout the detailed design phase, and adjusted their design work to complement the others' projects. Many of the architectural decisions, such as the placement and orientation of the buildings, were informed by specific landscape decisions

24. Kelly Luckett, *Green Roof Construction and Maintenance* (New York: McGraw-Hill Education, 2009).

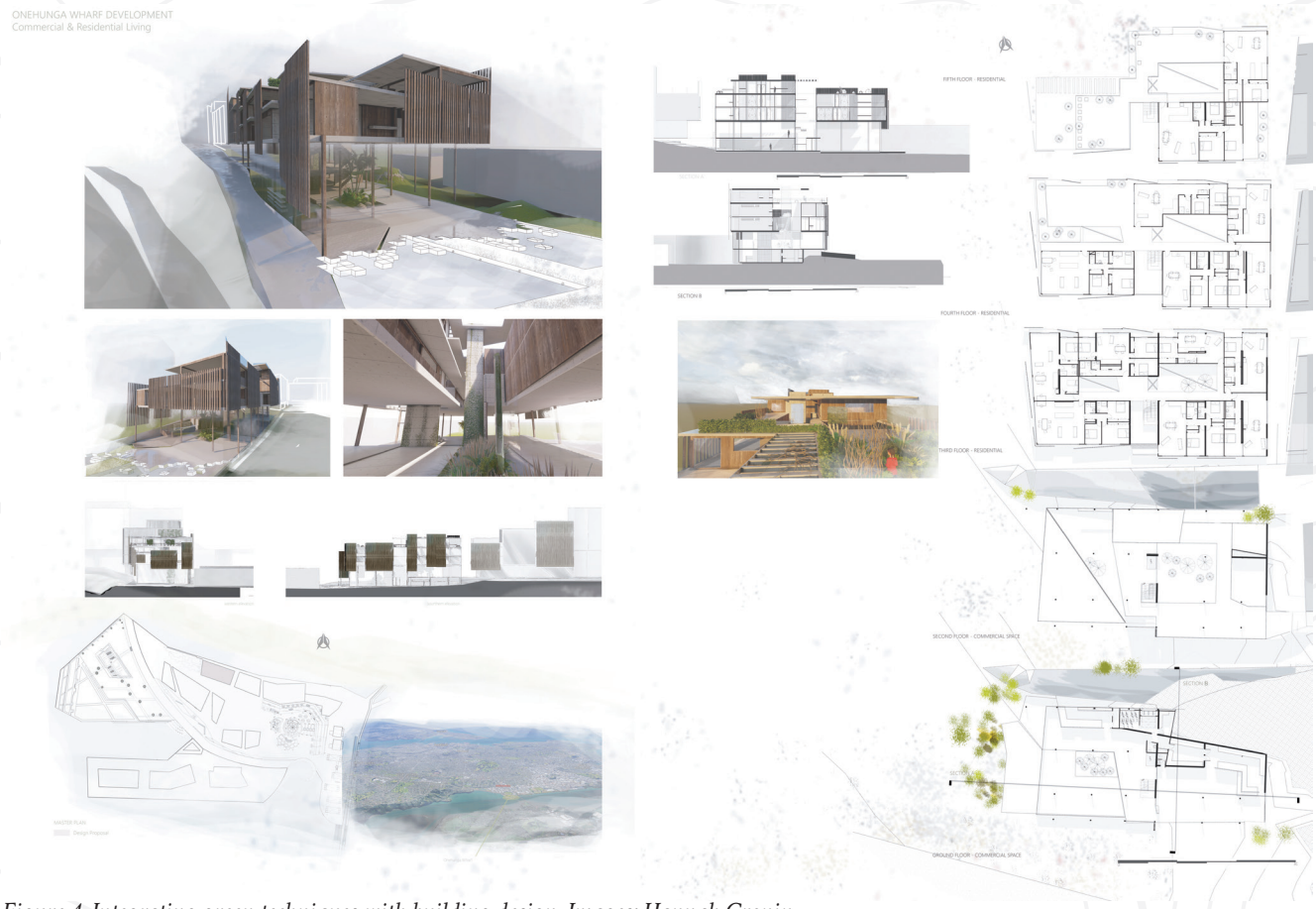

Figure 4. Integrating green techniques with building design. Images: Hannah Cronin

such as the grading of the landform, the creation of view shafts to the surrounding volcanoes and the transition from private to public spaces. For the landscape students, some of the landscape solutions were influenced by the building design: the proximity of the landscape to building entrances; the shade created by the height of neighbouring buildings; and the function of the spaces between buildings.

Two students demonstrated how the landscape and architecture disciplines could continue to contribute to each other's design work in the development of individual projects (Figure 5). The landscape architecture student proposed the use of north–south view shafts to connect the building platform to the surrounding maunga. In this way the historical Māori landscape of Tāmaki Makaurau is acknowledged. This positioning also helped the architecture student to orientate the apartment's location. The landscape architect also designed a terrace on the southern side of the building. The terrace worked in two ways: firstly, to raise the site above the potential sea-level rise and secondly, to mimic the surrounding volcanic topography. The buildings, designed by the architecture student, took advantage of the specific solar orientation and carefully located the apartments to allow for a harbour view for most of the residents. The apartments have a container-like building form, reflecting the industrial heritage of the port. By partially opening up the ground floor, the architect created a fluid transition between the ground-floor indoor spaces and the grass terraces.

Conclusion

The collaboration of landscape and architecture studio provides a successful model for the development of a resilient waterfront in response to the environmental effects of climate change. Interdisciplinary collaboration has been proven to be an effective teaching–learning

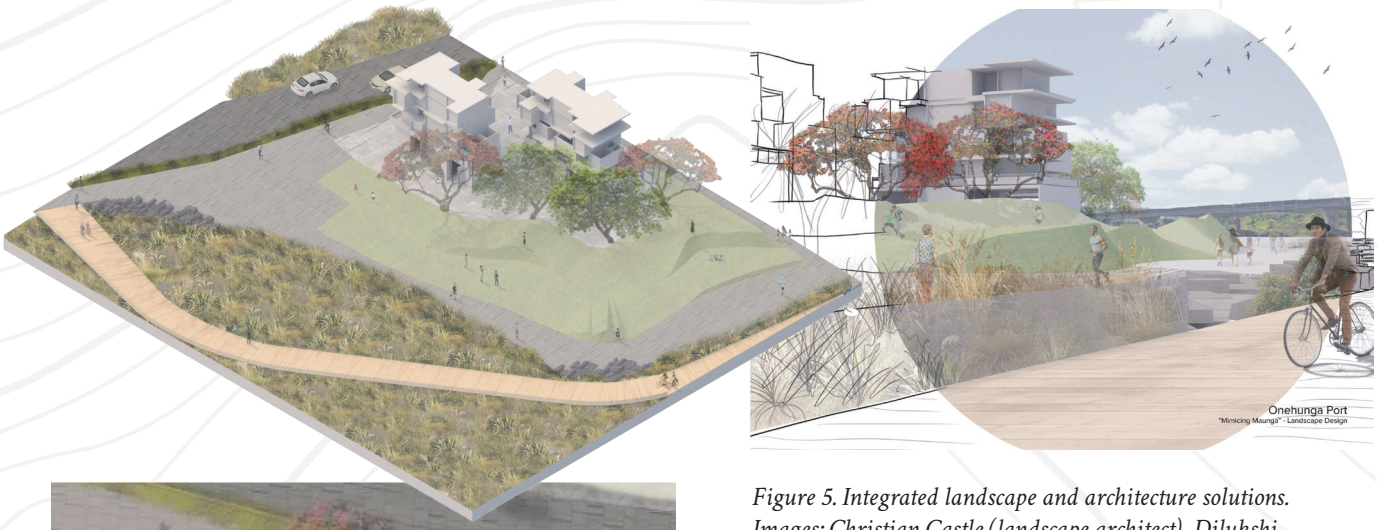

Figure 5. Integrated landscape and architecture solutions. Images: Christian Castle (landscape architect), Dilukshi Thurairajah (architect)

method through the case study of the Port of Onehunga; this not only gives students an opportunity to engage with real-world stakeholders, but also to learn from sharing different views through peer discussion. The studio was organised to respond to contemporary issues in Auckland, New Zealand, specifically climate change and associated social impacts.

The Port of Onehunga presented the opportunity of a future waterfront development that was used to demonstrate the benefits of this studio teaching model. Through the teaching–learning methods and design process, students were able to reflect on both environmental issues and acknowledging mana whenua. Students also were able to acknowledge the interests of mana whenua through a number of design strategies at different scales. The importance of the Te Aranga Design Principle of Tohu (mana whenua significant sites and cultural landmarks are acknowledged) was accomplished by acknowledging the larger landscape, the Manukau Harbour and the maunga of Tāmaki Makaurau. At a closer scale, the principle of Taiao (the natural environment is protected, restored and/or enhanced) was acknowledged by restoring the indigenous ecology of the harbour edge and replanting indigenous vegetation. The principles of Mauri Tu (environmental health is protected, maintained and/or enhanced) was acknowledge by both architects and landscape architects in ensuring that the contaminated stormwater produced by site development was cleaned before being discharged into the Manukau.

Through collaborative research and design throughout the studio project, students were able to propose alternative design solutions to address complex problems, such as sea-level rise, in both the master-plan phase and building/open-space design phase.

Beyond the immediate objectives of each studio, the interdisciplinary collaboration demonstrated several advantages, including exchanging experiences and starting to develop an interdisciplinary dialogue that will continue in professional life. As a case study of the development of an alternative waterfront model, this project not only provides valuable insights into climate adaptation in the Auckland context, but also contributes to a model, applicable to other coastal areas around the world. The design outcomes have clearly connected to developing design strategies for building waterfront resilience to the effects of climate change.

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Short Communication / Preliminary Original Research Article

Diverse Morphology

A Study of Chancery Square

Alyssa Haley and Dr Cesar Wagner
Drawings by Alyssa Haley

Abstract

The design of the urban environment is a challenging and complex exercise. The way people experience and use public open spaces is a valuable source of information for planning our cities. Indeed, understanding how these urban spaces are used and perceived by their occupants can provide a platform for learning and testing their adequacy and success. Based on research conducted in downtown Auckland – at the Chancery Square project – this paper investigates the way urban compositions influence our perceptions of space, and the effects spatial elements have psychologically on their occupants. The paper identifies urban aspects that stimulate the use and perception of such open spaces; in particular, enclosure, the outdoor room, datum lines, here and there, compression, release, deflection of sightlines and occupied territory.

Introduction

"A town is a large enough artefact to embrace a host of opposites," proposes Peter F. Smith in his book The *Dynamics of Urbanism.* He continues, "It should be a place of security and peace as well as exciting teleological, exploratory and problem-solving drives."[1]

Constructed over twenty years ago, Chancery Square, in and of itself, is arguably unremarkable compared to its counterparts in the perpetually developing city of Auckland. Yet it is the unpresumptuous nature of the square that diversifies the landscape, enabling a complex environment to eventuate.

In the 1840s, the narrow alleyways of the Chancery Square area were not a welcome addition to Auckland city's fabric, as the close proximity of the buildings enabled an environment afflicted with overcrowding and prostitution.[2] Auckland's street pattern, although originally designed in concentric rings, in reality resulted in a more traditional orthogonal grid pattern as it would allow less complications when subdividing.[3] In doing so, during the first land sales in April 1841, the less desired land of Chancery Street was seized up by speculators for the sole purpose of subdividing into lots as little as 3m wide[4] while the land on the main streets of Shortland

1. Peter F. Smith, *The Dynamics of Urbanism* (London: Routledge, 1974), 221.
2. Sarah Macready and James Robinson, *Slums and Self-improvement: The History and Archeology of the Mechanics Institute, Auckland, and its Chancery Street Neighbourhood.* Science and Research Internal Report No. 91 (Wellington: Department of Conservation, 1990), 104.
3. Leon Hoffman and Auckland Council, *A Brief History of Auckland's Urban Form* (Auckland: Auckland Council, 2019), 13.
4. Macready and Robinson, *Slums and Self-improvement,* 103.

Figure 1. The closed vista between the two turrets signals both an entrance and a transition from the distractive openness of Freyberg Place to a more orderly and peaceful enclosed environment.

Crescent (now Street) and Queen Street permitted better living conditions. Presently, Chancery Square remains set back far enough from the main streets that its narrow paths do not result in crowding and allows for the square to continue to benefit the surrounding environment.

Chancery Square boasts urban aspects unlike those featured in the surrounding built environment; aspects such as enclosure and the idea of 'the outdoor room,' as well as varying datum lines, a deflection of sightlines, and an interplay between compression and release. The combination of these architectural features amalgamates into a unique set of characteristics that juxtapose the urban attributes of its surroundings and thus contribute to a diverse architectural environment within downtown Auckland.

Based on studies by Smith, Cullen and Del Rio, this paper investigates and discusses the spatial qualities of this peculiar urban environment. Through the production of serial vision drawings – as part of an observer–participant experience exercise – its urban aspects are presented and analysed, illustrating the diverse morphology generated by the Chancery Square project.

Enclosure and the 'Outdoor Room'

Chancery Square resides within Auckland City between two spaces clear of a built environment; Albert Park inhabits the rise to the southeast of Chancery Square while Freyberg Place occupies the opening to the west. Chancery Square links the two spaces, instigating a relationship between the exposure of the two spaces void of buildings and the enclosure of the square itself.

Hand in hand with the experience of an exposed place is the subjection to the noise and speed of other inhabitants. It may be observed that Chancery Square, alternatively, provides a haven from the exposure of the two expanses, as upon entering the square the user is funnelled through a closed vista between two turrets (Figure 1). The function of the closed vista both establishes a clear entrance into the square and, more actively, controls the path of the occupants so that the movement within the square appears more orderly and therefore facilitates an environment that is more peaceful than the disorder outside the enclosure of the square.

Gordon Cullen, in his book *The Concise Townscap*e, raises a corollary to that of enclosure that establishes the term 'outdoor room,'[5] which illustrates the nature of Chancery Square. Due to the proximity of the buildings that enclose the square, the storefronts appear as interior walls and fabricate an area that is utilised in a manner reminiscent of that of an indoor room. Cullen states that "the people who [colonise the outdoors] will attempt to humanise the landscape in just the same way they do for the interiors."[6]

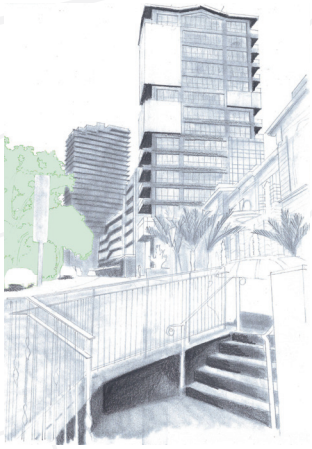
Both the comparative enclosure and humanisation of an 'outdoor room' go to prove that Chancery Square diversifies its urban environment by providing intimacy and security that are able to balance the exposure of its surroundings. Enclosure is not without its downfalls, however, as an enclosed space has only limited space and thus a maximum occupation. Hence, if Chancery Square existed closer to the populated streets of Auckland, such as Queen Street, the encompassing shop faces would diminish the effect of the square and turn it into a space likely to feel more claustrophobic and unable to fulfil its function. In this regard, Chancery Square is not designed to support a mass of occupants and has thus failed at becoming a noteworthy location with the ability to draw occupants in.

Datum Lines

The topographical context of Chancery Square continues to enhance the sense of security and intimacy felt within the square through its varying datum lines. Upon entering the square from Freyberg Place, the occupant is yet to be subjected to a change in ground level that would have any effect on how they would position themselves on a vertical axis. Continuing further into the square, however, the steps towards Albert Park become visually apparent,

5. Gordon Cullen, *The Concise Townscape* (London: Architectural Press, 1996), 28.
6. Ibid.

Figure 2. Datum lines in urban design can enhance the senses of the occupants: feelings of intimacy and protection when below datum, to authority and privilege when positioned above the ground.



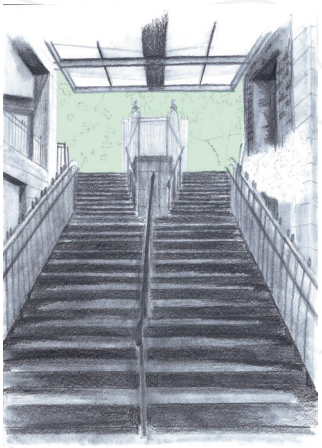


Figure 3. The stairway connecting Chancery Square to Albert Park: a threshold between the 'Here' and the 'There.'

establishing both an impending release from the square as well as a suggestive change in ground level (Figure 2). By approaching the steps, and thus the idea that one is now beneath ground level, the sensitivity of being below datum begins to form, which allows the square to assume an intimate character. Cullen speculates that an occupant positioned below datum experiences feelings of intimacy perhaps deriving from "the primitive hunt or from the doctrine of heaven and hell."[7] In this case, where vulnerability is not a trait desired in a public space, it is one that would not describe Freyberg Place nor Albert Park and, thus, does indeed continue to diversify the surrounding landscape. To climb the steps and alter one's position within the space now places the inhabitant above the datum line of the square, allowing for a completely opposing psychological effect to take over the senses. To be above datum may produce feelings of authority and privilege, as if the observer is placed on a plinth, therefore acquiring significance from the observer's position above the ground. This further reinforces the idea that Chancery Square provides a diverse environment from that of its surroundings as it acts as a haven that can produce a sense of security and intimacy. Outside the square, above the datum line, one would feel a different sensation.

A change in height this substantial also works to generate interest. As Gordon Cullen proposes, "visually, a change in height provides vitality…to a scene."[8] Such vitality stimulates the mind of the occupant as well as establishing a direct relationship between them and their environment.

Here and There, Compression and Release

The enclosed nature of Chancery Square designates that anywhere outside the perimeter of the square is immediately a different space, unrelated to the confines of the square. As we postulate both a 'here' in Chancery Square and a 'there' beyond its borders, it becomes clear that the urban landscape is benefited by the drama of the manipulation of these two spatial concepts (Figure 3).

Inside of the square, a pressure forms that is generated by the close proximity of the buildings enveloping the square. Gordon Cullen and Vicente del Rio have contrasting ideas on the effect of the space. Cullen's take is that the narrowness between buildings would have a "definite effect on the pedestrian inducing a sense of unaccustomed constriction and pressure,"[9] yet del Rio, in his article "Urbanity, the Flâneur, and the Visual Qualities of Urban Design: A Walk in Lisbon, Portugal,"[10] would argue that it would produce a psychological effect of comfort due to the instinctively defensive human mind. This paper argues that the narrowness of the laneway results in a combination of both ideas: an unaccustomed constriction that may have the psychological effect of comfort.

The set of steps towards Albert Park acts as a division between the 'here' of Chancery Square and the 'there' of Albert Park. It establishes an impending exit that can be verified from within the square without permitting for the 'hereness' of the space to leak away into the distance.

7. Cullen, *The Concise Townscape*, 177.
8. Ibid, 175.
9. Ibid, 45.
10. Vicente del Rio, "Urbanity, the Flâneur, and the Visual Qualities of Urban Design: A Walk in Lisbon, Portugal." *Focus* 12, no. 1, article 16 (2016): 69.

As the view is obscured by the set of steps, emerging from Chancery Square exhibits a stronger sense of revelation and release, all the while keeping the sanctity of the hereness within the square. It is only once the rise has been traversed that the concealed view is revealed in its fullness. The square that you emerge from and the place beyond into which you emerge each have a unique ambience that transforms between the two spaces: one of compressive ambience and a second ambience that emanates release.

This sense of release is only amplified by the stark juxtaposition between the heavy use of man-made materials within the square and the thick vegetation of the park. The use of manufactured materials is commonplace in the urban environment, but does allow the greenery and vegetation of the park to provide an experience that confronts you with the unexpected, therefore stimulating the senses while diversifying the urban landscape.

Deflection of Sightlines

In a typically orthogonal built environment, Chancery Square not only differentiates from the grid-like fashion of the surrounding buildings by creating laneways that do not follow the established axis of the city but also introduces unprecedented curvature into its plan. In his article, Vicente del Rio asserts that this kind of "Visual stimulation caused by unpredictable, complex, and surprising urban morphologies is more engaging, aesthetically pleasing, and essential for urbanity."[11]

Breaking away from the orthogonal building shape benefits Chancery Square not only by creating stimulation and a more engaging experience but also by driving the movement of its occupants. The curvature of the path generates a deflection of sightlines which in turn produces a sense of anticipation as the path must, therefore, be sought after.

In Auckland's typical urban landscape, buildings are positioned at right angles to the main axis of the city due to the demand for ease in building and subdivision of the land in the 1840s;[12] this traditional grid can still be seen in Auckland's urban fabric today. The effect that this pattern has begins to create enclosed spaces that are visually complete. As a contrast, Chancery Square diverges from

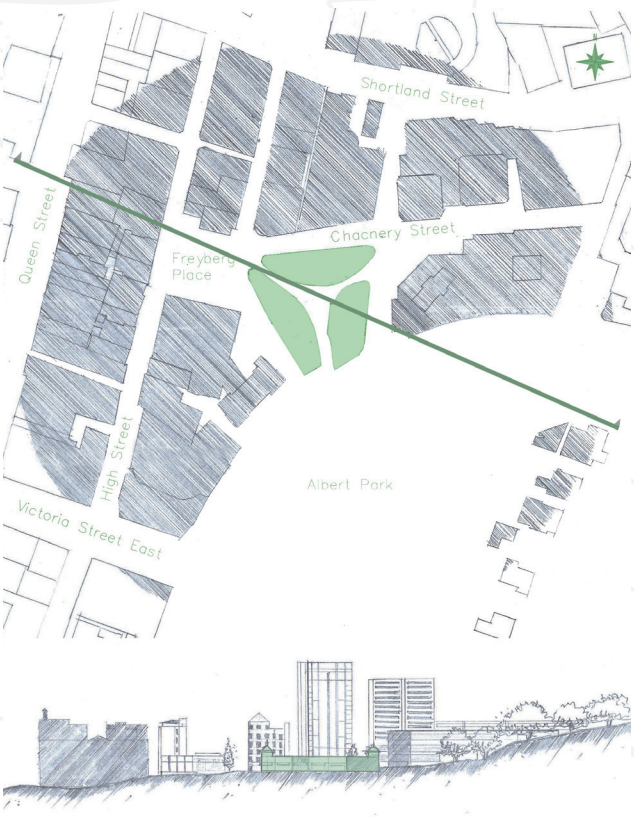


Figure 4. The figure-ground diagram illustrates the surrounding grid-like landscape of the built environment, thus highlighting Chancery Square's detachment from the paradigm.

the main Auckland axis (Figure 4). The terminal building is positioned at an angle that implies a space that is present yet unseen. Spatial qualities such as these produce a response that can stimulate the eyes and the mind of the viewer, which can consequently drive movement and "motivate exploration," which Peter F. Smith maintains in his book *The Dynamics of Urbanism* to be an indicator of a "creative townscape":

Creative townscape, that is, environment which stimulates the mind by extending its schema of urban events, generating images and motivating exploration, is not simply a matter of imaginative architecture. It is something much more subtle and complex, involving deployment of spaces, contours, solids and voids, the building-up of a host of stimulating tensions.[13]

11. Ibid, 67.
12. Hoffman and Auckland Council, *A Brief History of Auckland's Urban Form*, 13.
13. Smith, *The Dynamics of Urbanism*, 236.

Figure 5. Chancery Square's glass canopy: a focal point in the centre of the square and a provider of shade, shelter and amenities.

Occupied Territory

As much as Chancery Square generates interest and diversifies the architectural landscape of downtown Auckland, it contends with Freyberg Place and Albert Park for static occupation. Causes of possession in an environment stem mainly from the human need for shade, shelter and amenities, all of which Chancery Square successfully provides. What Chancery Square lacks, however, is the public seating and aesthetics that make static occupation enjoyable. During the day, Chancery Square serves mainly as a convenient linkage between destinations, as Freyberg Place boasts more public seating and a vantage point that creates a more appealing view than that which Chancery Square provides.

Chancery Square does deliver a variety of stores that prevent it from becoming a purely transitional space, yet as the stores are situated within the buildings, the perceived occupation of the square is less than the reality. This is ultimately the undoing of Chancery Square. People are drawn to places with a human presence and, without this, Chancery Square loses its appeal due to the lack of character.

In saying this, while Chancery Square cannot claim to boast an environment that is perpetually occupied, a more static inhabitation occurs where a periodic occupation is woven into the nightly routine of the square. Chancery Square sees an increase in occupation during the evenings, when the bars and restaurants open for the night, drawing in a number of patrons and generating an atmosphere that Freyberg Place and Albert Park lack.

Consequently, even during the day, when Chancery Square returns to a quiet, intimate space, the restaurant chairs and tables populate the laneways as what Gordon Cullen terms "furniture of possession."[14] He proposes that "although the amount of possession may be small, its perpetuation in the furniture gives the [square] humanity and intricacy in just the same way that louvres on windows give texture and scale to a building even when the sun is not shining."[15] In this way Chancery Square is always filled with potential occupation. Regardless of this, until night falls, potential occupation is all Chancery Square can claim.

Conclusion

Chancery Square demonstrates the way urban compositions influence our perceptions of space and the effects these urban aspects may have psychologically on their occupants. It is a meaningful location due to its range of fundamental visual urban design qualities that permit engagement and interest, and are beneficial to downtown Auckland.

In piquing interest through engaging urban qualities, Chancery Square facilitates an environment that is both memorable and noteworthy, hidden amongst the relative monotony of its surroundings. As day turns to night, the humble cobblestone laneways evolve into a charming atmospheric courtyard separate from the clamour of the busier neighbouring streets, thus producing a thriving square that acts as an intimate location for occupants to connect and relax.

In an increasingly impersonal city, it can be proposed that Chancery Square provides a space that incites feelings of comfort, protection and control of our surroundings. A procession through the square becomes a journey of experiencing a sequence of exposures and, thus, enclosures; of heres and theres; of constraints and releases. A sequence that stimulates the occupant and establishes a complex architectural environment unique to Chancery Square.

14. Cullen, *The Concise Townscape*, 23.
15. Ibid.

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Short Communication / Preliminary Original Research Article

An Untraditional Perspective of Tradition

The Lessons of Gummer and Ford in Architectural Education and Designing for New Zealand. A Unitec Research Project

Dr Milica Mađanović, Cameron Moore and Dr Renata Jadresin Milic

Abstract

Tūāpapa Rangahau, the Research and Enterprise Office at Unitec Institute of Technology, focuses on opportunities, challenges and problems in a wide variety of subjects. In 2020, the authors proposed a research project devoted to Gummer and Ford – an architectural firm founded in 1923 in Auckland by William Henry Gummer (1884–1966) and Charles Reginald Ford (1880–1972). Although one of the most prominent practices in New Zealand architectural history, which designed numerous iconic buildings, the firm remains strikingly under-researched in New Zealand architectural historiography, as do their 1920s–40s traditionalist contemporaries. Marking the centenary of Gummer and Ford's establishment, 2023 is recognised as a milestone in New Zealand's architectural calendar. The paper reflects on the three stages of the Unitec research project devoted to Gummer and Ford (2020–23) that is envisaged to build up to this date. The project aims to test and create links between historical research, architectural education, design practice and the New Zealand community.

Introduction

In his seminal book *American Architecture and Urbanism*, Vincent Scully argued that preservation and continuity are not inconsistent with the new.[1] To use his exact words, "single civilization is based largely upon the capacity of human beings to remember, the architect builds visible history."[2] However, not that long ago, during the period c. 1910–1960s, these builders of visible history decided to renounce centuries of architectural tradition, dismissing it as inappropriate, even harmful for the needs and expression of the modern conditions. In the process, traditionalist forms of architecture became equated with backwardness and conservative modes of thinking. The consequences are far-reaching – today, almost a century later, the mere idea of drawing from architectural history is ridiculed by most members of the profession. The interest in beautiful architecture inspired by history, however, persists. It is present among a number of practising architects, clients, and students. In the case of the latter, unless a student of architecture is lucky enough to encounter a sympathetic

1. Vincent Scully, *American Architecture and Urbanism* (San Antonio, TX: Trinity University Press, 1969).
2. Vincent Scully, *American Architecture and Urbanism* (1969; repr., San Antonio, TX: Trinity University Press, 2013), 22.
Published originally by Praeger, the book was reissued by Henry Holt in 1988 with an addendum by Scully, and then reprinted again, in original form without the addendum, by Trinity University Press in 2013. Citations here refer to the 1988 edition; see also Paul Goldberger, "Vincent J. Scully Jr. (1920–2017)," *Journal of the Society of Architectural Historians 77,* no. 2 (2018): 133–37.

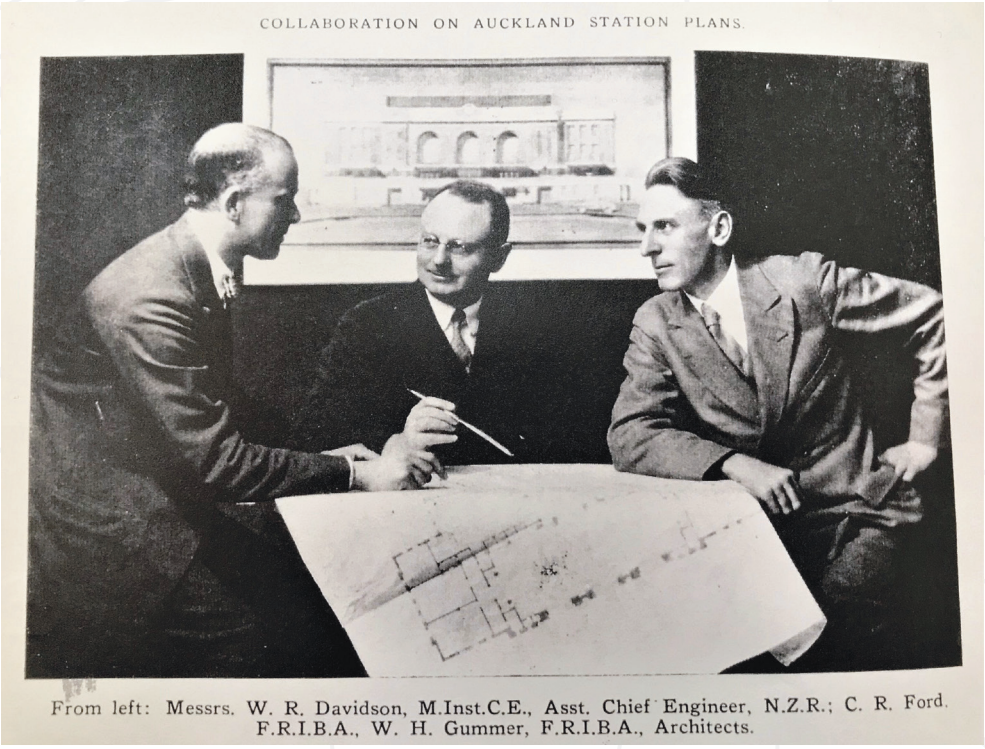

Figure 1: "Collaboration on Auckland Station Plans," The New Zealand Railways Magazine*, December 1930: 19, from Bruce Petry, "The Public Architecture of Gummer and Ford" (MArch thesis, The University of Auckland, 1992).*

tutor, the thought of learning from the past is most often cut off at the root. At the same time, ironically, students are asked to draw from the past experiences, i.e., the precedent study, for their projects. Thus, the concept of continuation has not been erased from the creative process. The student and the practitioner alike can rely on the past; it is just that certain formal solutions are off limits. We believe that traditional architecture deserves a place in the pool of acceptable design inspiration; it should be allowed as a desirable example from the past. To do this, we must first remember what was forgotten and evaluate its suitability for the present needs. In this country, we will start with a three-year project focused on the practice that has often been described as New Zealand's most eminent from the interwar period – the firm of Gummer and Ford. The project will start in 2021 with a thourough research of Gummer and Ford's design principles and methods. The results will serve as the basis of a design studio that will be run at the Unitec School of Architecture in 2022. Finally, the architecture of Gummer and Ford, research and the student work will be shared with a broader audience in 2023, at the exhibition that will mark the centenary of the firm's establishment in Auckland. In sum, the project aims to connect historical research, architectural education, practice and the New Zealand community.

Gummer and Ford was an architectural firm founded in 1923 in Auckland by William Henry Gummer (1884–1966) and Charles Reginald Ford (1880–1972). Various researchers of architectural history agree that the firm can be considered one of the most prominent practices in New Zealand architectural history.[3] Charismatic and influential, Gummer and Ford played an essential role in the professionalisation of New Zealand architecture, founded earthquake construction techniques, and contributed to the development of the country's institutionalised architectural education. They were both passionate about developing a "type of design which seems to be expressly influenced by New Zealand conditions."[4] The practice spanned nearly forty years designing numerous iconic

3. See, for example: Terence Hodgson, *Looking at the Architecture of New Zealand* (Wellington: Grantham House 1990), 48; Bruce Petry, "The Public Architecture of Gummer and Ford" (MArch thesis, The University of Auckland, 1992); Peter Shaw, *A History of New Zealand Architecture*, rev. ed. (Auckland: Hodder Moa Beckett, 2003), 19, 67, 88, 90, 111–15, 146, 197; Paul Waite, *In the Beaux-Arts Tradition. William Gummer Architect.* Exhibition catalogue (Napier: Hawke's Bay Cultural Trust, 2005); Denis Welch, in the *New Zealand Listener*, described the firm as "the best architectural practice of all time in New Zealand." Denis Welch, "The Best of New Zealand," *New Zealand Listener*, August 4, 2007.
4. William Gummer and Reginald Ford, "Small House Competition," *NZIA Journal* (December 1931): 117.

buildings, including the two biggest commissions in New Zealand at the time, the Auckland Railway Station (1930) (Figure 2) and the National Art Gallery and Dominion Museum in Wellington (1933–36). Eighteen of their buildings have been registered as significant historic places by Heritage New Zealand. In 2006 an exhibition of their work was staged at The University of Auckland's Gus Fisher Gallery. Yet the firm remains strikingly under-researched in New Zealand architectural historiography, as do their 1920s–40s traditionalist contemporaries. This period also marked a high level of construction activity internationally, shaping built environments of the various countries from the Western cultural sphere. Housing important public institutions, successful businesses, or high-end apartments, traditionalist structures are recognised for their heritage value across the world. In contrast, scholarly references on the topic are so scarce that only one monograph dedicated specifically to the traditionalist architecture of the period has been published to date – *Architettura Tradizionalista* by the Italian scholars Giorgio Pigafetta, Ilaria Abbondandolo, and Marco Trisciuoglio.[5] In New Zealand, early-twentieth-century traditionalist architecture is a topic that has been treated asymmetrically in previous scholarship as merely the precursor to 'true' modern architecture.[6] It is time this architecture received appropriate scholarly attention.

So, what is it that we are trying to achieve?

The Project: An Untraditional Approach to Tradition

As mentioned in the paper's introduction, this project revolves around three main goals – to expand knowledge, to leave a mark on contemporary design practices and to reach out to the broader community. The project was conceived as a response to the perceived gap in knowledge of traditional architecture, both in New Zealand and internationally. The aim is to set the foundation for the appropriate exploration of New Zealand architectural history, one that will significantly contribute to our society's understanding of its culture, identity and history. In addition, the project will contribute to a more comprehensive image of pre-Second World War architecture internationally. The project is part of our wider efforts to popularise twentieth-century traditionalist architecture worldwide, and, among other issues, debunk the myth that traditionalist architects

Figure 2: Façade of Gummer and Ford's Auckland Railway Station. Photograph: Cameron Moore

sacrificed functionality, site responsiveness, or structural expression to outdated notions of beauty. The project will also explore the application of historical research and knowledge in contemporary architectural teaching and design practice. In the long term, further development of the practices initiated by this project could place New Zealand on the world map as one of the few countries who offer this type of education to architectural students. Consequently, architects trained in New Zealand will be able to appropriately respond to a broader range of clients.

Marking the centenary of Gummer and Ford's establishment and the final phase of this project, 2023 is recognised as a milestone in New Zealand's architectural calendar. The three stages of the project build up to this date: 1. Investigation, 2. Application and Education, 3. Celebration and the Community.

1. Investigation

Using a starting point that William Gummer was the design virtuoso of the duo, the first phase of the project – Investigation – starting in 2021, explores Gummer's design principles and method. Specifically, this project investigates Gummer's thinking about architecture. The main question

5. Giorgio Pigafetta, Ilaria Abbondandolo, and Marco Trisciuoglio, *Architettura tradizionalista: architetti, opere, teorie*, 2nd ed. (Milan: Jaca Book, 2002).
6. This trend is slowly changing. In 2020, Milica Mađanović completed a PhD thesis about twentieth-century architecture in New Zealand, at the University of Auckland, "Architectural Historicism Revisited: The Case of Twentieth-Century Traditionalist Architecture in Queen Street, Auckland."

Figure 3: Gummer and Ford, Dominion Museum, National Gallery and Carillon Campanile, Wellington; presentation perspective 1929–30, University of Auckland, School of Architecture Library, from Bruce Petry, "The Public Architecture of Gummer and Ford" (MArch thesis, The University of Auckland, 1992).

to be answered is what theoretical ideas and attitudes informed Gummer's approach to architectural practice.

The investigation is based on Gummer's designs, as well as interviews and articles published during the interwar period in daily newspapers such as the *New Zealand Herald* or the *Auckland Star,* as well as the two major architectural magazines from the period – *Progress* and *Journal of the Proceedings of the NZIA.* Although Gummer's architectural interests varied – he wrote about issues as diverse as bridge construction, architectural education and the importance of architectural history – his tone always remained didactic. Gummer never intended to devise a corpus of architectural theory, he wrote from the perspective of a practising architect who wished to share his experiences with the other (sometimes less experienced) members of his profession. However, theoretical information that Gummer provided distinguishes him from other architects of the period, allowing us to understand the thinking behind the design and thus making his work an ideal case study for the exploration of early-twentieth-century traditionalist architecture.

The first stage of the project will produce two outcomes. On one hand, the research conducted during this phase will result in the first published monograph about the practice, which will provide an essential tool for the scholarly dissemination and broader recognition of Gummer and Ford's – and inextricably New Zealand's – twentieth-century architecture. If New Zealand architectural historians wish to represent the firm's architecture internationally, at conferences or publishing in academic journals, they will need to have a range of appropriate scholarly references at their disposal. The monograph will directly cater to this need. On the other hand, the research from the first stage of the project will serve the development of the content that will be taught at Unitec's School of Architecture.

2. Application and Education

This brings us to the second phase of the project – Application and Education (2022). The second stage entails a one-semester elective design paper based on the design principles and methodology of Gummer and Ford. In his article "12 Ways to Reform Architectural Education," Mark Alan Hewitt persuasively argues for teaching young architects proportional and grammatical systems associated with classical architecture, Chinese traditional architecture, and other non-Western systems, "which may soon prove to be linked to schemata in the brain."[7] Contemporary traditionalist architecture constitutes

7. Mark Alan Hewitt, "12 Ways to Reform Architectural Education," *Common Edge*, September 6, 2020, https://commonedge.org/12-ways-to-reform-architectural-education/; *ArchDaily*, June 19, 2020, https://www.archdaily.com/941809/12-ways-to-reform-architectural-education.

Figure 4: Gummer and Ford, Dilworth Building, 1825–27, Auckland. Photograph: Cameron Moore

an important field of problems in the recent history and theory of architecture. Since the 1980s the number of practising architects who are designing using traditionalist principles in architecture has increased.[8] Thus, its growing presence in the midst of the continuously evolving field of contemporary architecture calls for a study into its genesis and modes of representation. It also invites a synthetic analysis of the main problems of the presentation of ideas underpinning traditionalist architecture, together with the formulation of a comprehensive set of notions related to this modern phenomenon.[9] Furthermore, to respond to the growing demand observed in clients, as well as to maintain the standards of the architectural profession, schools of architecture need to prepare their students better. At Unitec's School of Architecture students will have the opportunity to learn about traditionalist design principles,

8. Elizabeth Meredith Dowling, *New Classicism: The Rebirth of Traditional Architecture* (New York: Rizzoli, 2004); Branko Mitrović, *Learning from Palladio* (New York: Norton, 2004); Andreas Papadakis, *Classical Modern Architecture* (London: Terrail, 1997); Richard Economakis, ed., *Building Classical: A Vision of Europe and America* (London: Academy Editions, 1993); Andreas Papadakis and Harriet Watson, eds., *New Classicism* Omnibus Volume (London: Academy Editions, 1990); Robert A. M. Stern, *Modern Classicism* (London: Thames & Hudson; New York: Rizzoli, 1988); Thomas Gordon Smith, *Classical Architecture, Rule & Invention* (Kaysville, UT: Gibbs M. Smith, Inc., 1988); Charles Jencks, *Post-Modernism. The New Classicism in Art and Architecture* (London: Academy Editions, 1987); David Watkin, *A History of Western Architecture* (1986) (London: Laurence King Publishing, 2005); Thomas Gordon Smith, *Vocabulary, Proportion and Invention in Contemporary Classical Architecture.* Lecture org. by the Chicago-Midwest ICA&CA (Chicago: Driehaus Museum, April 2010); INTBAU. *New Palladians.* Exhibition (London: September 2008), www.intbau.org/Downloads/New_Palladians_xcatalogue_reva_LLR.pdf; Hans Ibelings and Vincent van Rossem, *De nieuwe traditie: continuïteit en vernieuwing in de Nederlandse architectuur = The New Tradition: Continuity and Renewal in Dutch Architecture* (Amsterdam: SUN 2009).
9. Renata Jadresin Milic, "Contemporary Classical Architecture – Reconsidering Tradition," in Tomasz Jelenski, Stanislav Juchnowicz and Ewelina Wozniak-Szpakiewicz, eds, *Tradition and Heritage in the Contemporary Image of the City, Vol. 1. Fundamentals* (Kraków: CUT Press, 2015), 25–32.

based on lessons from Gummer, and apply them in designs for modern needs. This project will test the premise that research and knowledge of architectural history are relevant for current design practice. The students will develop their individual projects through a comparative critical analysis of the Gummer design method with the architectural tradition from another context of their own choice (e.g., Māori, Pacific, Asian, African, etc.). They will have the opportunity to learn about the architectural history of various countries from international guest speakers – recognised experts in their respective fields teaching at various New Zealand schools of architecture. The students will also have the opportunity to collaborate with practising architects and heritage specialists. Student work produced during the second stage of the project will be exhibited at the Objectspace gallery at the end of the 2022 academic year. The exhibition will be accompanied by a publication discussing the suitability of Gummer's design methods and principles for contemporary design problems, based on the students' work and experiences. The students will critically engage with the material, discussing positive and negative aspects of traditionalist design.

3. Celebration and the Community

The project will culminate in the third phase of the project, Celebration and the Community, in 2023, with the Gummer and Ford centenary exhibition at the Auckland War Memorial Museum – ironically, particularly since Reginald Ford was on the judging committee, the one major design competition that William Gummer did not win. The exhibition will introduce the significance of Gummer and Ford's architecture for New Zealand to the broader public. It will also gather eminent architectural historians who will be invited to contribute to the accompanying publication with individual chapters about Gummer and Ford and related topics, consolidating the research of the history of traditionalist architecture. Finally, the exhibition will feature a section exhibiting student works from Unitec's School of Architecture studio papers that will centre on the possibilities of the application of historical research in contemporary design. The third phase of the project will bring together the three parties targeted – students, practitioners and the community. By this time, the students will have developed a new skill set, finessed through the series of practical design exercises. The practitioners will be presented with a new approach to designing for modern needs. The community will be invited to contemplate and share their thoughts about the architectural alternatives that the project proposes. And, finally, inspiring a deeper understanding and appreciation of New Zealand's multifaceted architectural tradition, all three parties will be welcomed to share in the celebration of the Gummer and Ford jubilee.

Conclusion

This project can be described as a unique exercise that will connect knowledge and research of architectural history with contemporary education and design practice. Testing strengths and shortcomings of the traditionalist method in design for modern needs, the project will produce a body of knowledge relevant for New Zealand and global architecture. In terms of architectural history, the project will set the foundation for systematic exploration of a voluminous yet under-researched topic, crucial for better understanding and proper (re-)evaluation of twentieth-century built heritage across the world. It will give a new purpose to architectural history, redefining it as a source of practical knowledge – not just an academic discipline estranged from the practice. In terms of education, the project will contribute to a more versatile graduate profile of students at Unitec's School of Architecture. It will expand the skill set of architectural students, preparing them to cater for a broader range of prospective clients. Consequently, the project will leave a mark on New Zealand and international architectural practice, empowering designers to competently draw from the deep pool of experiences from various architectural traditions.

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Psalm

Dr Hamish Foote and Annabel Pretty

Psalm – a sacred song or poem used in worship especially: one of the biblical hymns collected in the Book of Psalms .[1]

Introduction

Psalm[2] was the title of an exhibition in 2019, of sculptures by Bronwynne Cornish and paintings by Hamish Foote. Both artists reference the native biota of Aotearoa New Zealand, and aim to draw attention to the transformation of landscape, in particular habitat loss and a shrinking gene pool. This paper, which concentrates on Foote's paintings, discusses the relationship of art and science, the role of art as means of communication and, finally, the underpinning content of the images: the topical and critical issue of genetic bottlenecks within the endemic avian community. These collected works are a psalm, of sorts, that speaks of this perilous situation in the hope of raising awareness.

Art and Science

Art and science have enjoyed a lengthy association. The origins of this relationship can be traced back to ancient times. Botanical, zoological and landscape representation appear in the wall paintings of Pompeii. Exquisite manuscript illustrations followed, such as the botanical illustrations generated around 512 CE, which accompany a copy of the text *De Materia Medica* by the Greek physician Pedanius Dioscorides (40–90 CE).[3] In the sixteenth century, *The History of Animals*, a five-volume study illustrated with nearly twelve hundred woodcuts, was published by the Swiss naturalist Conrad Gessner (1516–1565). More recently and closer to the Antipodes, the naturalist Joseph Banks (1743–1820), artist George Stubbs (1724–1806)[4] and the eminent French natural scientist Jean-René Constant Quoy (1790–1869),[5] continued this tradition during the

1. Merriam-Webster.com Dictionary, s.v. "psalm," accessed September 17, 2020, https://www.merriam-webster.com/dictionary/psalm.
2. Hamish Foote (Artist) and Bronwynne Cornish (Artist), *Psalm* (Artis, Auckland, 2019), August 13–September 2, 2019.
3. Marilyn Stokstad, Marion Spears Grayson, and Stephen Addiss, *Art History* vol. 1 (Upper Saddle River, NY: Harry N. Abrams, 1995), 319.
4. Basil Taylor, *Stubbs* (London: Phaidon, 1971). Passim.
5. Christine A. Hemming, *The Art of the French Voyages to New Zealand 1769-1846* (Auckland: Heritage Press, 2000). Passim.

Figure 1. Piero della Francesca (1416/17–1492), The Duke and Duchess of Urbino, Federico da Montefeltro and Battista Sforza *(detail), 1473–1475, oil on wood, Uffizi Galleries Collection, Florence.*

Voyages of Discovery.[6] Although the relationship has changed somewhat due to advances in technology, art continues this involvement with the sciences to the present day. Drawing, for example, continues to be a vital component of science and medical education in fields such as botany and orthopaedics, and painted depictions of birds feature in contemporary ornithological field guides and textbooks.

Art and Influence

In the manner of art's service to science, images have been harnessed, over the ages, to promote, define, educate and on occasion, as a means to win hearts and minds. The murals and mosaics of ancient Greece and Rome were status symbols for Emperors and aristocracy alike. During the Renaissance the work of Italian artists such as Giotto di Bondone (ca. 1267–1337) were used to elevate the status of their wealthy patrons. Giotto's frescoes in the Arena Chapel, for example, were an attempt on the part of the patron Enrico Scrovegni (–1336) to secure a favourable afterlife; to atone for his sins, or perhaps those of his father (usury); to move to the 'right hand' of God.[7] Piero della Francesca (1415–1492) performed a similar function for his patron the Duke of Montefeltro, Federico da Montefeltro (1422–1482). His scenes of allegorical triumph in *The Duke and Duchess of Urbino, Federico da Montefeltro and Battista Sforza* (Figure 1) (ca. 1465), in the Galleria degli Uffizi, Florence, depict the Duke with a variety of mythical characters. The Duke travels in a Roman chariot like an Emperor of antiquity, before an elaborate depiction of his realm.

In the context of Aotearoa and our more recent history, artists have performed a vital role in the definition and communication of an emerging national identity. In 1964, for example, one newspaper reviewer wrote:

The search for a New Zealand identity is something that is now influencing all the arts in this country.... Work last year showed that Toss Woollaston and Colin McCahon continue to contribute to it, but after them, who else? My choice would be Don Binney, whose first one-man show showed an understanding of the peculiar rhythms that go to make the New Zealand landscape. [8]

Don Binney (1940–2012) also had a passionate interest in the bird life of Aotearoa and was one of the first in this country to focus his, and a growing art audience, attention on the threat posed by habitat loss[9] (Figure 2). Birds feature prominently in the practice of another local artist, the contemporary painter Bill Hammond, who has made a similar and ongoing contribution to our understanding of place. Hammond used allegory, in the manner of Piero della Francesca, in his 1994 painting *Buller's Tablecloth.*[10]

6. Tony Rice, *Voyages of Discovery: Three Centuries of Natural History Exploration* (London: Scriptum Editions in association with the Natural History Museum, 2000). Passim.
7. Frederick Hartt and David G. Wilkins, *History of Italian Renaissance Art: Painting, Sculpture, Architecture* (London: Thames and Hudson, 2011), 77.
8. "Fatbird | Collections Online – Don Binney [Artist], 1964, Auckland," Museum of New Zealand Te Papa Tongarewa, https://collections.tepapa.govt.nz/object/574375.
9. Warwick Brown and Peter Simpson, "Don Binney, La Chute d'Icare, Pureora: Last Flight of the Kokako," Webb's Auction Portal, 2017, https://auctions.webbs.co.nz/m/lot-details/index/catalog/45/lot/5223/DON-BINNEY-La-Chute-d-Icare-Pureora-Last-Flight-of-the-Kokako.
10. W. D. Hammond, "Buller's Table Cloth | Auckland Art Gallery," Auckland Art Gallery Toi o Tāmaki, https://www.aucklandartgallery.com/explore-art-and-ideas/artwork/8069/bullers-table-cloth?q=%2Fexplore-art-and-ideas%2Fartwork%2F8069%2Fbullers-table-cloth.

Figure 2. Don Binney, La Chute d'lcare, Pureora: Last Flight of the Kokako, *1979, oil on board, 2110 x 910mm. Image courtesy of the Estate of Don Binney*

The result is an unequivocal statement regarding the butchery of nineteenth-century scientific practice in Aotearoa. On a more positive note, artists have recently been enlisted in the fight against kauri dieback, through The Kauri Project: Poster Series.[11] The power of images to raise awareness is a form of social marketing that is becoming increasingly prevalent. A growing utilisation of brochure and poster campaigns by the Ministry of Primary Industries[12] reflects this trend. The collected works that comprise the exhibition *Psalm* continue this tradition, and are yet another manifestation of the ongoing and fertile intersection of art and science.

Figure 3. Hamish Foote, Leucism III, II *and* I, *2019, egg tempera on gessoed kauri panel, 115 x 115mm.*

Paintings and Content

Hamish Foote's paintings highlight the chromatic aberration[13] of the kiwi (in the genus *Apteryx*, Latin for flightless), its predator the ermine (toriura, *Mustela erminea*), the fairy tern (tara iti, *Sternula nereis*, listed as vulnerable) and the black petrel (tāiko, *Procellaria parkinsoni*).

Based within the paradigm of historical, zoological representation and painted with either egg tempera on gessoed kauri panels or watercolour, these works interrogate complex issues: genetic bottlenecks, which arise from small genetic populations within species sets; and the impact of predation and human enterprise. An interest in citizen science and the evidence of leucism or partial albinism[14] is manifest in the series of three paintings (*Leucism I, II, II*) of the kiwi. Leucism[15] is a genetic condition with numerous factors, on multiple genes, the resultant form being either a partially white-feathered kiwi or a totally white bird; both states obviously *detrimental* within the open countryside. Leucistic animals are not albino, as they have pigmentation in their eyes.[16]

Genetic bottlenecks are a factor evidently at work, and can be caused by a multitude of variables: artificial selection, such as in pedigree breeding; partial extinction, due to introduced species predating on the creature; or a reduction in population size, which increases the likelihood that an uncommon or *deleterious allele* will become fixed within the population due to random chance. The five species of kiwi[17] (tokoeka, *Apteryx australis*; Okarito brown kiwi, *Apteryx rowi*; little spotted kiwi, *Apteryx owenii*; North

11. "The Kauri Project: Poster Series," Keep Kauri Standing, https://www.kauridieback.co.nz/more/news-and-updates/2014/the-kauri-project-poster-series/.
12. "Brown Marmorated Stink Bug – If You Find One of These on the Ship," Ministry for Primary Industries Manatū Ahu Matua, http://www.gard.no/Content/25886580/MPI_ship%20BMSB%20poster.pdf.
13. Michael Cieslak, Monika Reissmann, Michael Hofreiter, and Arne Ludwig, "Colours of Domestication," *Biological Reviews* 86, no. 4 (November 1, 2011): 885–99, https://doi.org/10.1111/j.1469-185X.2011.00177.x.
14. Lucía Izquierdo et al., "Factors Associated with Leucism in the Common Blackbird Turdus Merula," *Journal of Avian Biology* 49, no. 9 (September 1, 2018): e01778, https://doi.org/10.1111/jav.01778.
15. Matt Rayner, "White Kiwi, French Poodles, and the Problem of a World in Pieces – Explore Topics – Auckland War Memorial Museum," Auckland War Memorial Museum – Tāmaki Paenga Hira, 2019, https://www.aucklandmuseum.com/discover/collections/topics/white-kiwi-french-poodles.
16. Lucy Peters et al., "Born Blonde: A Recessive Loss-of-Function Mutation in the Melanocortin 1 Receptor is Associated with Cream Coat Coloration in Antarctic Fur Seals," *Ecology and Evolution* 6, no. 16 (July 22, 2016): 5705–17, https://doi.org/10.1002/ece3.2290.
17. Barbara Taborsky and Michael Taborsky, "Spatial Organization of the North Island Brown Kiwi Apteryx Australis Mantelli: Sex, Pairing Status and Territoriality," *Ibis* 134, no. 1 (January 1, 1992): 1–10, https://doi.org/10.1111/j.1474-919X.1992.tb07222.x.

Figure 4. Hamish Foote, Ermine*, 2019, egg tempera on gessoed kauri panel, 115 x 290mm.*

Figure 5. Hamish Foote, Leucism I*, 2019, egg tempera on gessoed kauri panel, 115 x 115mm.*

Island brown kiwi, *Apteryx mantelli*; roroa, great spotted kiwi, *Apteryx haastii*) account now for only ~68,000 birds throughout Aotearoa. This small population suffers an estimated loss of 2 percent per year, or twenty birds a week, through predation from rats (kiore, *Rattus exulans*; Norway rat, *Rattus norvegicus*; ship rat, *Rattus rattus*); cats (*Felis catus*) and particularly from stoats, otherwise known as ermine. Depicted with its white winter coat, this deadly predator appears in Foote's painting *Ermine*, looping back to the leucistic white coats of the kiwi. The introduction of ermine in the late 1800s to control rabbits (rāpeti, *Oryctolagus cuniculus*) has devastated the endemic avian species, and Foote's paintings allude to this: the lonely kererū (*Hemiphaga novaeseelandiae*) feather in the foreground; the desiccated bones of kiwi; broken and empty egg shells; and the islands in the mid-ground, alluding to those in the Hauraki Gulf and further afield, which are gradually being cleared of non-endemic species.

The device of large, deep, white frames around almost miniaturised images acts as a leucistic surrounding: a barrier within which the image becomes a metaphorical island, on the wall of either gallery or home. The two watercolours however, have a differing and distinct discourse: one addresses the ecology of the fairy tern and the other the black petrel. The former considers the finality of the last breeding pairs of the fairy tern – the last thirty-seven pairs – and the latter the manifest way in which black petrels are by-catch in the fishing industry.

These six artworks interrogate the notion of the imaginary speculative island habitats both as the sublime and seemingly pristine, but, in reality, places of colonialism from the immigrant predators, and ones which have become, 'prison sanctuaries' for the remaining populations of kiwi. Life for these remnant colonies takes a fateful turn, as population declines, and the gene pool shrinks: a genetic bottleneck[18] ensues, and the incidence of leucism increases. This is problematic for the kiwi, which is the ultimate avian nocturnal flâneur, as rates of predation increase exponentially for those with conspicuous white plumage. Each breeding pair needs between two hectares and 100 hectares depending on species. The tokoeka require the largest area – they are also territorial and will aggressively counter any avian incursion on their domain. Once established and breeding, kiwi produce one egg per year, and this is a significant investment and outcome: the egg, containing a very large chick, is 20 percent of the mother's size.[19] These various breeding constraints are exacerbated by other factors particular to the species: kiwi do not mature until between three and five years old; are monogamous for the potentially twenty years or so of their paired life; and have a chick mortality rate of 95 percent. The kiwi bird needs all the songs and prayers (Psalms) we can give them.

Concluding Psalm

The opportunity for a variety of audiences to interact, consume and interpret an unfamiliar discipline, which is mediated through another 'voice' – that of the artist – provides multi-modal ways in which to view, absorb and interact. As the Finnish architect Juhani Pallasmaa notes:

The experienced, remembered, and imagined are qualitatively equal experiences in our consciousness; we may be equally moved by something evoked by the imagined as by anything

18. Ian G. Jamieson, *Loss of Genetic Diversity and Inbreeding in New Zealand's Threatened Bird Species* (Wellington: Department of Conservation Te Papa Atawhai, 2009), https://www.doc.govt.nz/globalassets/documents/science-and-technical/sfc293entire.pdf.
19. Jason T. Weir et al., "Explosive Ice Age Diversification of Kiwi," *PNAS* (*Proceedings of the National Academy of Sciences of the United States of America*) 113, no. 38 (2016): E5580-87, https://doi.org/10.1073/pnas.1603795113.

actually encountered. Art creates images and emotions that are as equally true as the actual encounters of life; fundamentally, in a work of art we encounter our own 'being-in-the-world' in an intensified manner.[20]

This power is aided and abetted by the process of dissemination: exhibitions are public events, supported by written text[21] and sophisticated marketing, that offer an opportunity to communicate and provoke discourse.

There are promising initiatives such as Predator Free 2050[22] that allow us to imagine, a return to the Aotearoa of old: a bush-clad land that prompted Joseph Banks to remark:

This morning I was awakd by the singing of the birds ashore from whence we are distant not a quarter of a mile, the numbers of them were certainly very great who seemd to strain their throats with emulation...[Their] voices were certainly the most melodious wild musick I have ever heard, almost imitating small bells but with the most tuneable silver sound imaginable. [23]

This will be no more than a dream, without the commitment of an engaged and willing population. Raising awareness is the first step. The sixth mass extinction of wildlife on earth is accelerating,[24] and the canary has stopped singing. It is the authors' hope that these works give rise to insistent and increasingly arresting, allegorical and discursive psalms. Psalms that alert a distracted populous to this imminent catastrophe; that allow us to us pause on the brink, redress our activities and perhaps even, in time, hear the return of abundant and mellifluous birdsong.

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20. Juhani Pallasmaa, *Encounters: Architectural Essays*, edited by Peter B. MacKeith (Helsinki: Rakennustieto Oy, 2005), 130.
21. "Right Now: Fragile Ground," *The New Zealand Herald*, August 14, 2019, pressreader, https://www.pressreader.com/new-zealand/the-new-zealand-herald/20190814/282561609809873.
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What is Asylum?

The Unitec School of Architecture is filled to the brim with talent across several disciplines and levels of study. Asylum is a peer reviewed journal that includes work from Architecture students right from the first year of Bachelor's to the final Master theses.

Asylum 2020 is a new variant of this annual publication, in that it not only comprises student work, but also features a section dedicated to peer-reviewed articles from authors across New Zealand.

Asylum is architecture, design, research.