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RMIT

**The State of the Art of Practice
in Tom Kovac's Architecture of
the Real and Virtual**



The State of the Art of Practice in Tom Kovac's Architecture of the Real and Virtual

A thesis submitted in fulfilment of the requirements
for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and ethics procedures and guidelines have been followed.

Tom Kovac
11th March 2014

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 Abstract

This PhD by Publication project is based on research that reflectively examines my practice. It includes a summary of my practice, its themes of inquiry and modes of production. The invitation has generated an investigation into my way of practicing and into its concerns. The research explores key areas of interest: Virtual Architecture, Object Architecture and the Spatialisation of information. This research investigates the operations and processes of my practice to date.

The development of my practice has been mapped and this catalogue illustrates the disparate parts and associations that frame each project. The evolution of the practice through three key periods of change is documented revealing the transitions through various stages of practice.

The PhD exposes the embodiment of critical ideas in the practice by analysis of key projects. The physical and virtual nature of ideas, the enabling viewpoints and particular drivers and motivations of my architecture and practice are screened. The research provides an insight into the critical transformative periods and processes of the projects, offering glimpses into the unseen movements that constitute a project and determine its outcomes. Further, the research enables the practice to be understood in relation to its productive insights and to the micro details that shaped the form of each project.

The work is presented through an interactive tool that captures the concerns that informed the core systems, which in turn, informed the projects. The PhD closely scrutinises the makings of the projects and their concerns and reveals the makings of the practice. To structure these processes, I have created a series of categorisations and strategic associations and have assembled projects into networks of cells. These categories can be read as connections linking five primary functions as the tools for a web-based application, or "app." This app was instigated as a data visualisation tool and as a system for analytically referencing networks of projects that comprise the structure of the practice: past, present and future.

This PhD is a reflective examination of my practice over a twenty-three (23) year period that incorporates mappings of key contributing factors to my projects and practice. It reflects upon the beginnings of the practice, with the first project being a commercial interior modification followed by larger scale interiors, small-scale residential and public projects and a larger repertoire of more complex local and international built and unbuilt works. The PhD has enabled me to explore the makings of the practice, its trajectories and the network of its aspirations. It documents the intrinsic make up of the measured methodologies underpinning the work.

The mappings of the practice during the PhD has enabled me to document the nature of my thinking and compress the knowledge into a reference for creating a mise-en-scène for my practice in a research catalogue comprised by three parts.

The first part is the supportive documentation describing the methodology of practice and the particular ideas behind the making of the projects. Here, I describe the processes, the broader strategic pursuits, the innovations, the key initiatives and the creative outputs that define the directions of the practice. The second part is a comprehensive documentation of projects on an interactive app, which acts as an index, enabling browsers to decide which projects, people or images to search. This device searches from a database and can be tweaked depending on the area of interest driving a search. Projects' time of production, typologies, influences and relations with other projects are displayed. This part houses the data produced by the collated content.

The third part of the PhD is the design of an exhibit described through a series of illustrations. The exhibit documents selected key projects and their contribution to the knowledge base. It demonstrates the evolution of the practice from the time of its inception to its current space in time.

*"In the beginning is my end, in my end is my beginning"*¹

PhD Contribution

The research catalogue assembles the projects of my architectural design practice. In its architectural form, in the university library, it is a digitally formatted document that can be experienced collectively. It is also a work demonstrating my practice's contribution to the development of contemporary design practice's research and knowledge overall. The collection of works uses a technology that demonstrates the processes and methodologies that inform almost three decades of practice. The research acts as an information base that identifies the creative ghosts that underpin the collection of concepts and works.

The practice's methodologies are identified as a series of connecting nodes or attractors that describe unique time-based and evolving interactions. These guiding interactions are demonstrated through a visualisation app that exemplifies the driving techniques, concepts, mentors conversations and motivators of the work. These are generative devices for the growth of projects, and in them lies their contribution to evolving knowledge.

The reflective research is presented as series of data time-based dialogues about practice. The visualisation uncovers previously invisible drivers and influencers, enabling a deeper understanding of the information that has influenced my practice over time. The visualisation can be perceived as a navigable platform upon which are located the macro scale selected projects of the practice and as micro-information insights into how the practice has been shaped over time. This tool has helped me to articulate and uncover the workings of my practice and develop a more precise way of associating architectural-object-virtual and knowledge design research interests and expand and better define the system's connections between past and future practice. It may well help others too.

Methods

Chapter 01

The State of the Art of Practice in Tom Kovac's Architecture of the Real and Virtual

Sketching

My PhD is a reflection upon the key aspects of both my practice and its evolution. It aims to be both a critique and an unbiased attempt to articulate a position on architecture and practice based on findings, seeking to learn from previous versions as if it were software (projects), and enhance or upgrade any impaired elements of the architectural outcomes to create better solutions for future practice. The nature of my practice over the decades has been utilised as series' of investigations of existing architectural systems informed by normative processes and of experiments in non-linear multi disciplinary thinking as commitments to developing an architectural practice. In seeking re-definitions to architectural questions, my interests were concerned with the nature and theory of history in general. Could a study for an architect's future be based in knowledge in the fields of science, biology, astrophysics, and mathematics as a study capable of revealing knowledge for formal and spatial production within the field of architecture(s)? This was my initial question. I was interested in how an architecture can radically test new findings, new approaches to the problems within cultural change. By re-focusing my research beyond the immediate limits of architectural concerns, I sought interests and readings that could address new potentials and ideas. There were many individuals both within and without architectural canons whom I consider to be key influencers over time, and these are listed (refer Table 2.5). There were also crucial moments and readings, which shaped directions and were central to the discovery of furthering research. An early undergraduate reading of *The Shape of Time: Remarks on the History of Things* by George Kubler (1962)² proved critical to my thinking.

I was first introduced to Kubler during my early architectural studies. His book *The Shape of Time* challenged my perception of architectural design and added another dimension to the consideration of designed spaces, which became a conceptual framework for the design of both a major project and my early practice. Kubler enabled me to consider ideas and theories as having dynamic flows between theoretical concepts, which could potentially connect projects with similar techniques and approaches to resolution architecturally. I began to comprehend Kubler's notion of connecting concepts and forms between projects by seeking a language that, in my mind, possessed the possibility of connecting and sharing spatial and formal sensibilities. This evolved over time offering a diagram for an architectural grammar to inform a project's definition. In my practice, Kubler's logic enabled projects to proceed through various definitive stages of experimentation but always sharing a unique platform for their ongoing development. I would describe Kubler's influence as impacting on the development of tools and their possibilities for innovation with the aid of design technologies, as continuous changes beyond a conceptualisation of stylised forms, which allowed for a more sequential development of projects and a higher fidelity for my emergent practice.

There were several experimentation stages of architectural activity within my practice. I would describe these as the beginnings of shaping my non-linear processes and knowledge of learned facts into built outcomes. These were underlined by the nature of architectural thinking that evolved during my undergraduate studies, which was a testbed for future practice and subsequent built works. Apropos of Kubler, my interests ranged from notions within conjectures outside the canons of architectural theories developing pursuits and knowledge yet to be accepted by professional, normal standards. As described in *The Science of Scientific Revolutions* by Thomas Kuhn³, a normative way of thinking about architecture originating within other disciplines was sought, which could test accepted or normative practice both as conceptual parameters and as built forms using material production techniques (see *Succhi urination* technique). Such interests, theoretical applications and skills formed during undergraduate studio coursework, literature, conversations and a general arsenal of knowledge collected during the course became a vehicle for future practice and processing of ideas. This direction demanded a comprehensive network of knowledges, which were initiated at what I would describe as a transitional period between analogue and digital periods in history, and in my architectural practice. The shift in technique from the drawing board culture of haptic testing by hand drawings and ruled lines for documentation was replaced by first generation IBM Pentium-powered grey computer boxes with various RAM to carry out technical drawings and directives within a profession that was at the coal face of a digital revolution. It set the stage for a gathering of necessary and available tools for what was a professional initiation of the architectural practice, which was commenced as a commercial architectural practice and sought like-minded clients to support this bold adventure and direction.

The second stage of testing and experimentation within the practice was the attempt to demonstrate a research based approach to endogenous change. Specifically, seeking ways of practice outside of standard practice whilst dealing with typical commercial architectural problems, which also meant subjecting the work to membership in, and accepting of, codes of professional conduct, using agreed sets of empirical rules and principles.

The third type of testing and experimentation involved the paradigm shift in thinking about architecture that challenges the linear thinking embedded in production processes. This ambition was aimed at furthering exploration of qualitative aspects of design. Alternative ways of evolving architectural practice and forging new areas of interest and exogenous change were the others. In aiming to generate emerging methods and techniques necessary for formulating disruptive models and more oblique views of complex systems for possible architecture(s), I embrace the full spectrum of possibilities that articulate future potentials.

During the course of my practice, the work has undertaken and developed a series of methodologies, adopting strategic directions for designing and making architectural projects. These directions have been instrumental in the acquisition and transference of tacit knowledge. Projects as referenced by Michael Polanyi's *Personal Knowledge* (1958)⁴ evolve the various stages of practice. My methodology has been articulated by the trial and error of designing in real time, making decisions on site, and 'on the run', so to speak, using materials in unconventional ways and forming beliefs, values, mental models and intuitive responses adapted in stages, subjected to experimentation and testing within the context of location and site. This was due to the intrinsic notion of my practice's architectural production at the time: the ability to converse freely with other technical fields in real time, making design decisions for the project *in situ*, which would have been hindered by conventional lines of production. By blurring the traditional boundaries between Schematic Design, Design Development, Contract Documentation and Contract Administration guidelines as set out by the Royal Australian Institute of Architects (RAIA), we created a 'disruption' to the linear accepted architectural practice project delivery system, a term coined by Christensen (1999).⁵

The critical methods of architectural production have been informed by shifts from the practice of drawing architecture with traditional tools such as a drawing board and series of drawing tools such as pens in analogue, to that of engagement of the uncharacteristic methodology of making spaces as 1:1 scale models on site. Such undertakings posed risks to client/architect agreements and were subject to clauses that enabled this procedure to be implemented. They were also made possible by forging close relationships with clients and builders who took unprecedented risks in enabling such experiments to take place. The nature of projects that underwent these procedures also required constant on site presence and design direction.

This method of production created results that could only be controlled by understanding the overall ambition of the projects. It enabled control of the project on site with improvisation and non-standard production of the built work in production, so that the general thread of construction was generated by site control, and the architect in direct conversation with the contractor and the 'crew.' It eliminated delays of information, and changes could be made with real time responses eradicating faxed status reports and administration interruptions. Design decisions evolved with daily direction generating forms and planned responses to a sequential way of thinking about making 'stuff' that could only be made in real time, on site. This method of working was contravened by any prescribed professional practice and contractual code of conduct. The complexity of forms created required alternative and unique methods of conveying instruction to the contractors and was underpinned by many changes to conventional practice and production.

1. Schematic Design

The schematic stages of projects were produced as sketches with sign off from clients.

Skeletal information for authorities with minimal drawings of plans sections and elevations was produced describing design and construction intent. This was a purposeful direction dismissing potential holdups and requests for information from planning and building authorities.

2. Models were produced and used as site documents for conveying form and shape information. These were produced in cardboard and plaster in several sectional elements providing visual three-dimensional information to all individuals and trades as mind maps of the building intent.

3. Tender Elimination

Documentation and Specification requirements for tender purposes were eliminated by selected contractors that were selected based on their abilities to produce projects outside standard parameters and to fulfill prescribed requirements. These included;

- (a) Ability to work in a stressful environment, to take daily direction from Architect on site and to construct without completed design documentation,
- (b) Hiring and managing required trades as subcontractors,
- (c) To place and control material orders within two categories of construction, interiors and small scale domestic construction,
- (d) Capacity to engage with quick response conditions and production outside normal working hours of operation and,
- (e) Willingness to take risks with very tight budgets.

4. Consultants

Selected consultants agreeing to our methods were sought and were engaged based on their ability to immediate ('just in time') responses. Engaged consultants were mostly well-networked individuals who performed any work as so called 'private jobs' outside their day-time employment. Any required drawings by structural, civil and hydraulic engineers were produced and submitted as sketches thus eliminating any delays to delivery. In most project case studies, engineers added additional information during construction period.

The early practice models were informed by research into a complex grammar of methods for spatial production as created through sketching simulating spatial possibilities and quick plaster board models of varying scales. These were generative models that looked at complex organisational processes based on complex behaviours such as movement, directionality, volumetric growth and time duration models.⁶

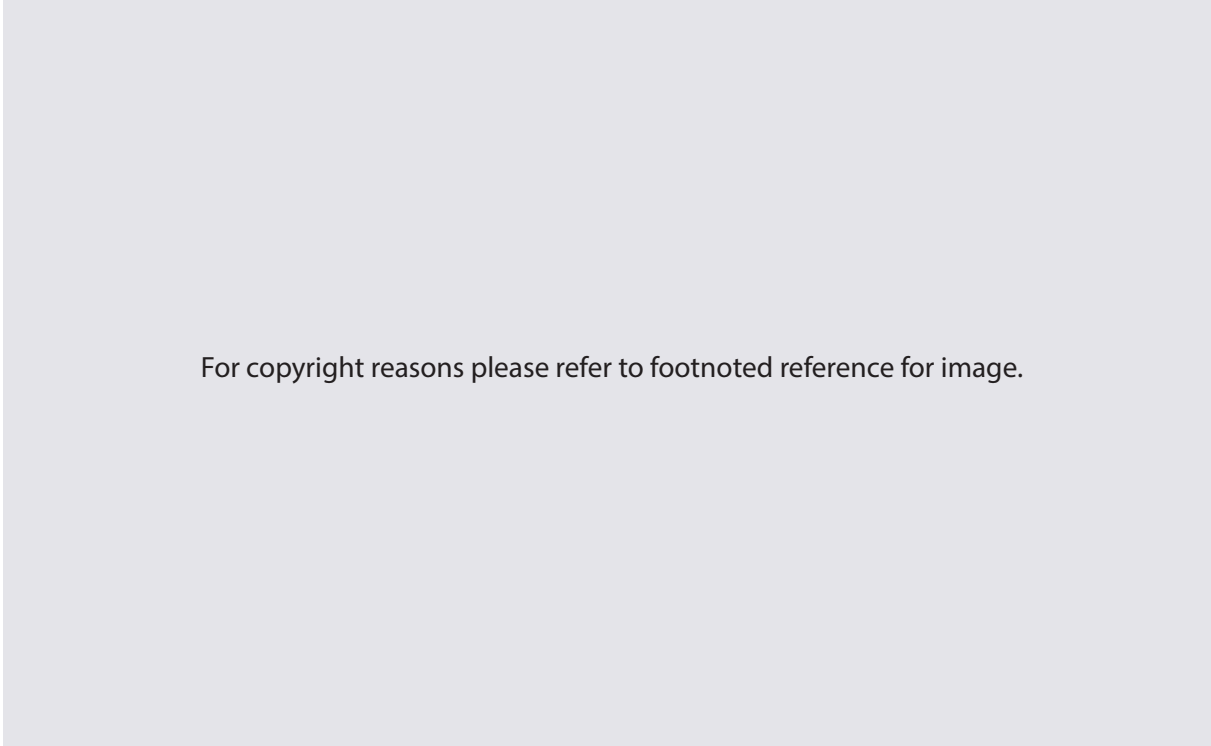
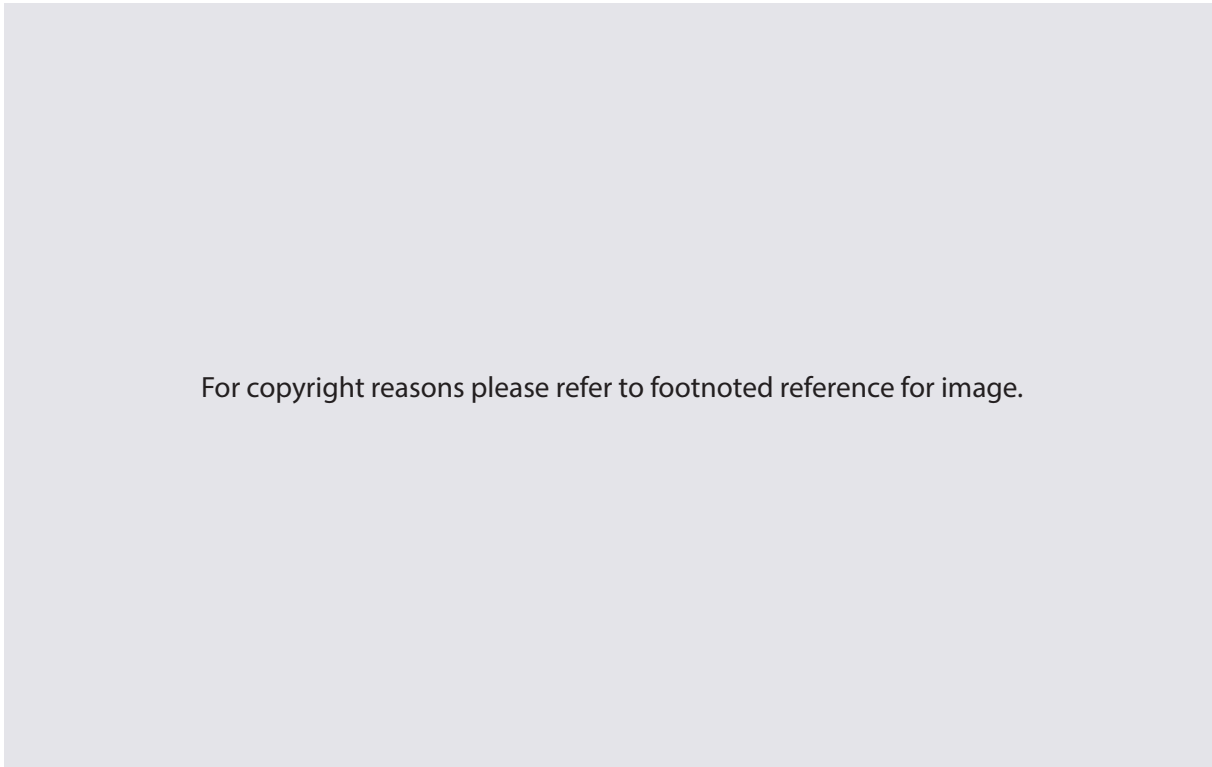
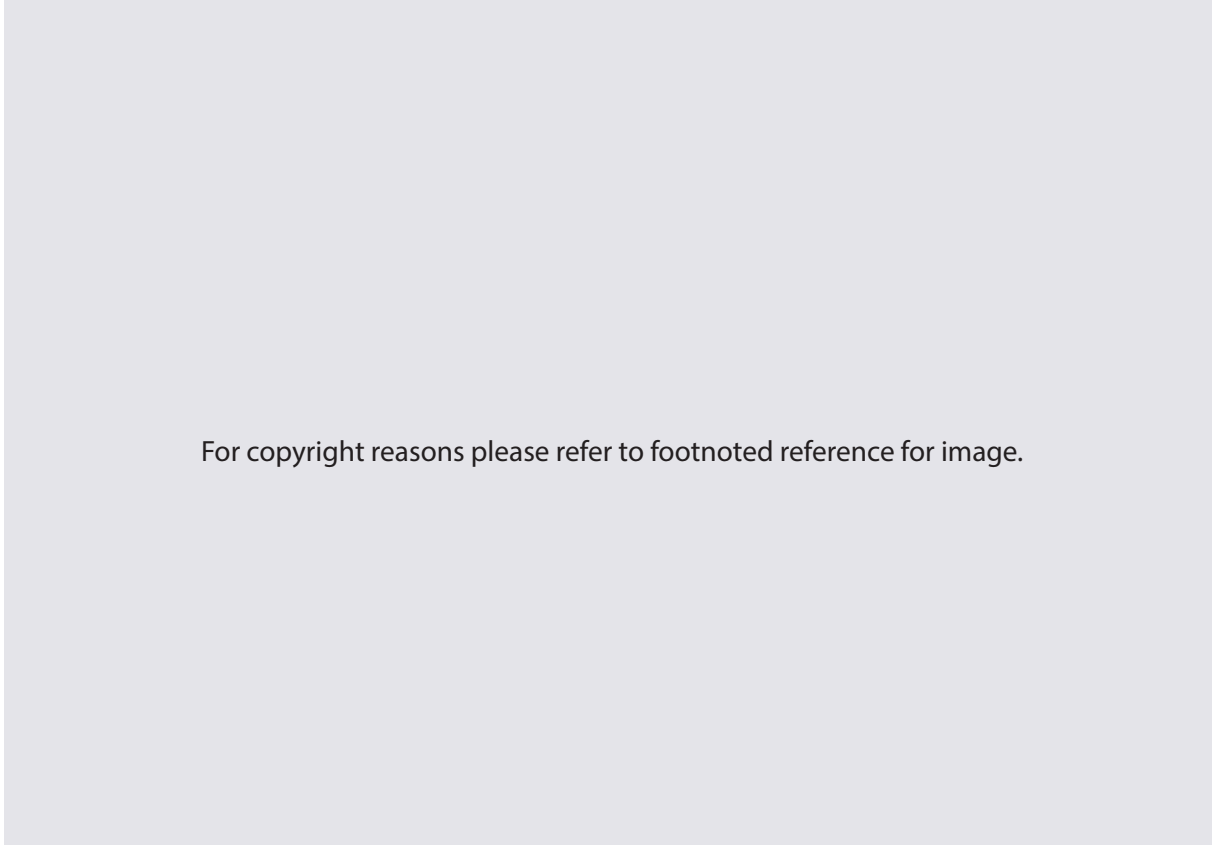


The project work, which began as a virtual search for hierarchical modeling of spatial devices, led me to the early research of Michael Leyton and this became reflective research for my early work inviting questioning and redefining processes of my early built works. It enabled me to adapt new knowledge as a way of thinking about forms derived from symmetrical cores systems with no process-memory and asymmetric forms as the process that memory leaves on form. Leyton's *Symmetry, Causality, Mind* (1992) describes it as an extraction of memory from shape.⁷ It was evident from my early projects that stable projects became unstable outcomes through dynamic shifts and growth. Leyton further describes "temporal asymmetry as the assignment of direction to time" meaning that "there was a transition from symmetry to asymmetry over time."⁸

This rule system, which can also be explained as a shift from single cell symmetry to one that grows through time into asymmetrical form is defined by Leyton as possessing a "curvature extremum implying a process whose trace is the unique symmetry axis associated with and terminating at the extremum."⁹

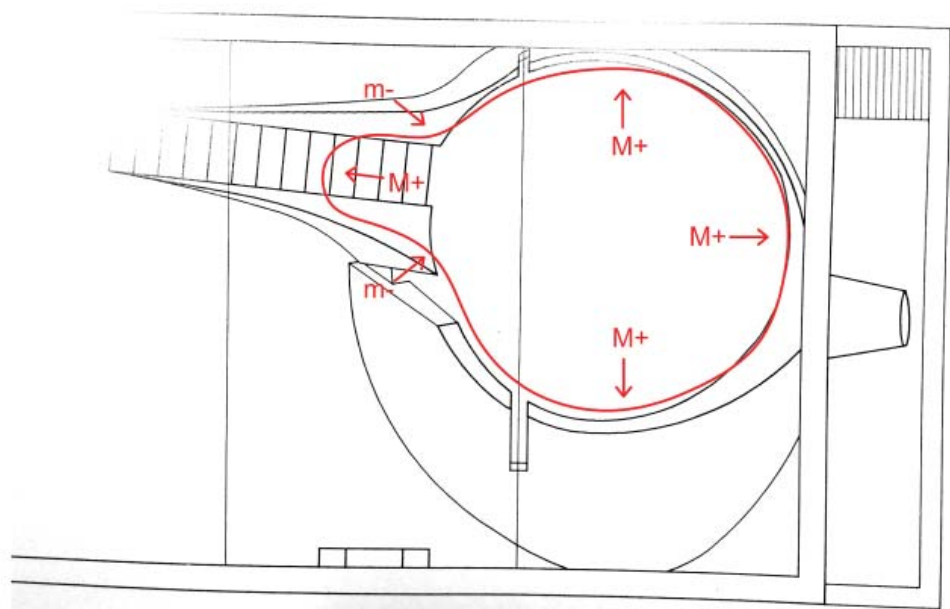
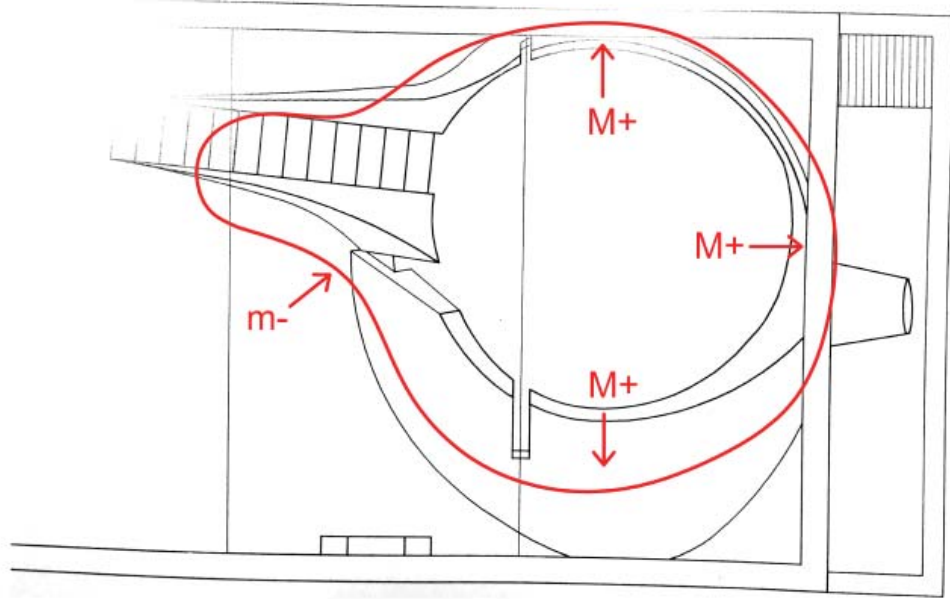
Leyton explains this 'Recovering Process-History' and shapes as possessing four types of extrema as listed below:¹⁰

- M+ Protrusion
- m- Indentation
- m+ Squashing
- M- Internal resistance



Michael Leyton Diagrams

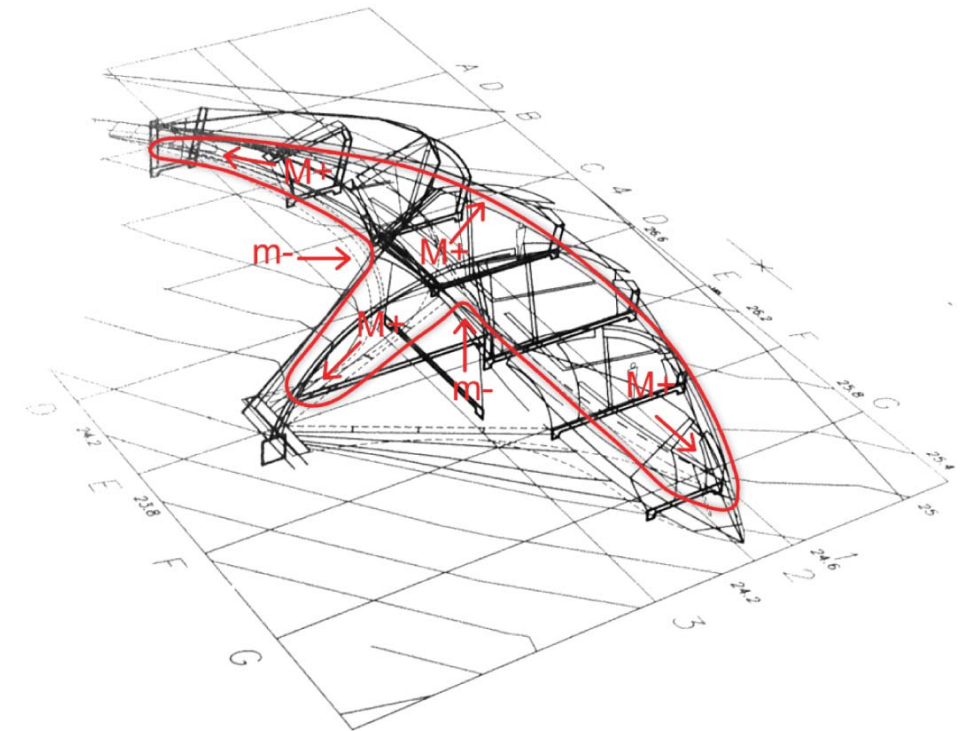
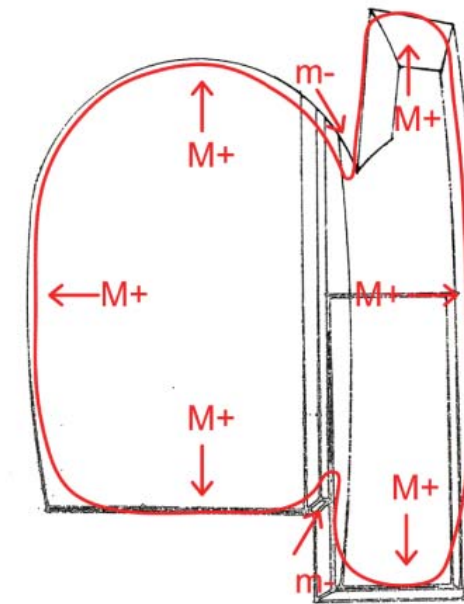
1.201-202 // The division of boundary condition at varying scales and parts showing organisational characteristics.¹¹ The diagrams of process histories further describe the symmetry/asymmetry rule of recovery process history.¹²



Ryan Warehouse (1995)

1.203 (Above) // The process history of the plan interior volume at ground floor plate level is described as M+ protrusion acting from a symmetrical centre with two m- indentations pushing inward recognising the reverse action of memory from the stairwell.

1.204 (Below) // The process history of interior volume at top level showing the narrowing of form. M+ protrusions are narrower reflecting the scale change of form with m- also narrowing with change of scale.



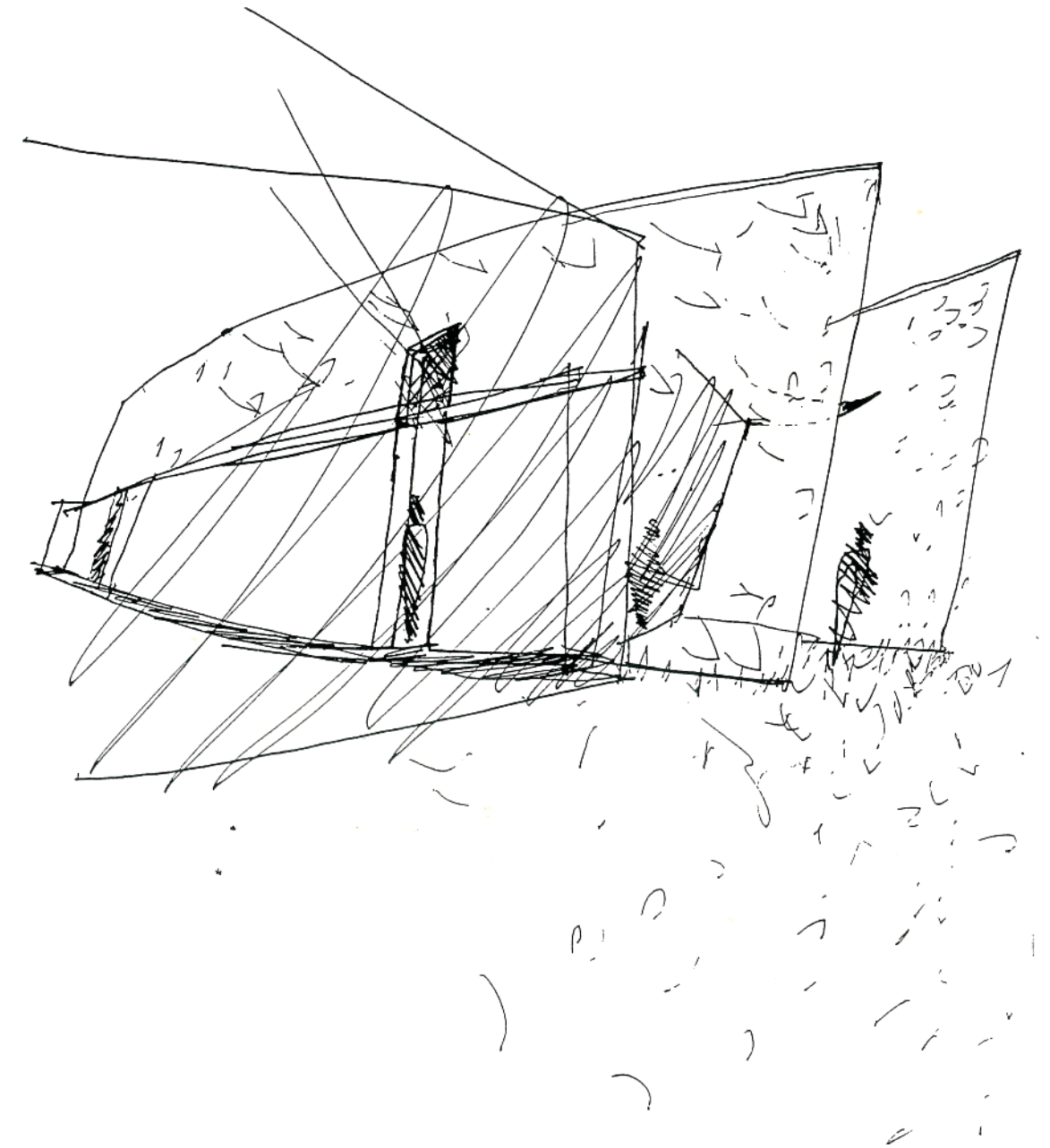
Succhi (1991) // Island House (1997)

1.205 (Above) // The image describes the elevation study of two independent spatial sub-divided zones with co-dependency of form. The M+ protrusions vary in scale sharing asymmetrical centres but varying in growth subjected to m- forces reducing growth between the two zones of entry and showroom window opening.

1.206 (Below) // The house process history described by one interconnected symmetry undergoing one axis with M+ protrusions of varying scales to facilitate the spatial requirements of the house. The m- reduces the growth of form of the living space.

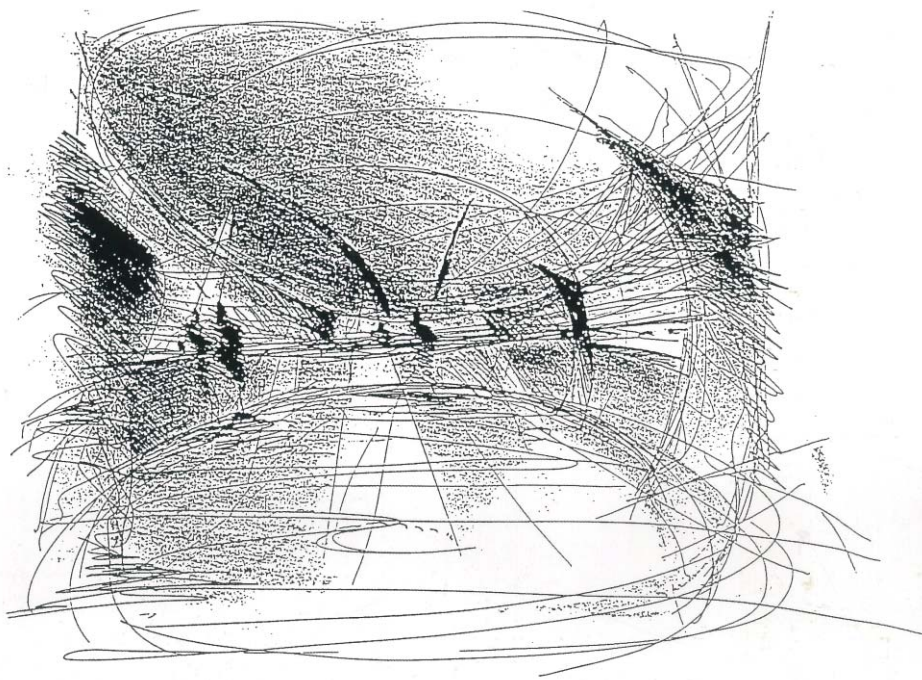
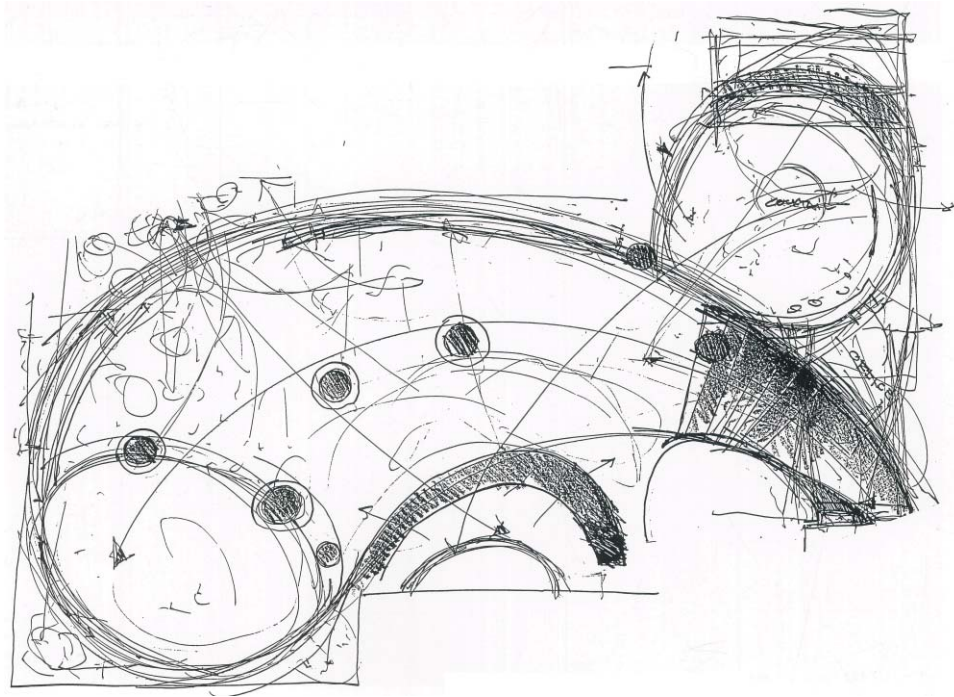
My practice was driven by the creative voice of the sketch and its ability to transfer ideas and knowledge from mind to hand to paper. It was this, making lines with intuitive spontaneity that gave projects a life. Sketching as a technique formed an integral part of my creative process, often drawing forms and projects with clients in real time visualisations as three-dimensional spaces. The architecture, both object and virtual always starts with a sketch. The sketches are spontaneous and vary in size and scales produced on the surface of yellow trace, forming a distinct and direct method for research, expression and conveyance of thought. The conceptual design phases of a project presented methods of expressing visionary ideas and rationalising the design logic. The sketch held an essence of thought capture and the markings became a legible form of communication and affirmation of ideas. It was a measured way of understanding space-making and thinking through the processes of form. This haptic device enabled me to measure and extend my thoughts with delicate pen type line weight and provided an ability to describe and carve the spaces of architecture objects, interiors as virtual/real. The central theme of seeing and evolving the work in the practice lay in the conveyance of ideas and concepts through the sketch. Spontaneous and varied in size and scale, they evolved a distinctive technique forming dynamic views, movements and improvisation of fine lines as fluid, impulsive directives for design. The drawings conveyed architectural mass weight and directions for shifting spatial relationships. The outcomes within the selected builds have always illustrated an uncanny relationship between the form and the early sketch.

This continuity of the sketch has been transferred into digital practice and that of the digital screen. The natural development of my digital practice was one of experimentation, testing potentials in generating a new form of language-sharing for projects. It was an ambition to develop a high performance criteria for developing projects aligned by an associated polemic engaging rule systems about thinking and producing conceptual and commercial design. This was a new phase of what I would describe as 'scalable research practice', shifting ambition's large and more complex algorithmic processes, transferring methods from real time, on site, intuitive responses to a platform of very precise, generative techniques for evolving new knowledge of the practice.



Gan House (1993)

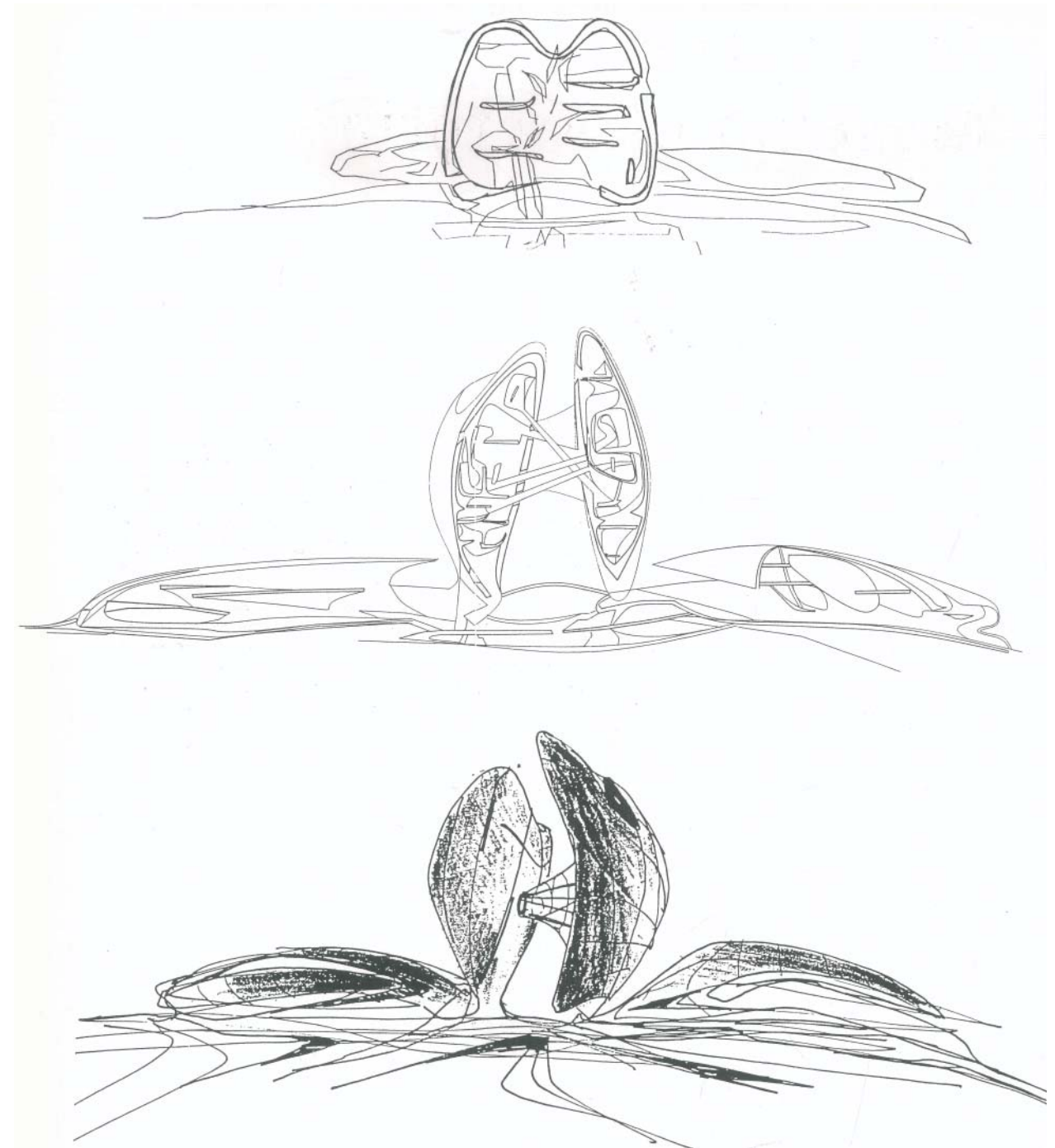
1.301 // Initial external sketch used as a tool to depict existing conditions and proposed extension attempting to show formal relationships describing changing scale.



Capitol Nightclub (1994)

1.302 (Above) // First ideas for the interior for understanding the spatial quality through the sketch produced during the site visit. The initial design approved by clients and built almost exactly to this first sketch.

1.303 (Below) // Interior spatial experience view of bar area from entry.

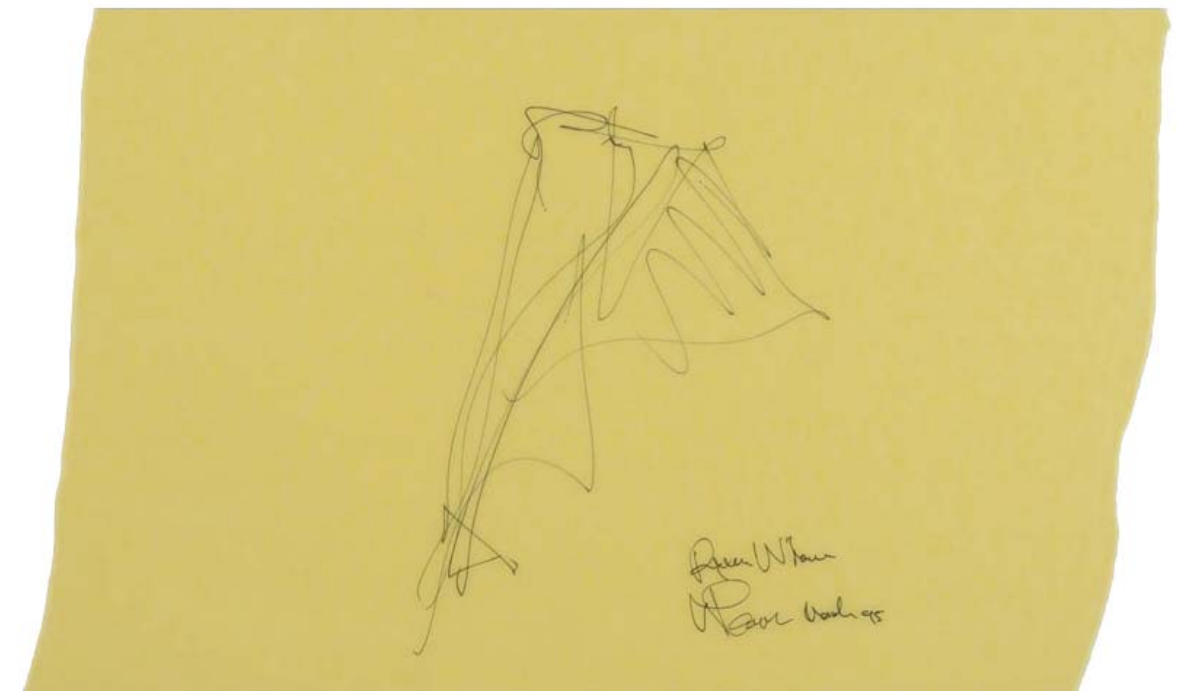
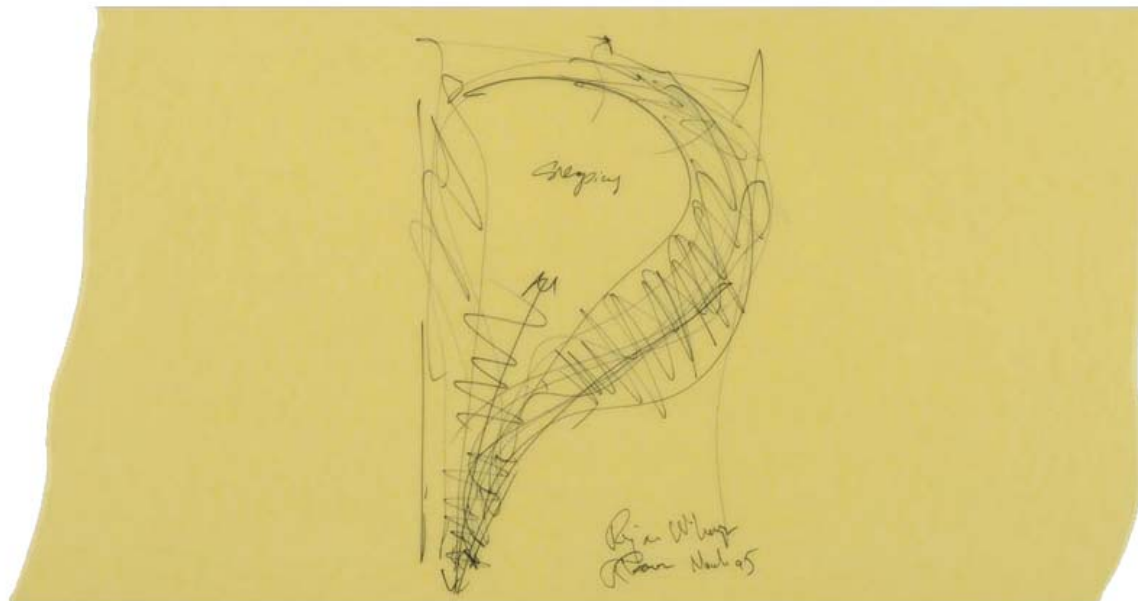
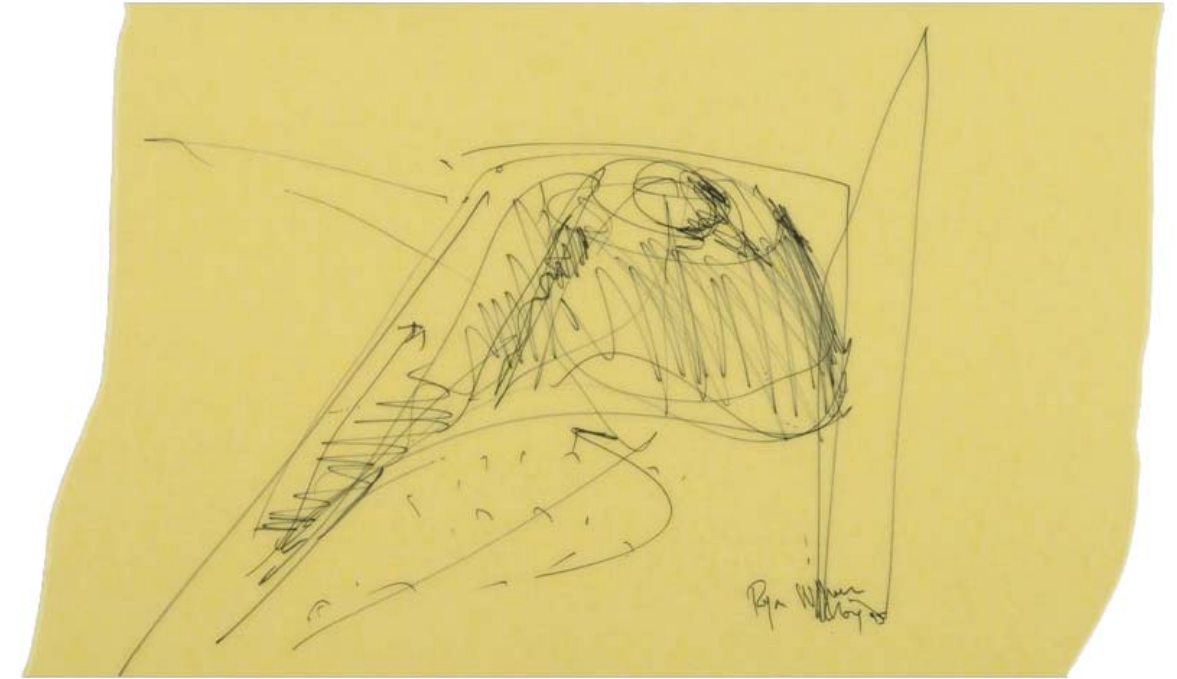
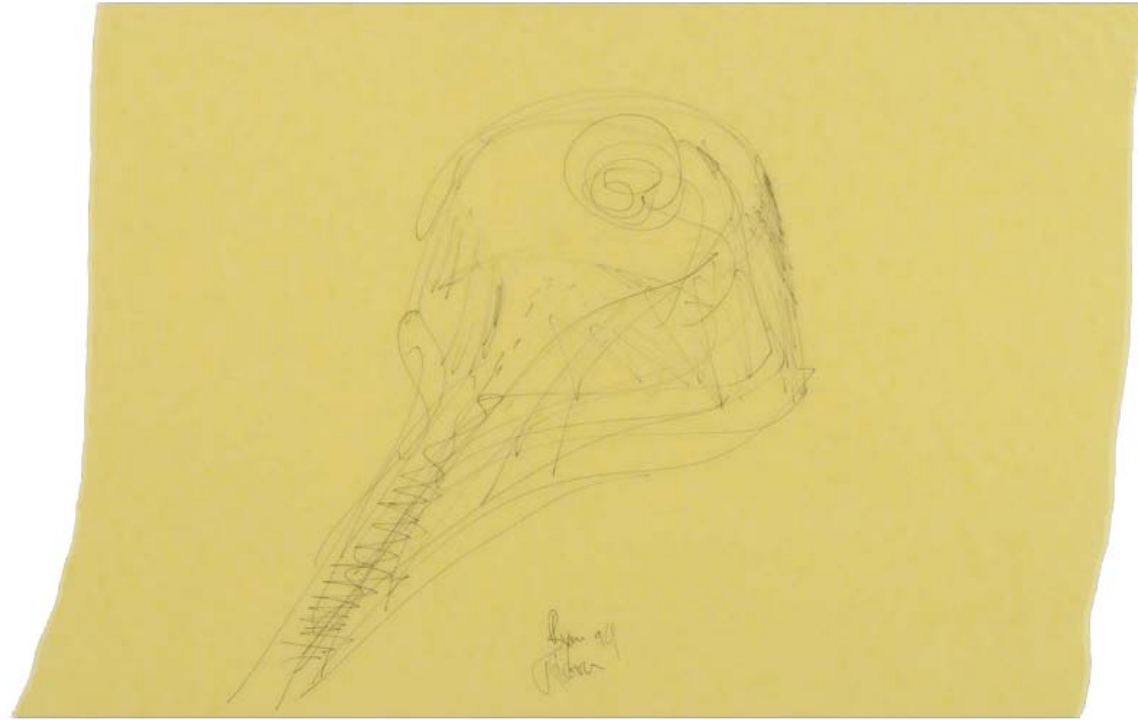


Museum of Victoria (1994)

1.304 (Above) // Early drawing of forms as cross section describing the energy of spatial layers imagining the galleries and the form's characteristics.

1.305 (Middle) // Section through two vertical blades with horizontal connections between the contemporary and natural history exhibition zones.

1.306 (Below) // One of many drawings proposed museum spaces comprising the vertical and horizontal layers.



Ryan Studio (1995)

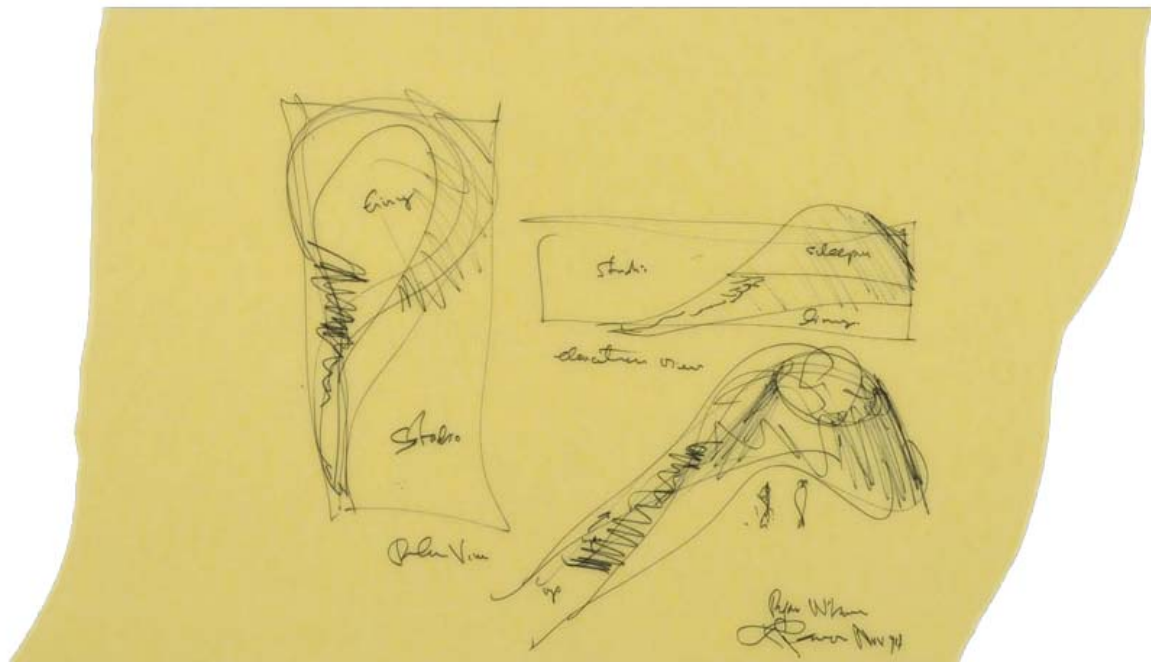
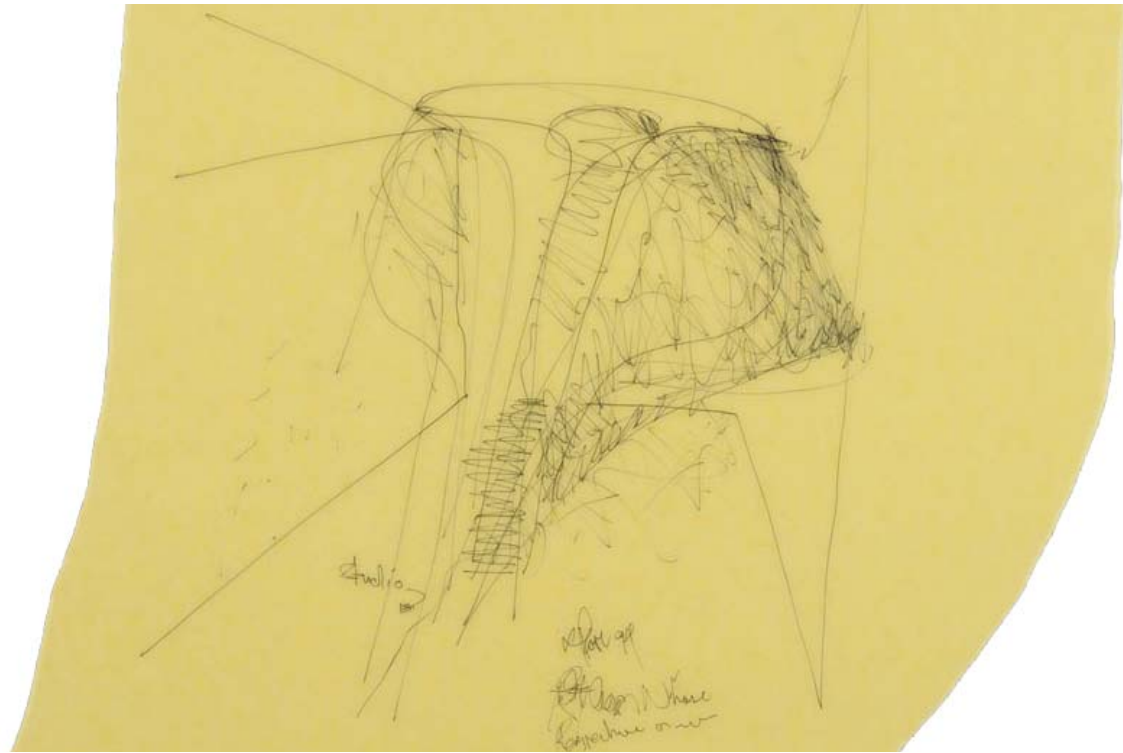
1.307 (Above) // My initial idea of inserting an enclosed pod within a warehouse shell. The subtle lines on paper leave question for further pondering.

1.308 (Below) // Plan sketch of stair and main workspace as imagined within existing warehouse shell.

Ryan Studio (1995)

1.309 (Above) // Purposeful avoidance of fixing the sketch in trying to find a way of drawing a floating volume with studio space underneath.

1.310 (Below) // Initial reaction to Ryan Studio depicted as a subtle reference point for imagining a separate insertion into existing space.



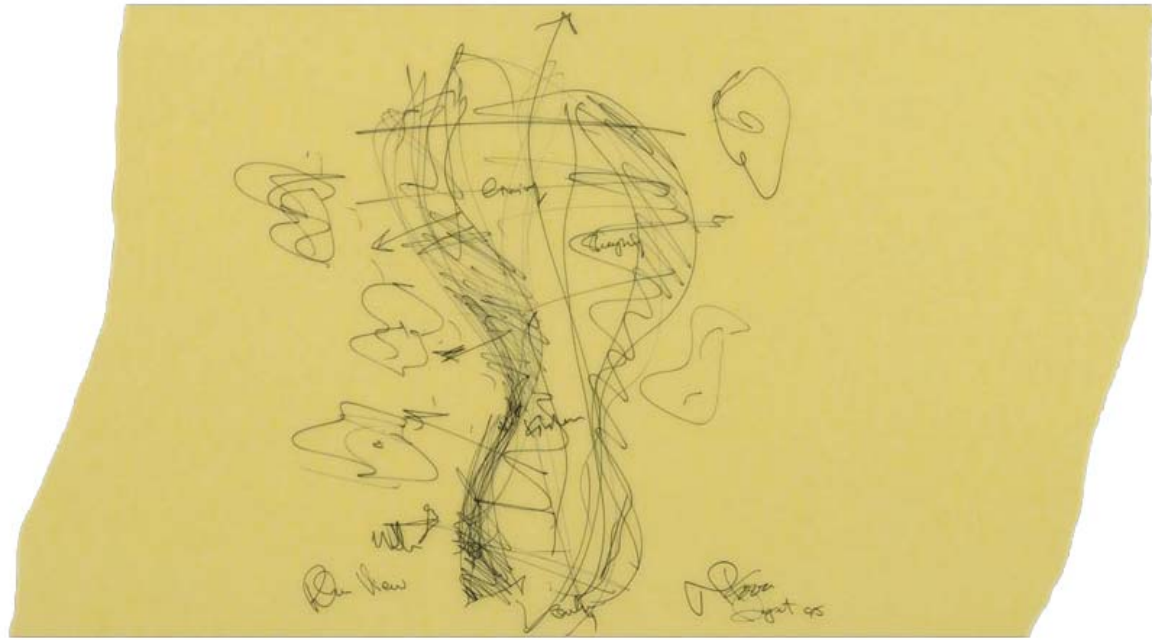
Ryan Studio (1995)

1.311 (Above) // Imagining an almost ethereal slither view of pod form from entry.
1.312 (Below) // Attempted early scale study of plan section with perspective view of proposed pod structure. There was a visible tendency to approach the new with a respect for the other.



Ryan Studio (1995)

1.313 // A way of understanding form depicting the pod scale and elevation study as references for model making to follow.

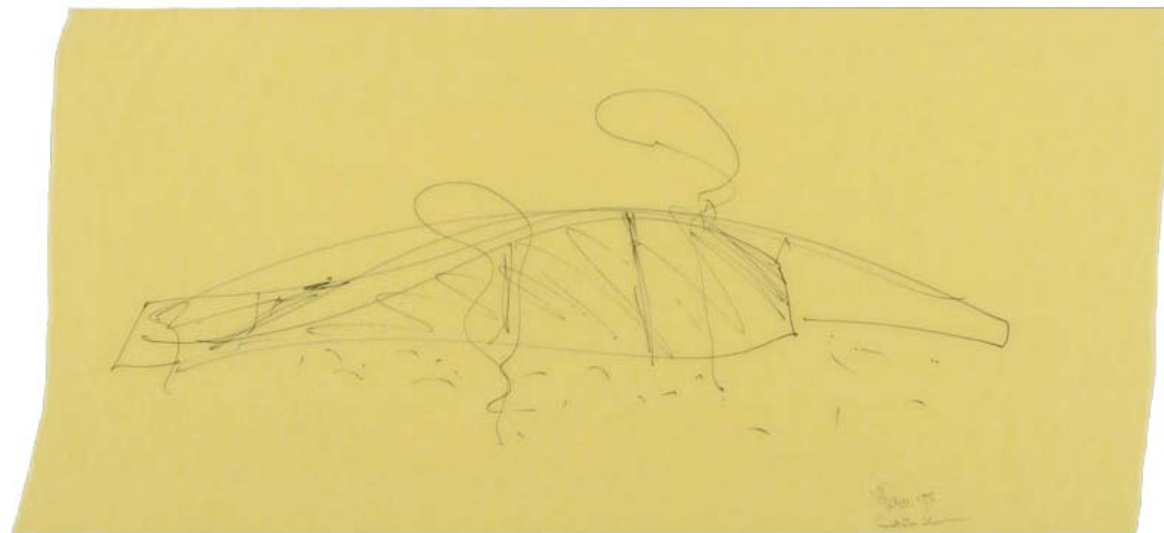
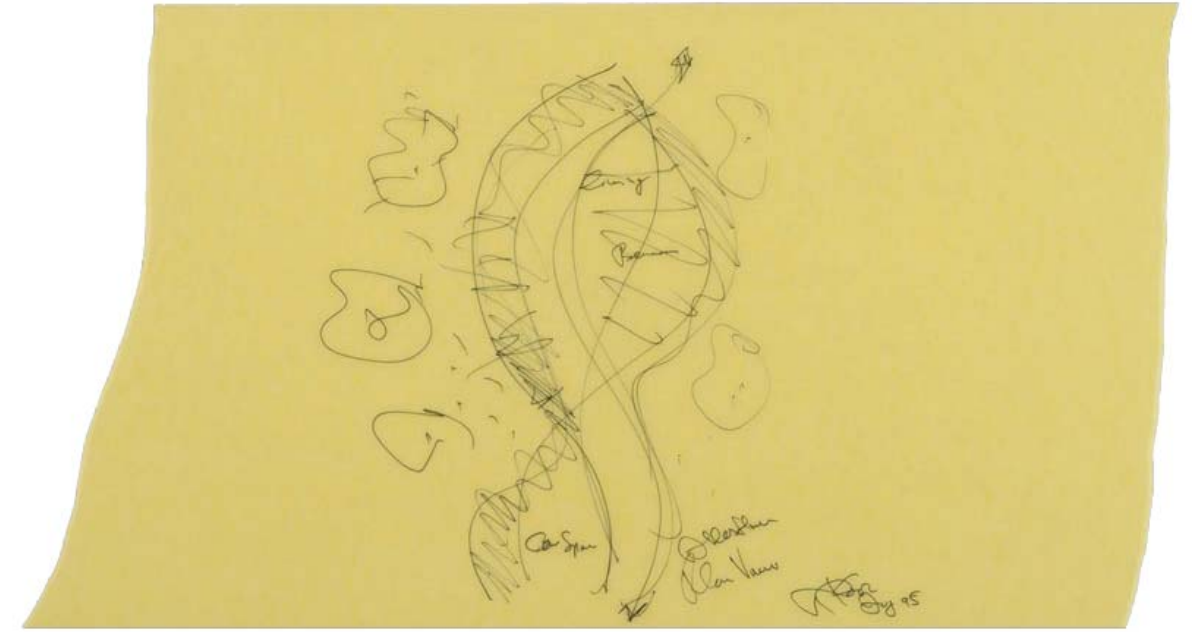
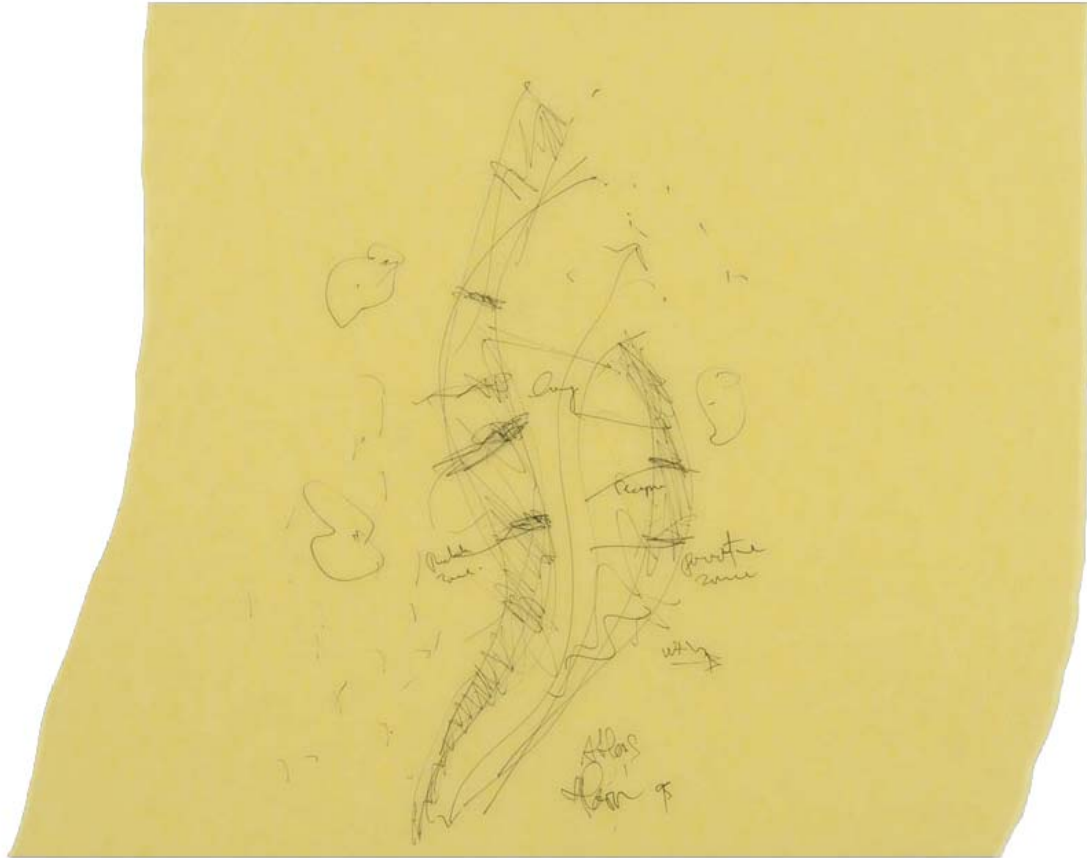


Atlas House (1996)

1.314 (Above) // Early sketch of site imagining a possible spatial organisation study.
1.315 (Below) // I always like to test several sketches as scale studies. The width of the parkland perceived as an elongated urban wall.

Atlas House (1996)

1.316 (Above) // One of various design tactics of site studies enabling me to visualise the design form with scale shifts from various heights in different scales.
1.317 (Below) // A way of seeing the existing with the proposed as a gesture appearing to attempt catching the moment before it disappears.



Atlas House (1996)

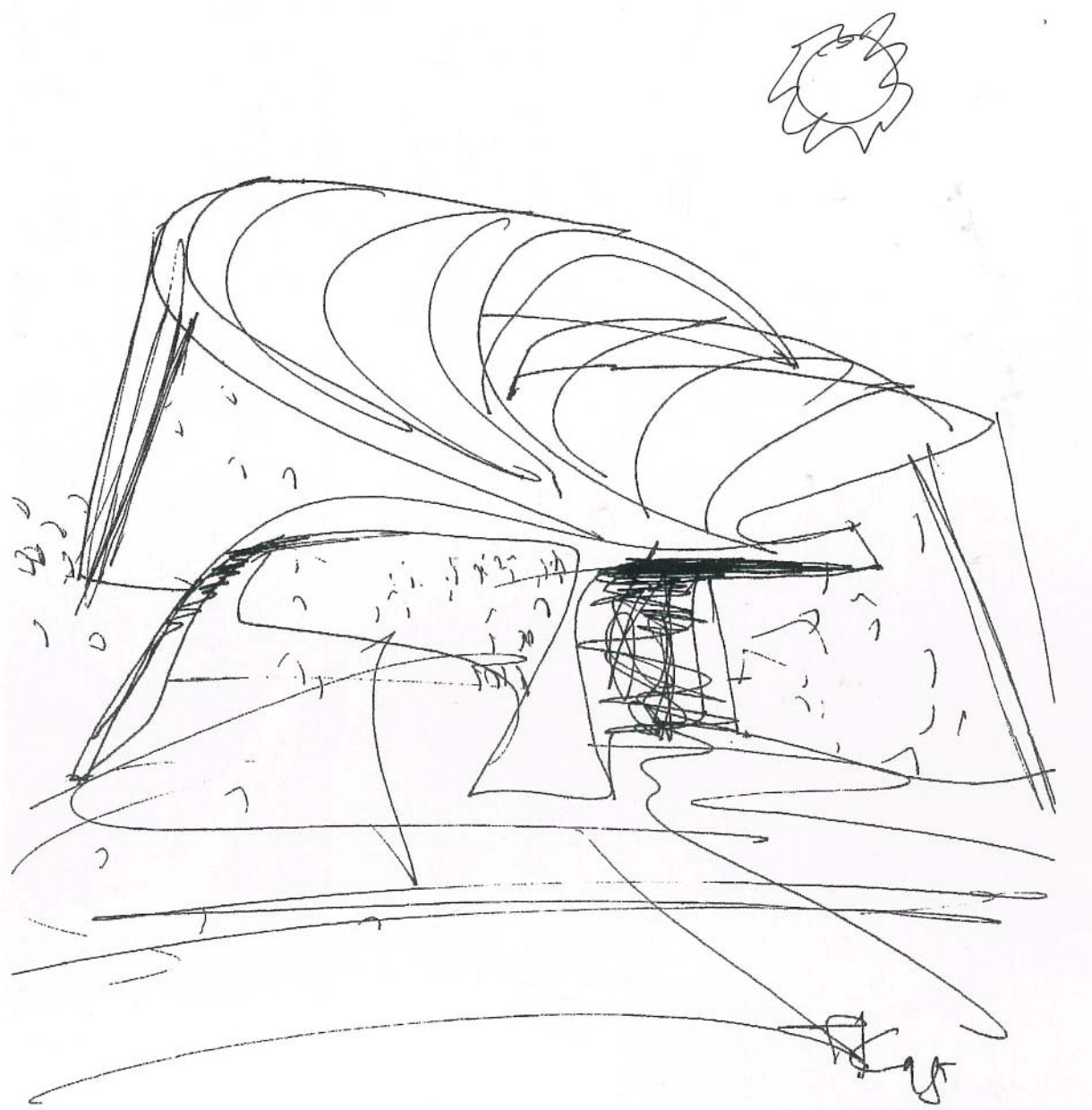
1.318 (Above) // The project's drawings had a graphic strategy which developed the appearance of the third dimension and selected trajectories of observation.

1.319 (Below) // View from parkland elevation study exploring use of varying line width and weights.

Atlas House (1996)

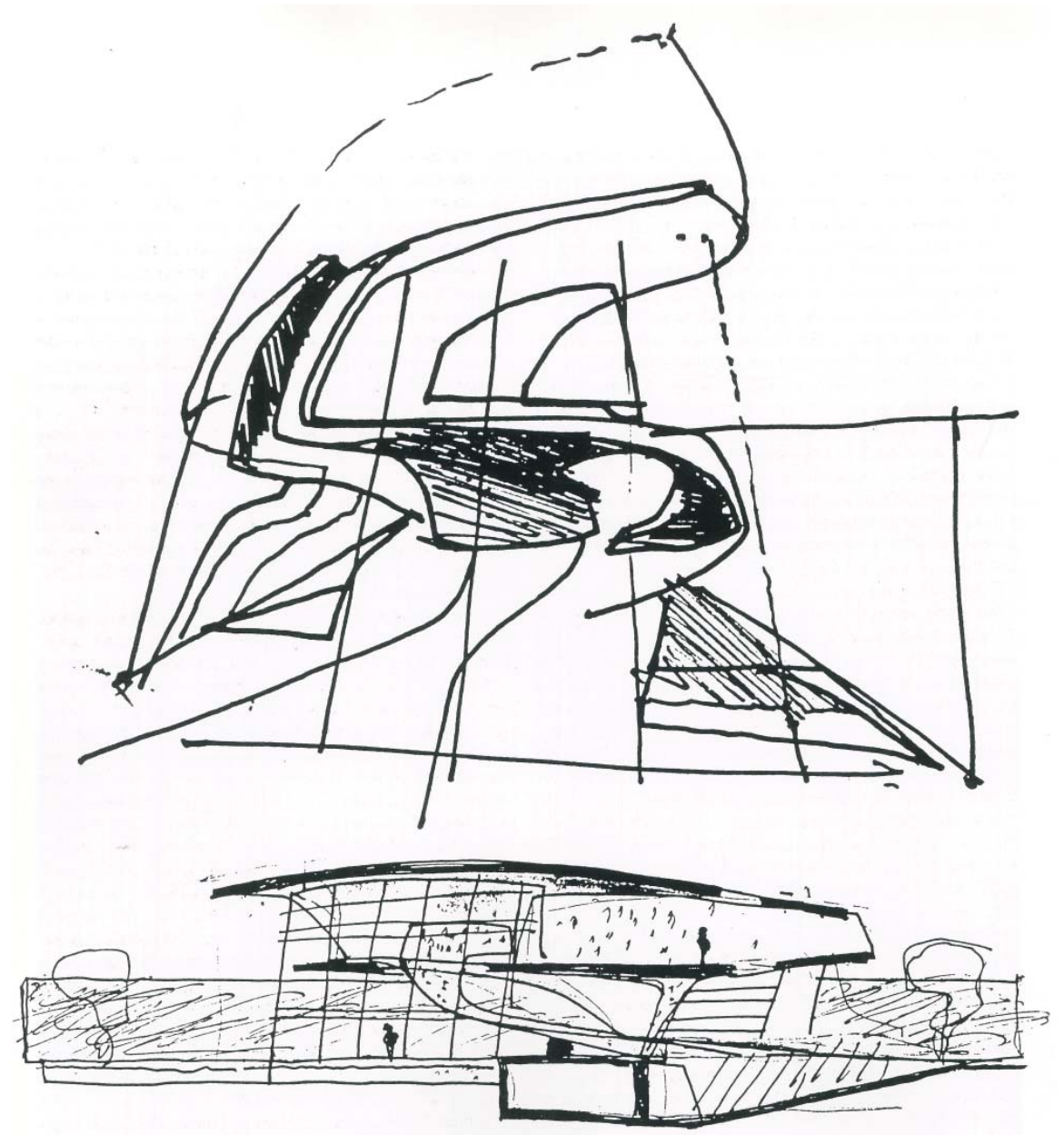
1.320 (Above) // The drawing is not suggestive of an idea but observing the existing site study proposing two adjoining structures as a 'sketchiness' of lines as propositions of continuous study.

1.321 (Below) // Spatial device for comprehending the context as a study of lines.



Atlas House (1996)

1.322 // Kooyongkoot Road elevation study as a technique that attempts to emphasise a moment as opposed to a fixed depiction.



Atlas House (1996)

1.323 (Above) // Early scheme with internal courtyard proposed two level volume study. The drawings line boundaries between the elements are a technique of blurring or imagining without fixing.

1.324 (Below) // Proposed two level section study the drawing lines created as continuous lines for understanding the behavior of the form.



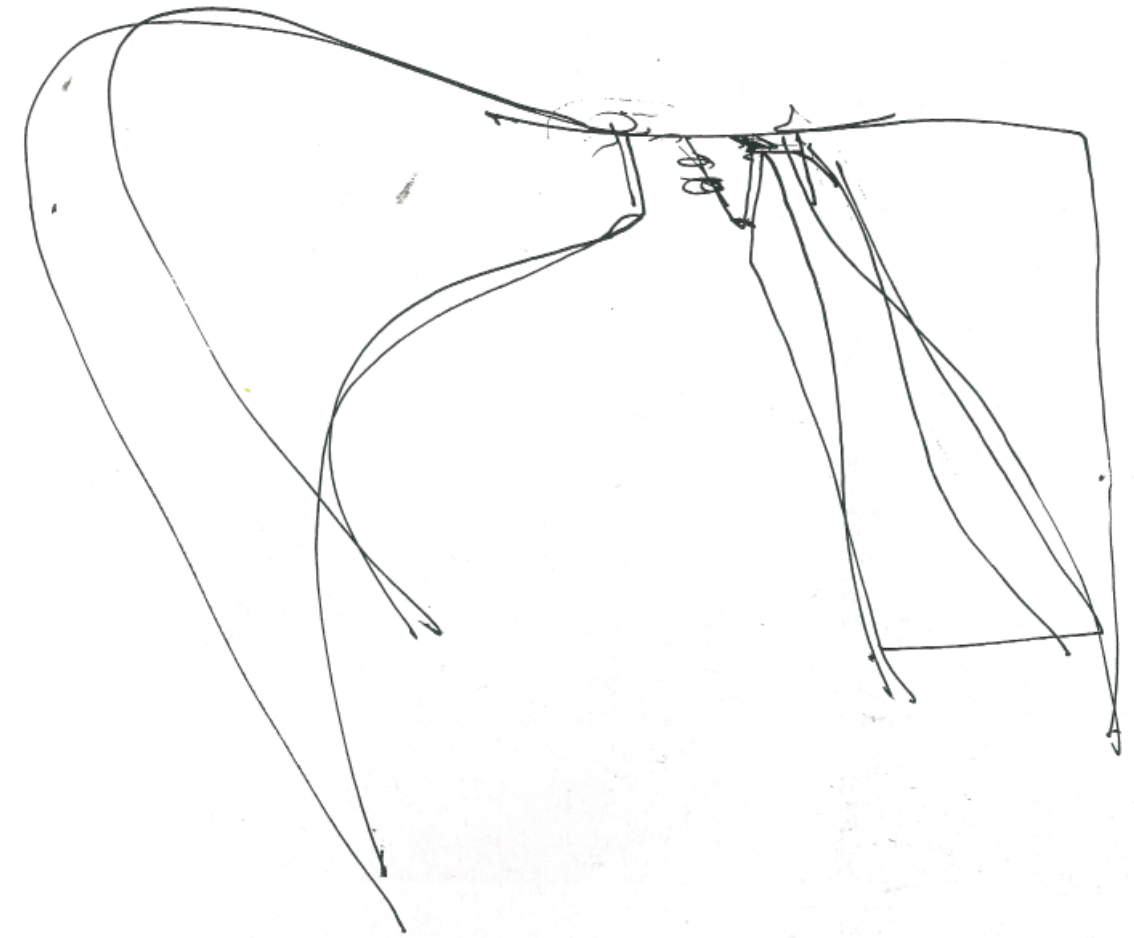
Atlas House (1996)

1.325 (Above) // Aerial view of proposed building massing.

1.326 (Middle-Top) // Massing elevation study employ lines attempting to express the third dimension through the development of spatial depth of field.

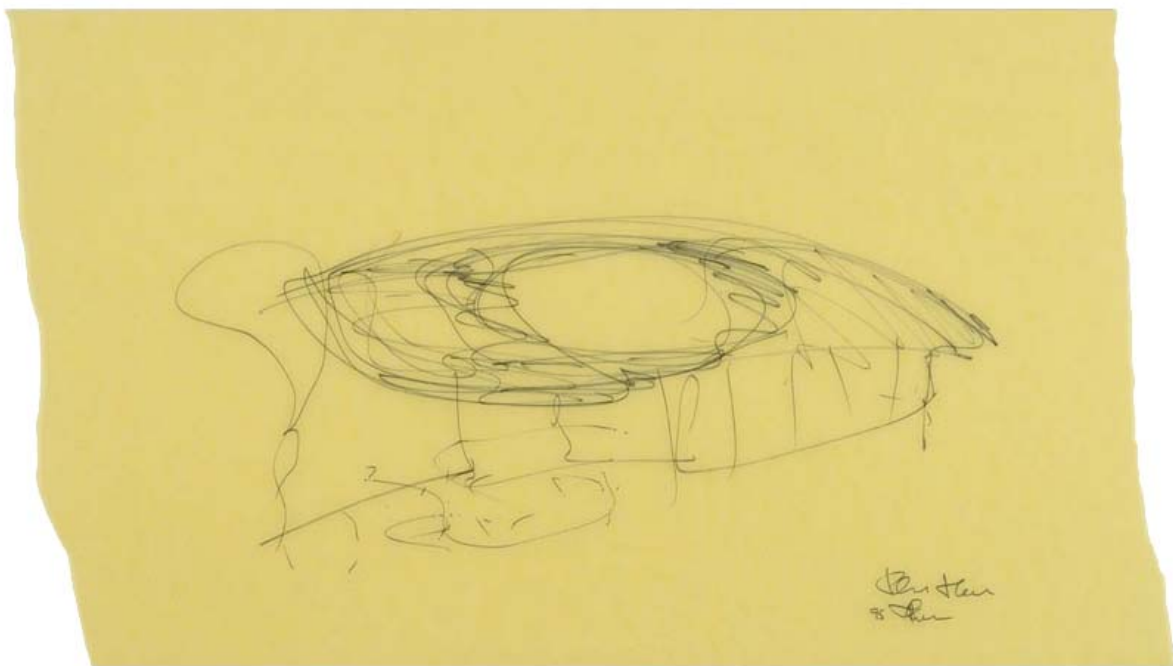
1.327 (Middle-Below) // Roof cross section showing connections between elements as directives for expanding the spatial qualities of form.

1.328 (Below) // Scale and massing section study.



Urban Attitude (1996)

1.329 // Single line atmospheric concept with directional forces attempting to imagine internal spatial composition.



Pless House (1996)

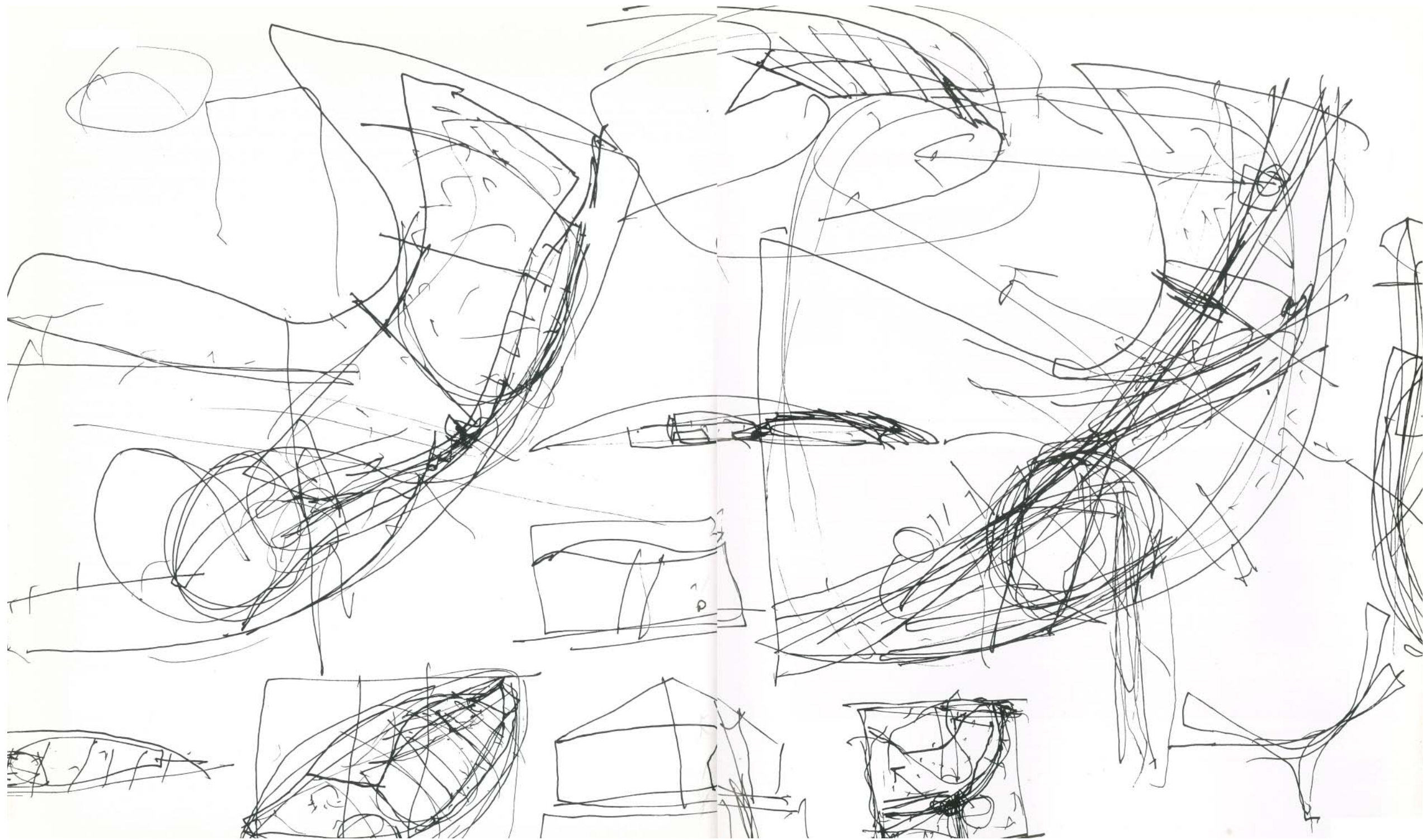
1.330 (Above) // Early form studies.

1.331 (Below) // First sketch of Pless House and study of existing and proposed building addition.



Pless House (1996)

1.332 // Elevation, scale and building investigation study.



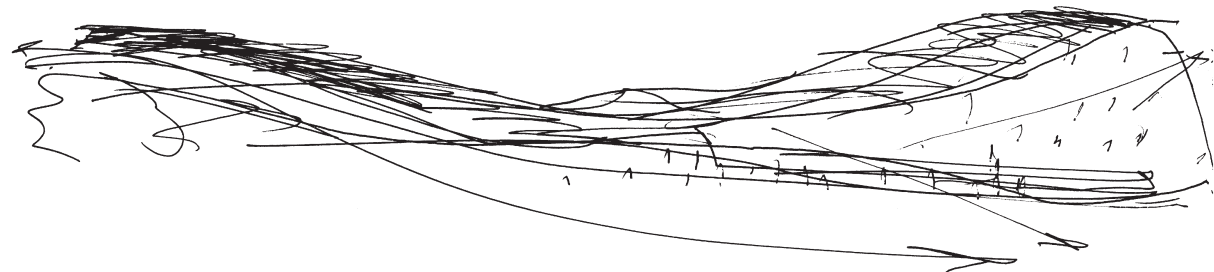
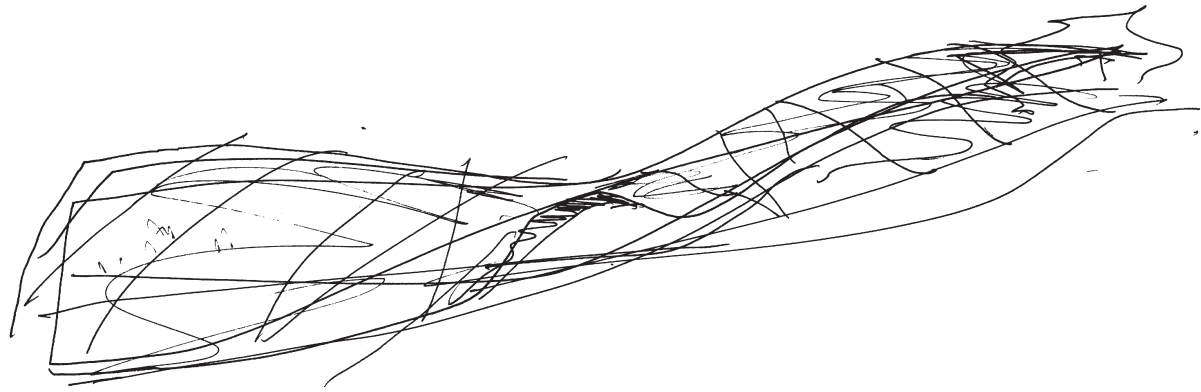
Pless House (1996)

1.333 // Spatial studies for proposed building addition with a degree of abstraction and transformation to more precise drawings attempting to stabilise the design intent.



Pless House (1996)

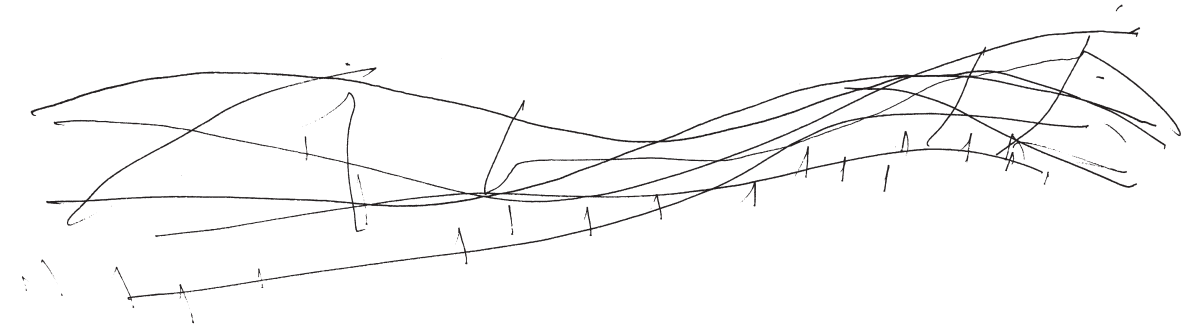
1.334 // Early form and spatial studies with atmospheric perspective responding to the needs of creating a three-dimensional world.



Federation Square (1996)

1.335 (Above) // Formal study conveyed a powerful spatial three-dimensional proposal with light lines still in an abstract phase

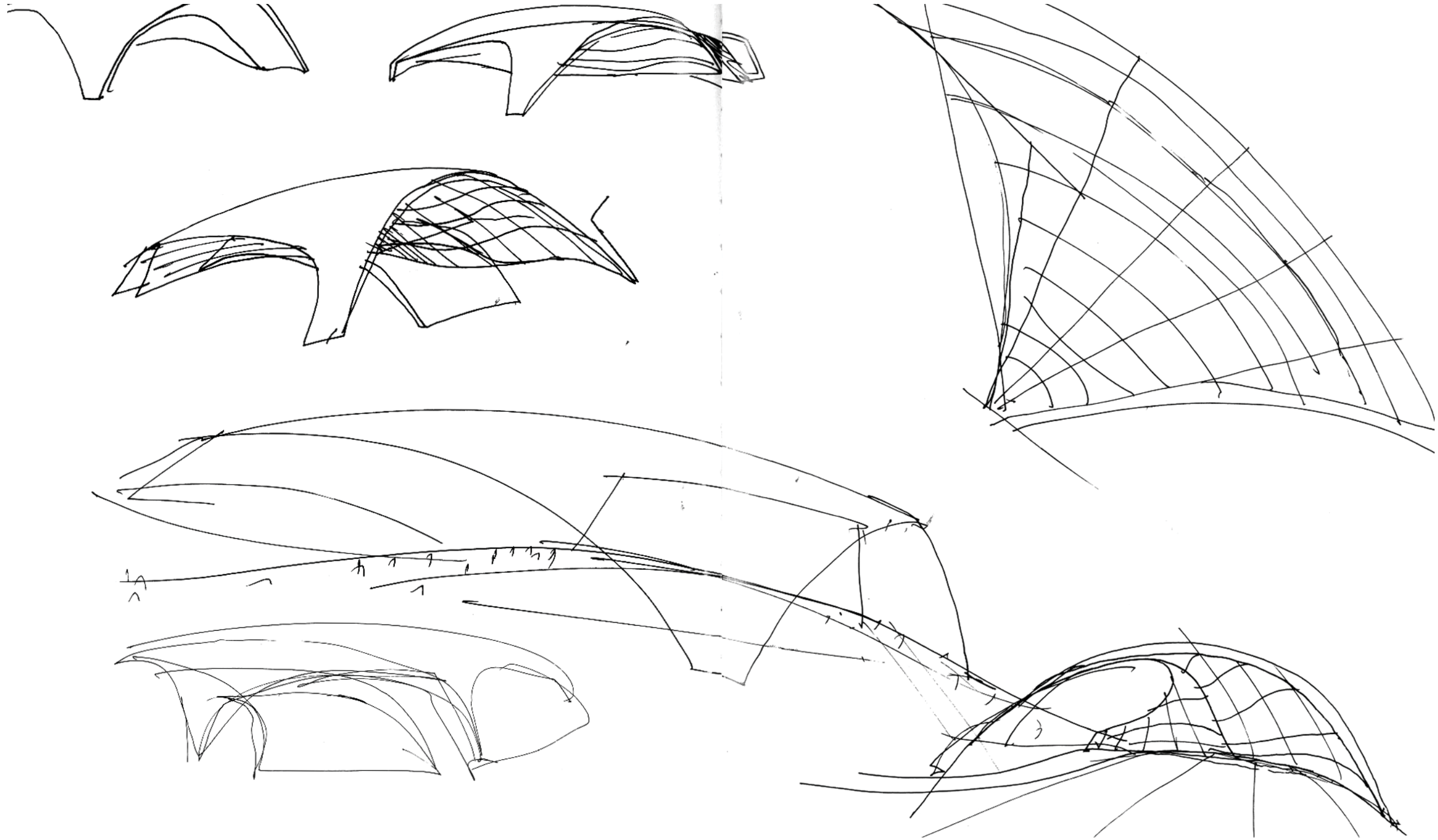
1.336 (Below) // Site and spatial composition developing an understanding of the project's urban locale as a three dimensional integration.



Federation Square (1996)

1.337 (Above) // Flinders street elevation massing represented as energetic lines used as a driving force for the schematic stage of the competition.

1.338 (Below) // Yarra River elevation line study communicate a horizontal lines through site.



Island House (1997)

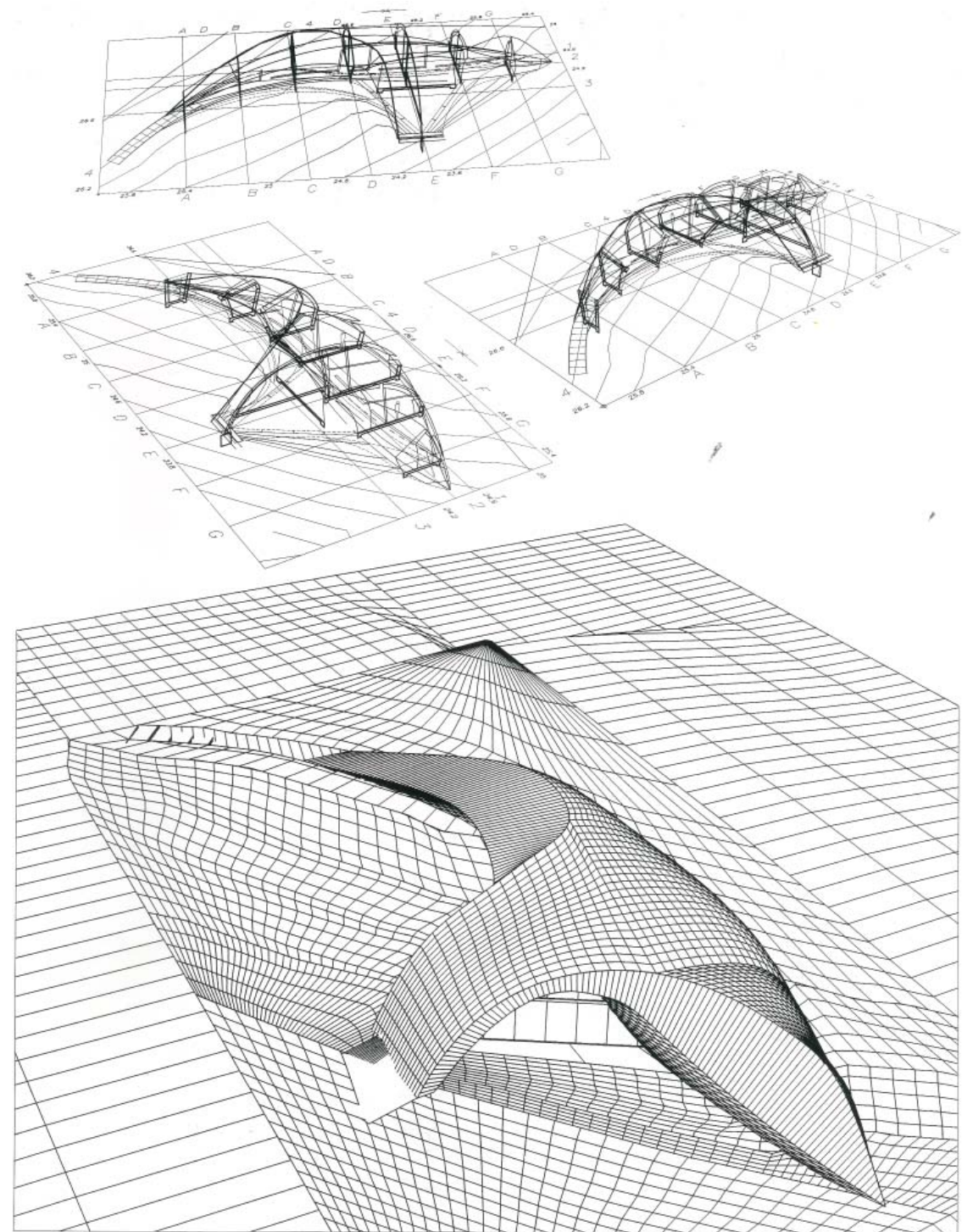
1.339 // Site and Form study.



Island House (1997)

1.340 (Above) // Line study expressing topographic nature of site from above revealing the dynamic nature of form and its shifting scale.

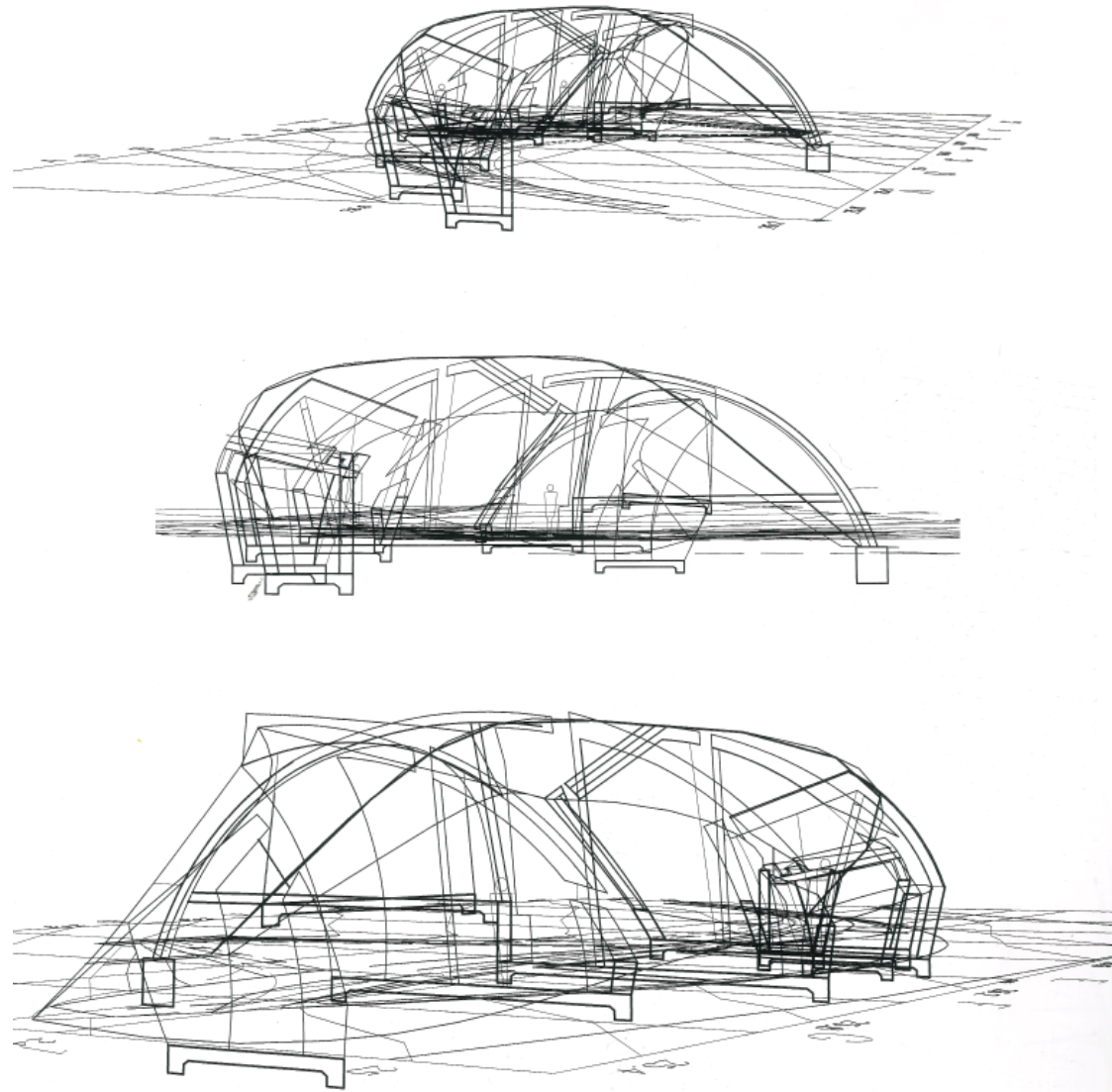
1.341 (Below) // Elevation study, expressing depth of space with blurred lines suggesting a shell-like hollowing of interior space.



Island House (1997)

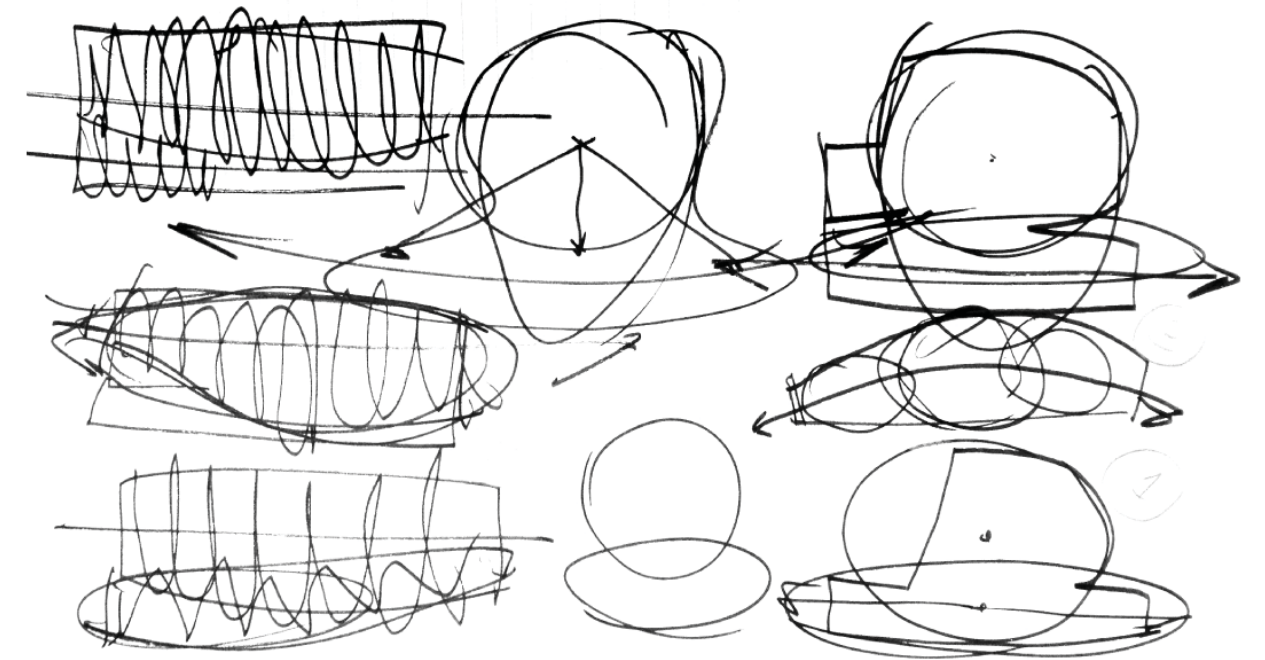
1.342 (Above) // AutoCad 3D drawing with architectural/ engineering study attempting to understand the structural implications of pre-fabricated steel portal frame and scale changes through varying sizes dictated by the building's directional growth.

1.343 (Below) // Topological study of house and landscape as a geometrical shape.



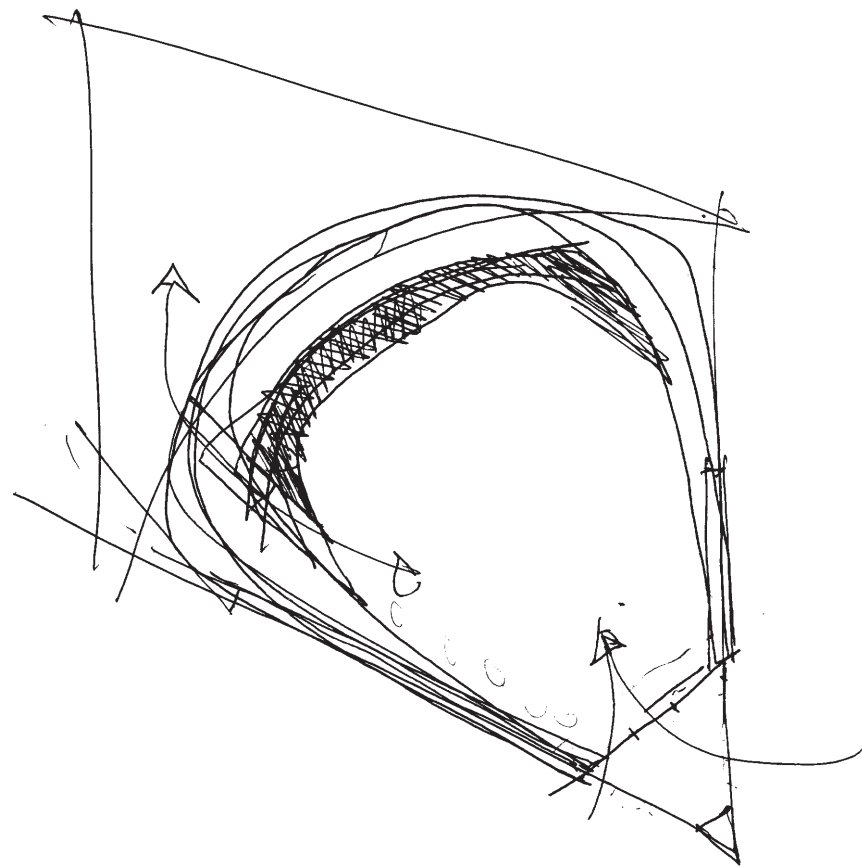
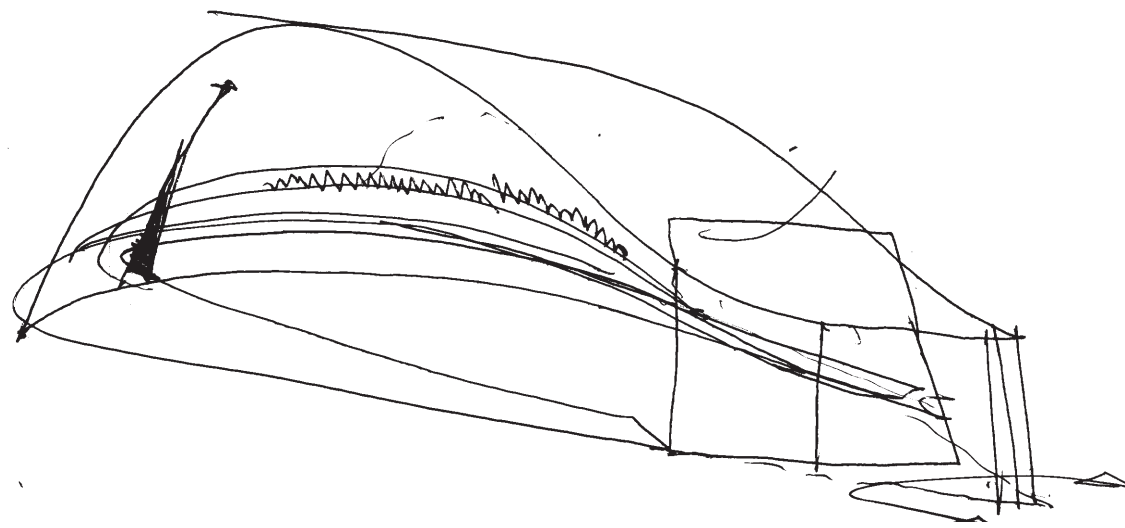
Island House (1997)

1.344 // Analytic study of prefabricated truss components demonstrating changing structural implications related to scale and number of modules.



Glow Bar (2001)

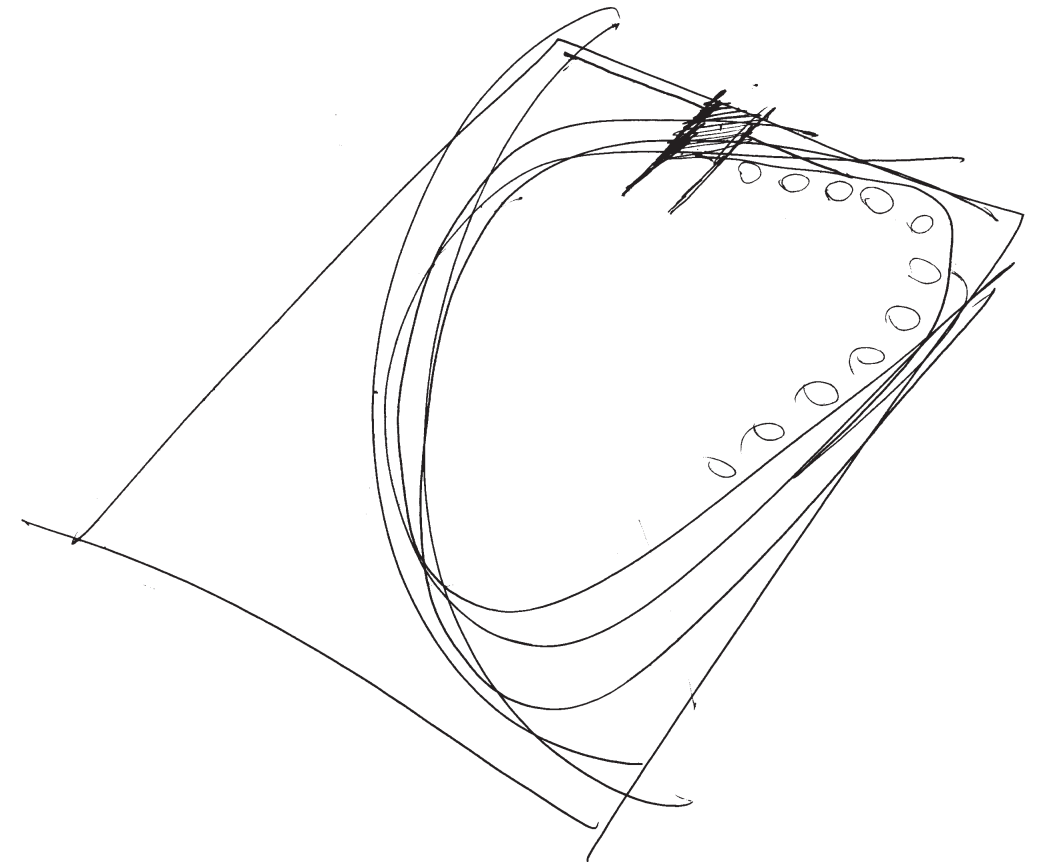
1.345 // Spatial volume studies with lines imagining the forms from inside to outside.



Glow Bar (2001)

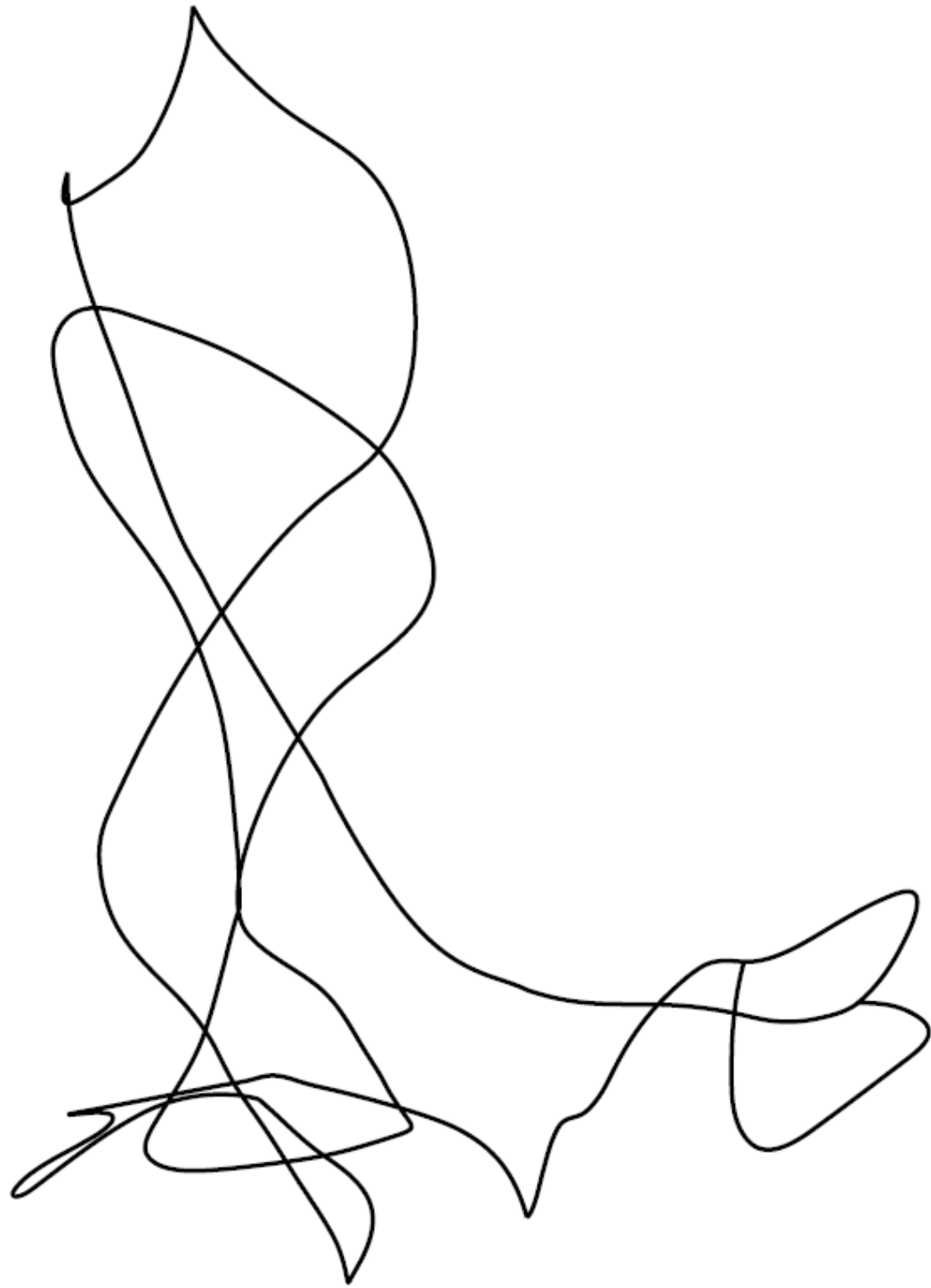
1.346 (Above) // Study and solution indicating the need for scale change between existing building entry and height possibilities of main internal volume.

1.347 (Below) // First plan study of entry and internal volume in relation to existing structure forming the eventual proposal direction showing the maximised public space and access to rear service zone.



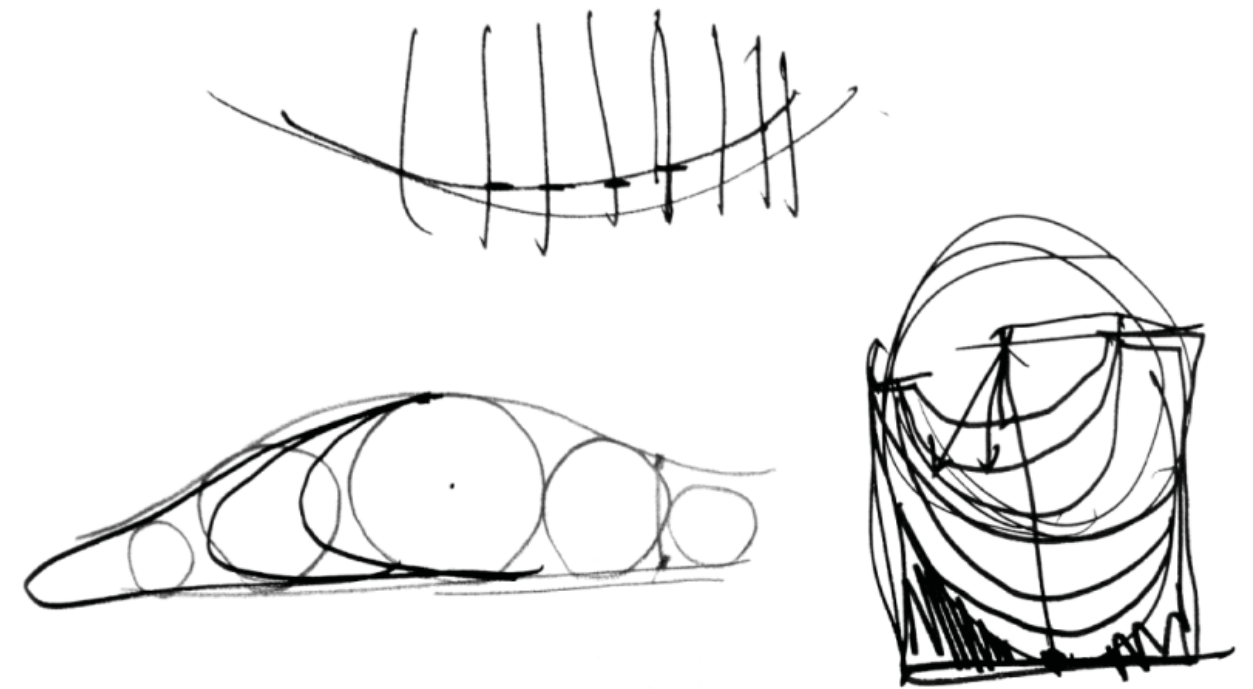
Glow Bar (2001)

1.348 // Alternative scheme with side entry of main street with lines with lines demonstrating several setback options attempting to increase public space.



World Trade Centre (2002)

1.349 // Line drawing demonstrating the massing of form as generated by Excel spreadsheet diagram. The lines indicate the spatial growth and formal outline of mapped data sets of existing WTC zones and use.

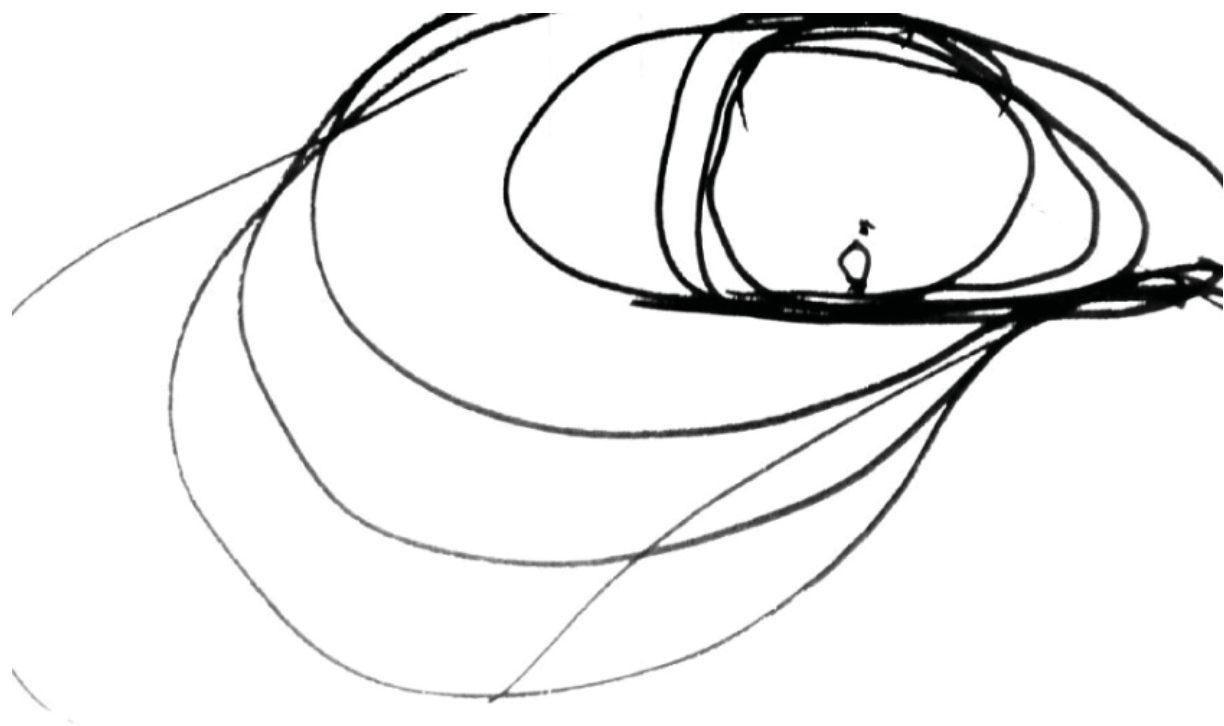


RMIT Digital Design Gallery (2002)

1.350 (Above) // Zone diagram studies showing growth in spatial diversity and shape iterations of underground directional movement between RMIT and the CUB site boundary.

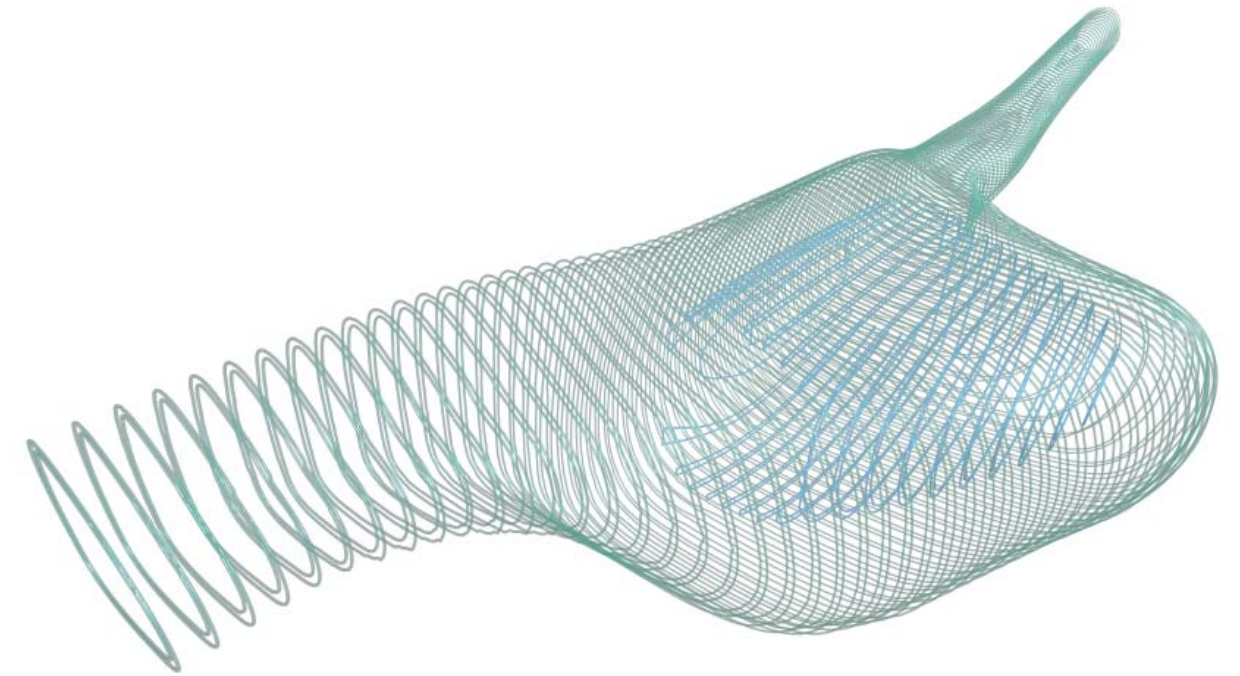
1.351 (Below-Left) // Tunnel growth section study indicating changes in spatial scale and underground movement.

1.352 (Below-Right) // Computer analysis of spatial growth and scale demonstrating formal and zonal diversity connecting with ground access and circulation.



RMIT Digital Design Gallery (2002)

1.353 // Tunnel growth section study indicating changes in spatial scale and underground movement.



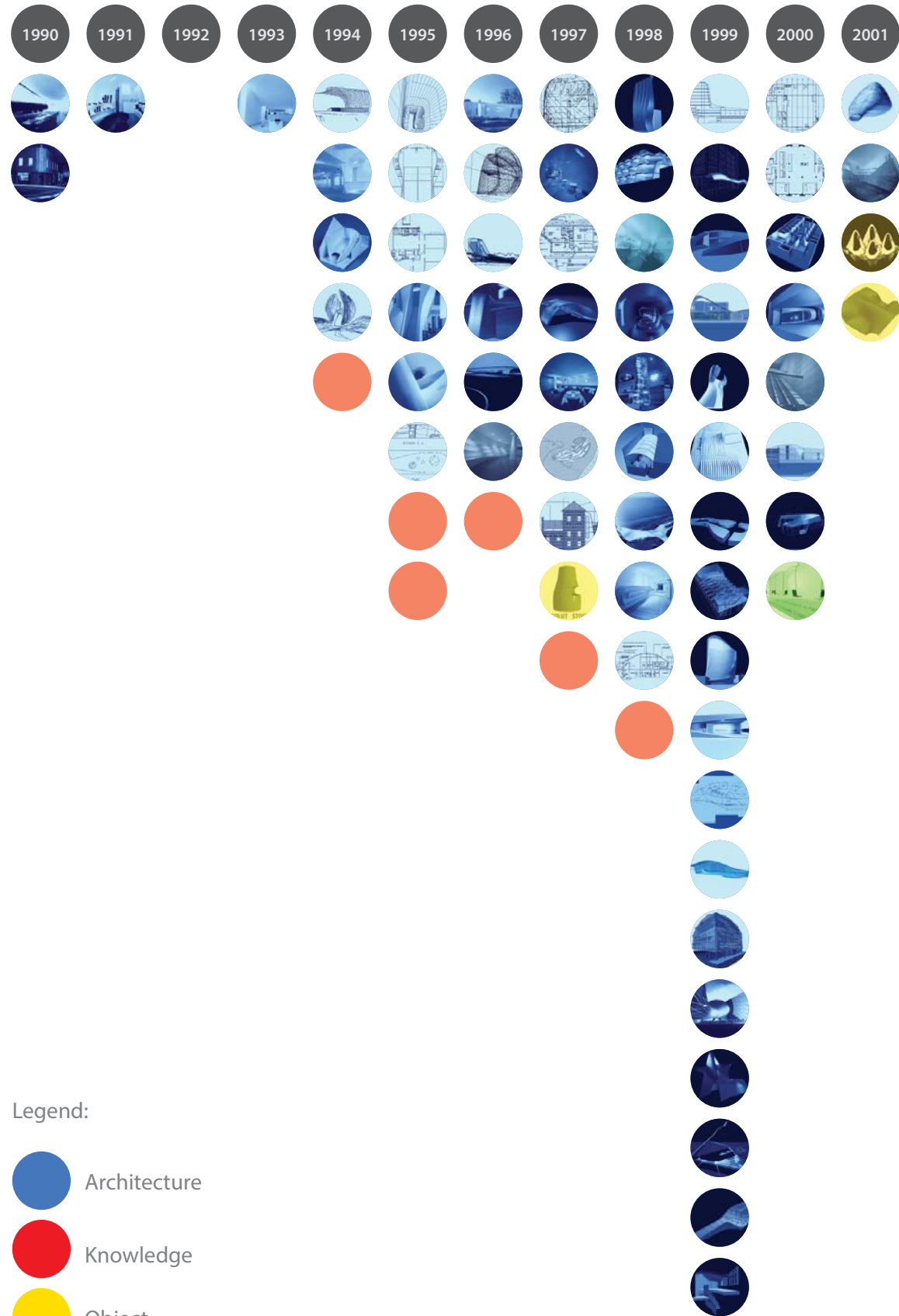
RMIT Digital Design Gallery (2002)

1.354 // Computer analysis of spatial growth and scale demonstrating formal and zonal diversity connecting with ground access and circulation.

- 1 Eliot, T. S. (1943). *Four Quartets Part II*. East Coker.
- 2 Kubler, G. (1962). *The Shape of Time: Remarks on the History of Things*. New Haven, CT: Yale University Press. p. 23.
- 3 Kuhn, T. (1996). *The Science of Scientific Revolutions*. Chicago: University of Chicago Press.
- 4 Polanyi, M. (1958). *Personal Knowledge: Towards A Post-Critical Philosophy*. Eastford, CT: Martino Fine Books.
- 5 Christensen, C. (1999) *Disruptive Innovation*. (Treatise)
- 6 Wikipedia. (2014). *Generative science*. Retrieved March 6, 2014 from Wikipedia: [http://en.wikipedia.org/wiki/Generative_science].
- 7 Leyton, M. (1992). *Symmetry, Causality, Mind*. Cambridge, MA: MIT Press. p. 3.
- 8 Ibid. p. 13.
- 9 Ibid. p. 23.
- 10 Ibid. p. 23.
- 11 Braunstein, M. Hoffman, D. & Saidpour, A. (1989). *Parts of Visual Objects: an experimental test of the minima rule*. Retrieved December 23, 2013 from University of California: [<http://www.cogsci.uci.edu/~ddhoff/1989-22-PartsExpTest.pdf>].
- 12 Leyton, M. (1992). *Symmetry, Causality, Mind*. Cambridge, USA: MIT Press. pp. 24-25.

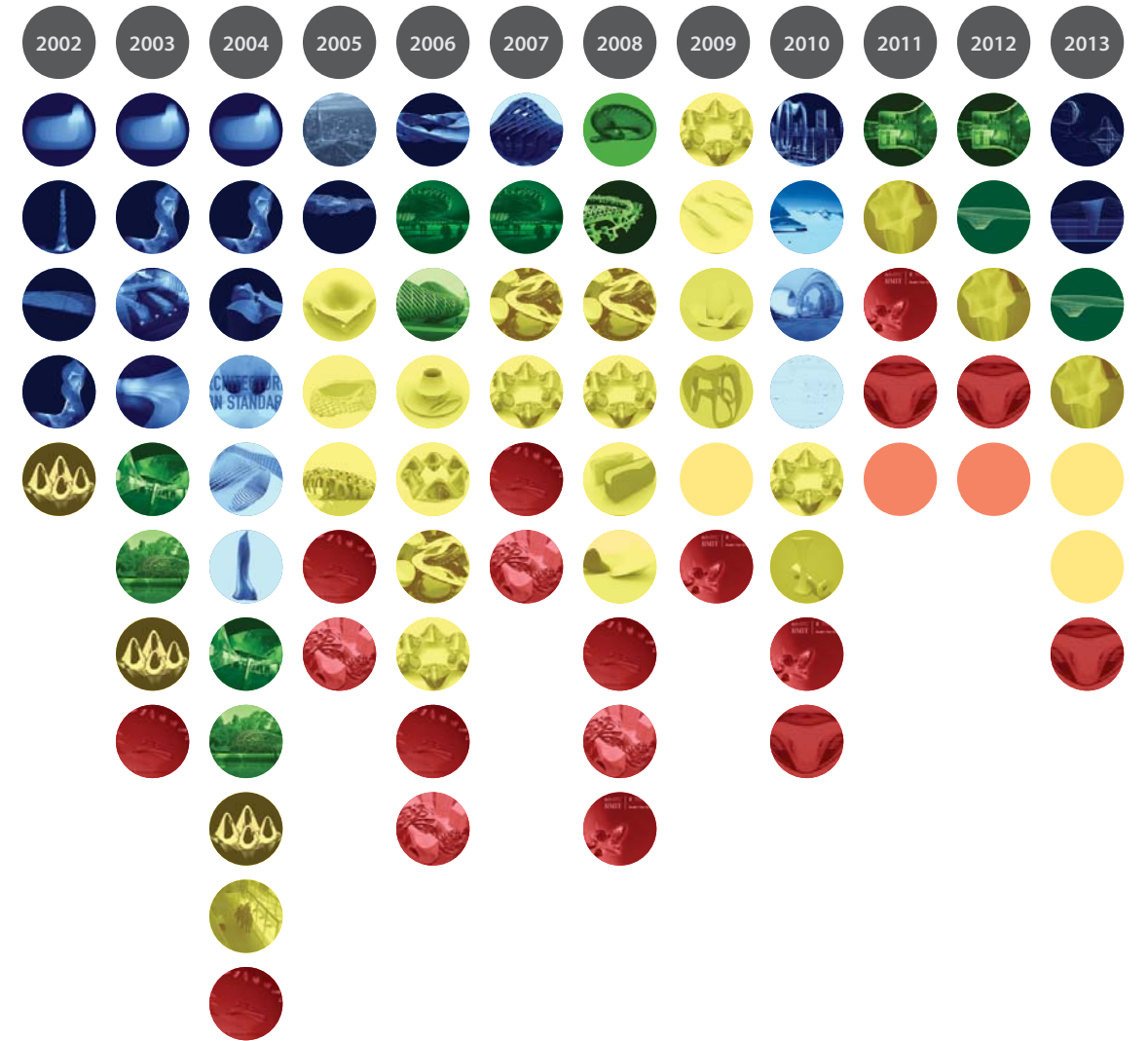


Timeline of Projects



Legend:

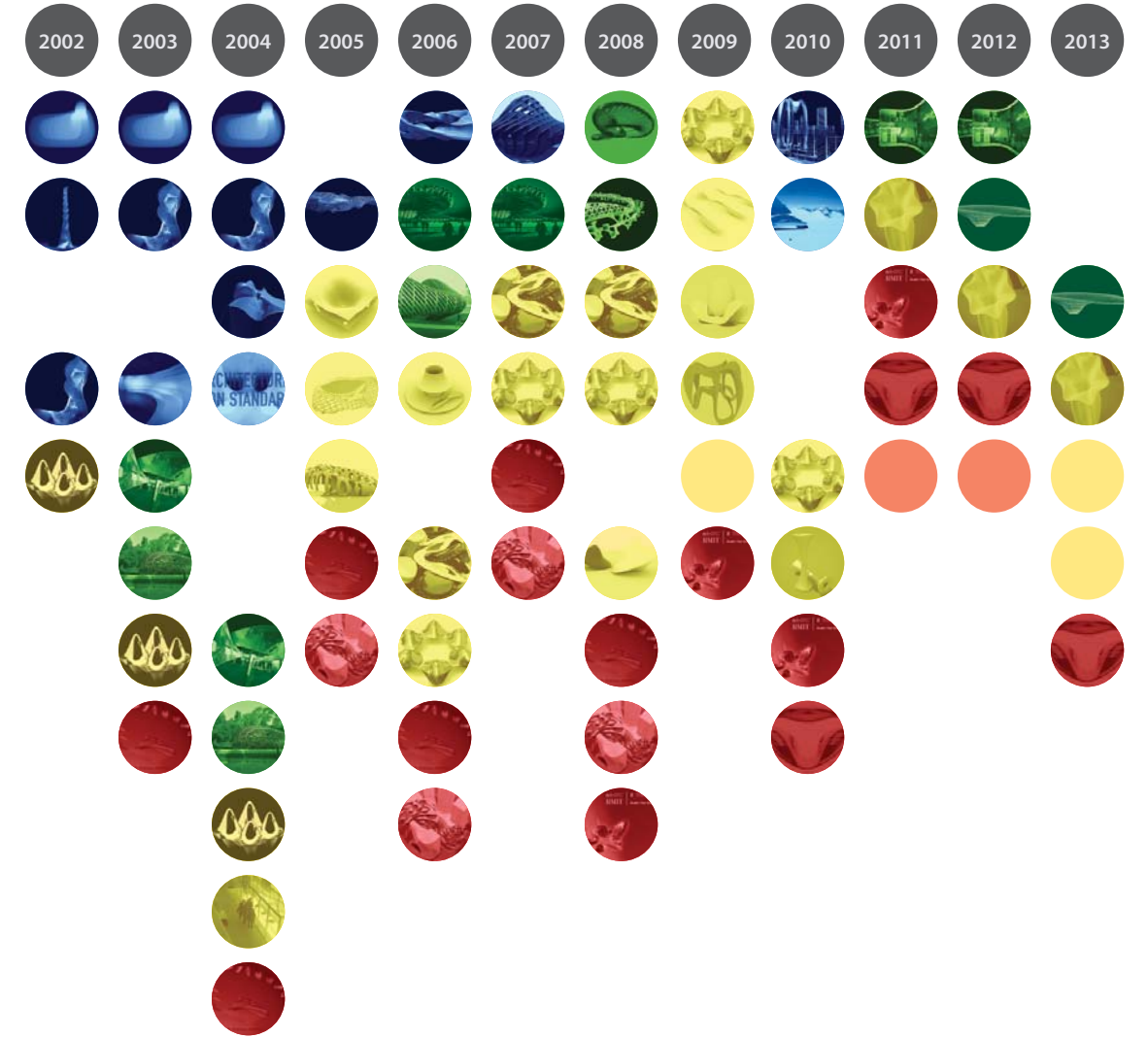
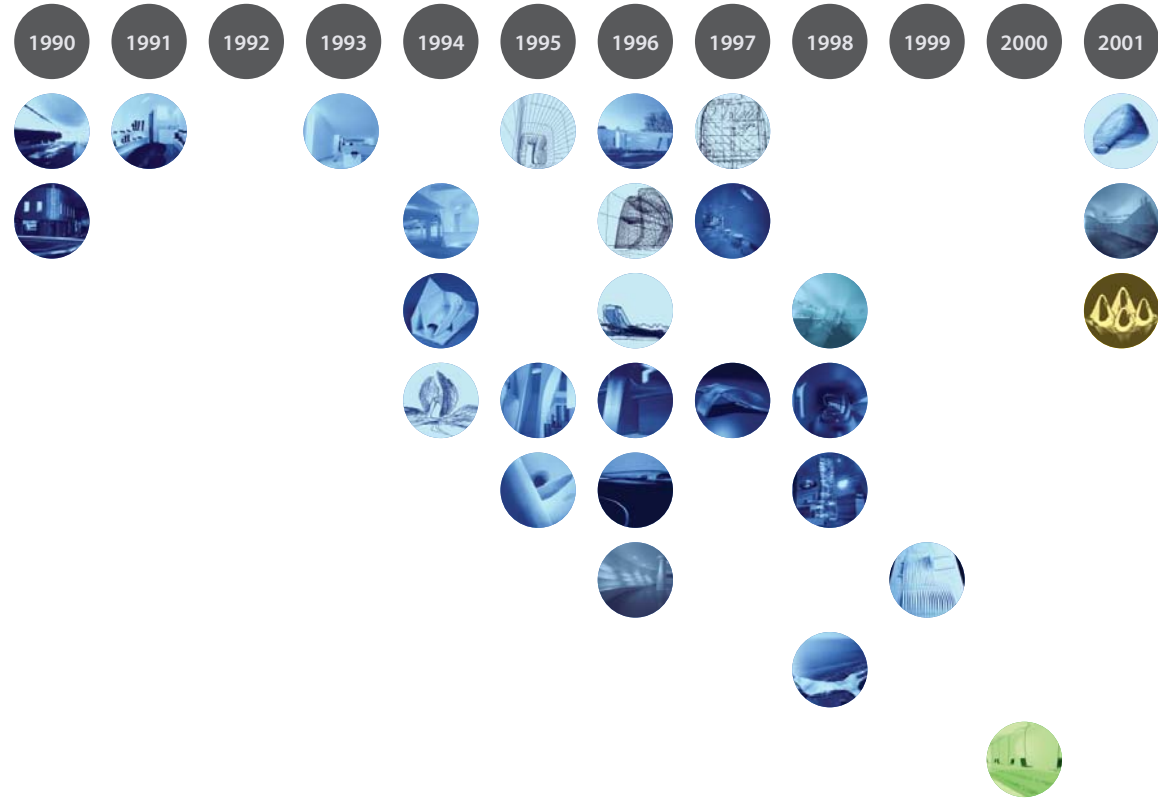
- Architecture
- Knowledge
- Object
- Virtual



Timeline of All Projects

Table 2.101 // Practice evolution and project timeline. The colour-coding schedules describe the nature of practice and development of interest areas over the span of the practice's lifetime. The selected projects demonstrate the growth of the practice by project types and identifies the changes and growth of knowledge within the practice.

Timeline of Selected Projects



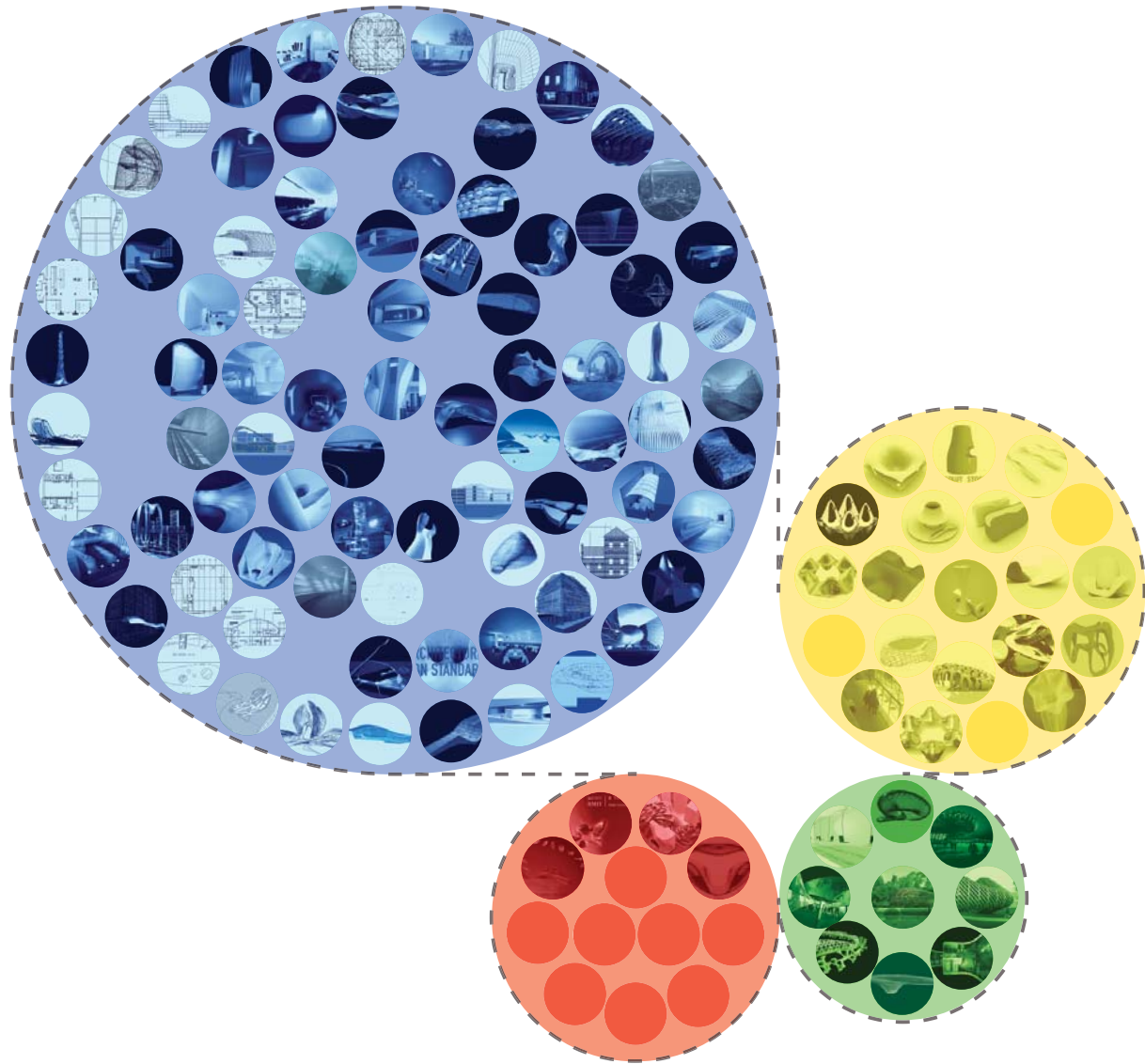
Legend:

- Architecture (Blue circle)
- Knowledge (Red circle)
- Object (Yellow circle)
- Virtual (Green circle)



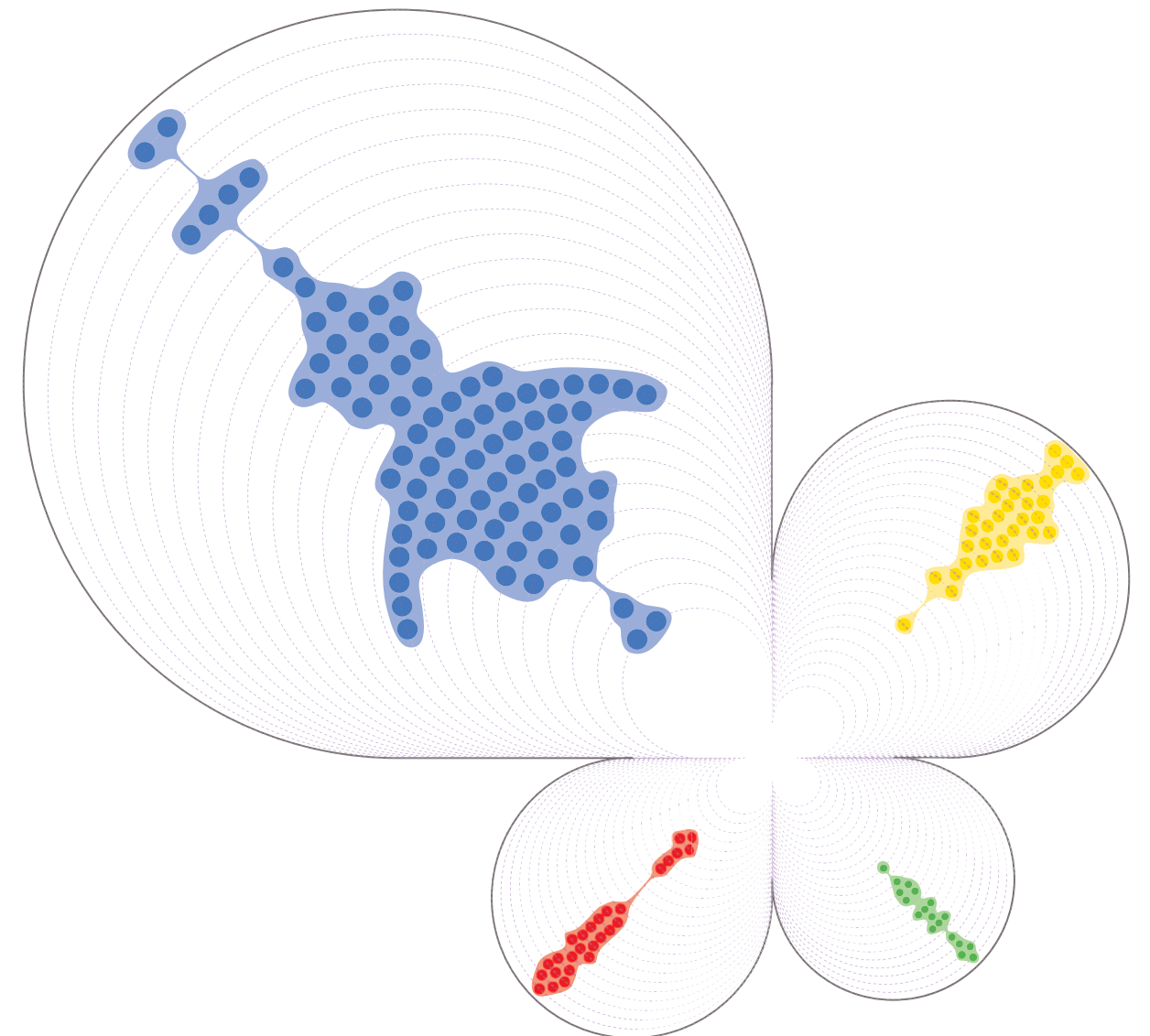
Timeline of Selected Projects

Table 2.102 // Selected projects of reflective practice.



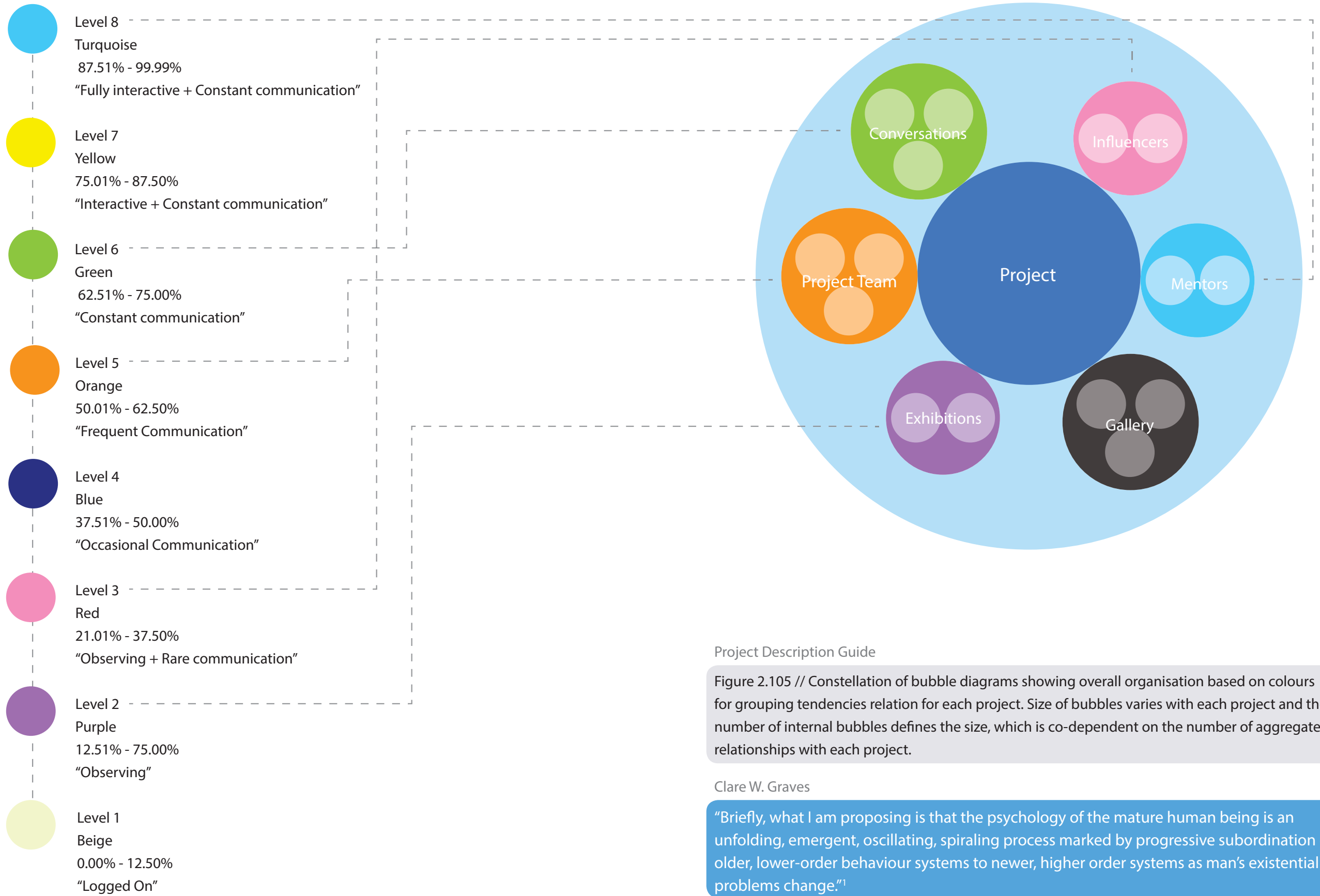
Project Overview

Figure 2.103 // Projects are grouped by type, demonstrating the shifting interests and scale of architectural practice over time using circle-packing as a model to visualise the nature and level of interest over time.



Volume of Project Types by Year

Figure 2.104 // Dynamic scale model of reflective practice by year.

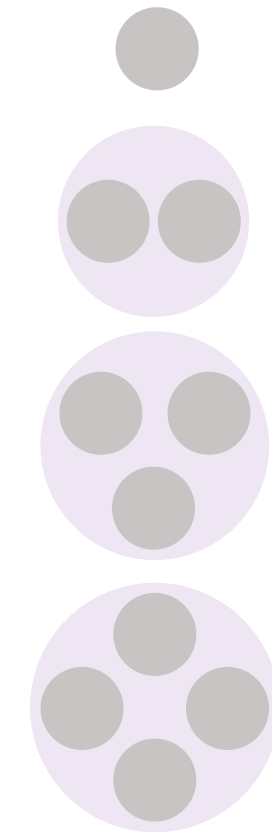
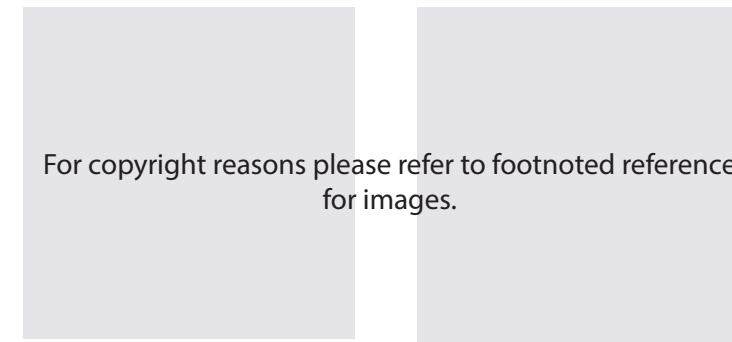
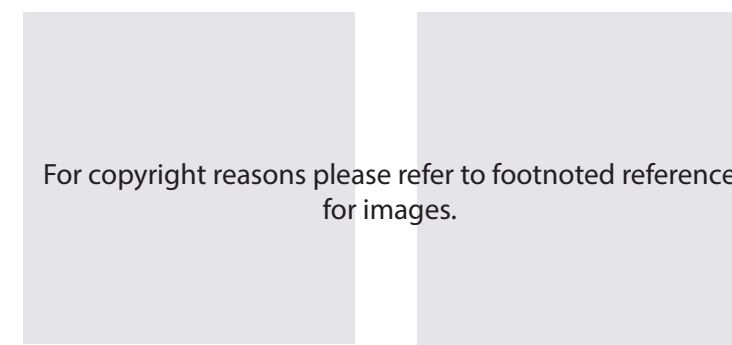


The system of packing circles demonstrates the visualisation for my practice. It forms a lens into the understanding of its creative processes and is a system for navigation. The basis of its dynamic structure is a way of shaping a conceptual framework for mapping the vast amount of relationships between all paths. It forms a neural network and a massive, distributed global 'brain' as a self-organised navigation application that evolves from a database of information.

Ultimately, it is a reflective peering into my practice and represents a way of understanding what the design language may mean and how its information may be useful. The designs form a language of intersecting occurrences and relationships collected as a series of disparate works, which it attempts to intelligently process and organise into visual mappings.

It creates an environment that collects bits of data and assembles this into a visual body that shares relevant search content with other associated information to generate a view of the various constituents that comprise the practice. The use of circle-packing as an organisational system is a way of providing access to various connections and adding new ones as information evolves. The circles are organised in an array forming dynamic relationships, made up of uniform circular forms. Symmetrical in nature, the circle forms have shifting scales and vary in number depending on the attributes for each project or person. Circles are used to demonstrate an optimal number of internal circles to visualise development of the practice.

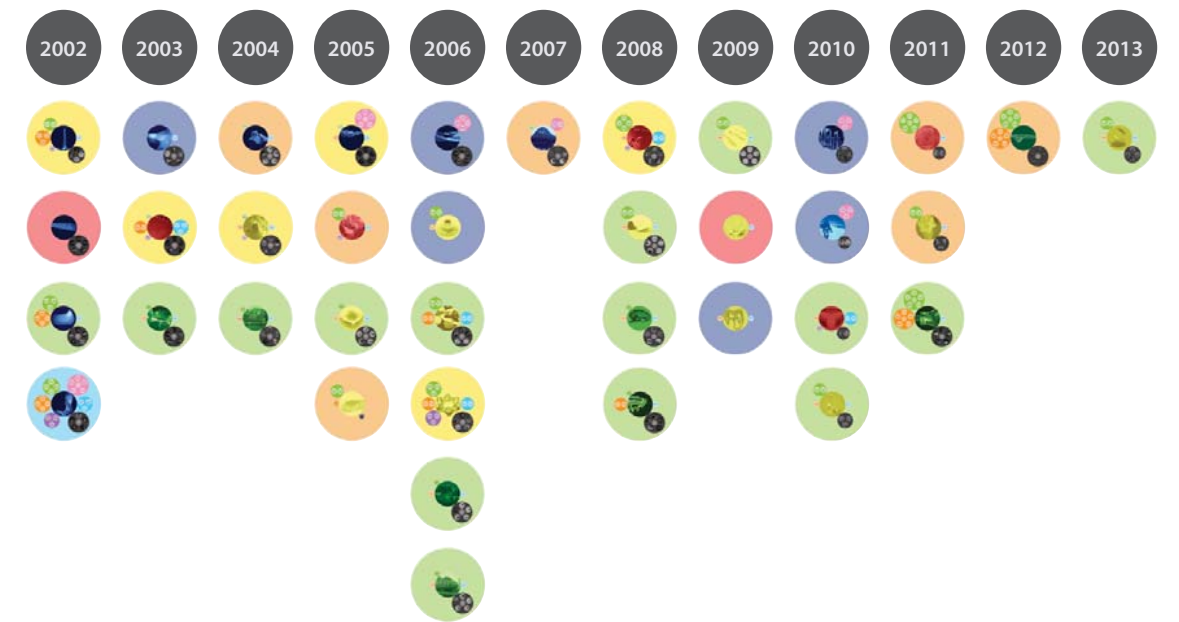
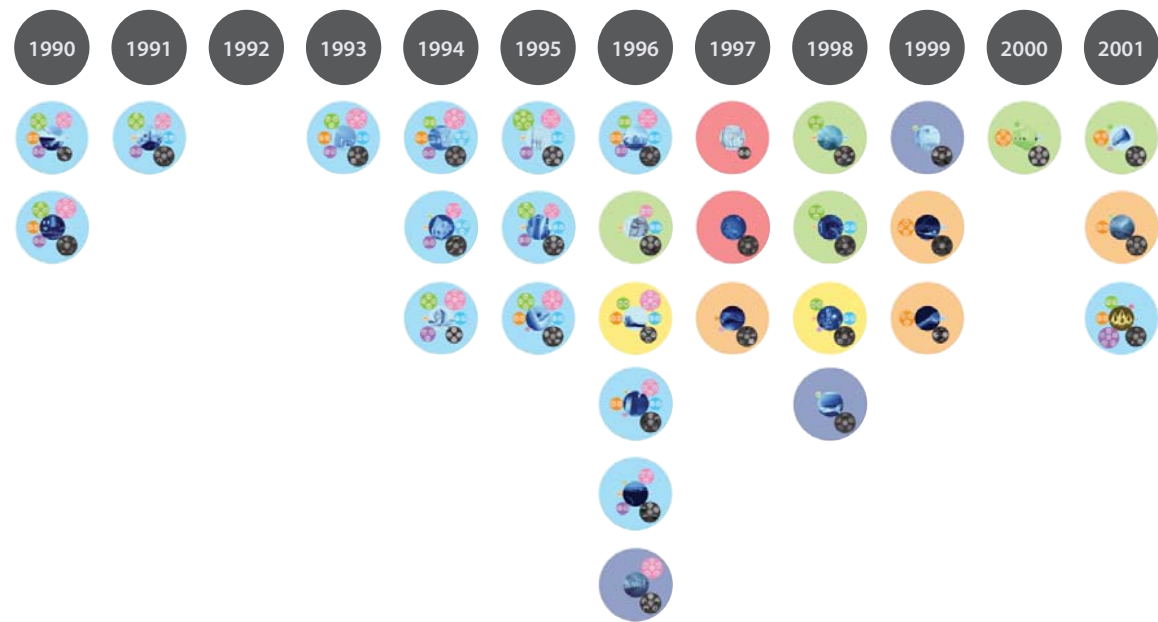
The packing of congruent circles as a general rule of n_1 as minimum and n_6 as a maximum number of circles in a single pack enabled an understanding of constellations to emerge and uncovered new knowledge of our practice. "Reading of relationships without overlaps inside the larger circle in such a way that their common radius is as large as possible. We denote the maximum attainable radius of the circles by r , and we call the corresponding placement an 'optimal packing.'"²



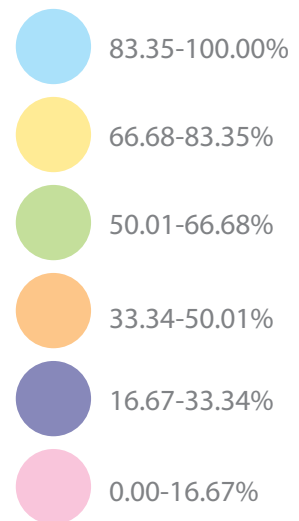
Circle Packing

Figure 2.106 (Above) // Dense packings of congruent circles in a circle.
Figure 2.107 (Below) // Circle Growth Network Formation/Nesting Method.

Timeline of Project Diagrams



Success Value System Legend:



Timeline of Selected Projects

Table 2.108 // Projects organised by year with background colour indicating the level of success.

Timeline of Project Diagrams

1990



Squire Boutique (1990)

1991



Succhi (1991)

1992

1993



Gan House (1993)

1994



Capitol Nightclub (1994)

1995



Ryan Studio (1995)



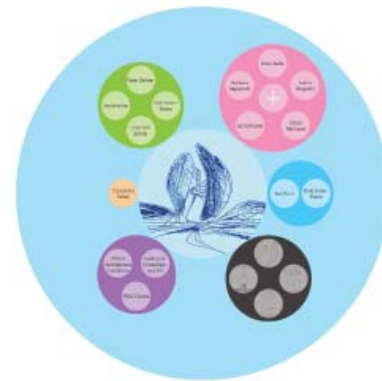
Cherry Tree (1990)



Gibbs Church Conversion (1994)



Curve Gallery (1995)



Museum of Victoria (1994)



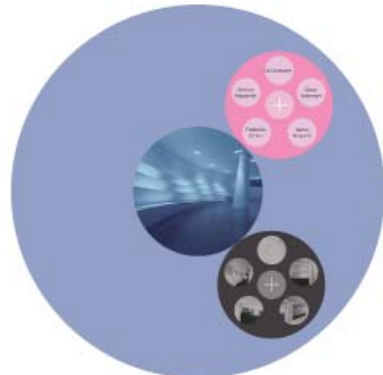
Sapore Restaurant (1995)

Timeline of Project Diagrams

1996

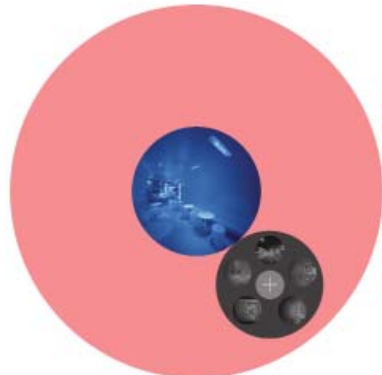


Atlas House (1996)

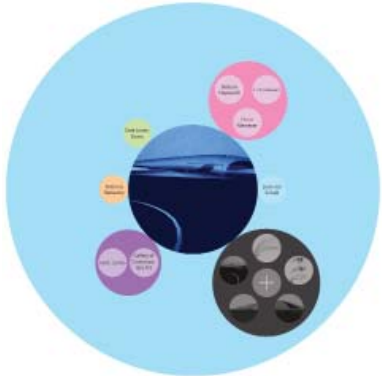


Urban Attitude St Kilda (1996)

1997



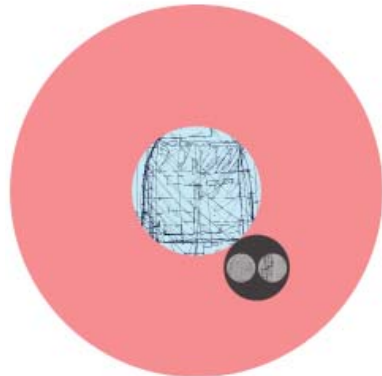
BBNT Restaurant (1997)



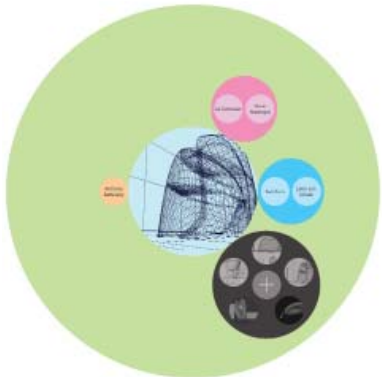
Pontian Centre (1996)



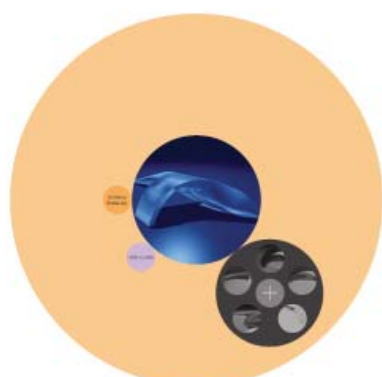
Federation Square (1996)



A'Beckett Student Housing (1997)



Barkly Apartments (1996)



Island House (1997)



Pless House (1996)

1998



Glow St Kilda (1998)



HyperCentre (1998)

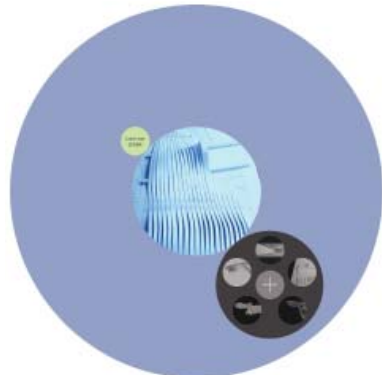


St Kilda Marina Redevelopment (1998)

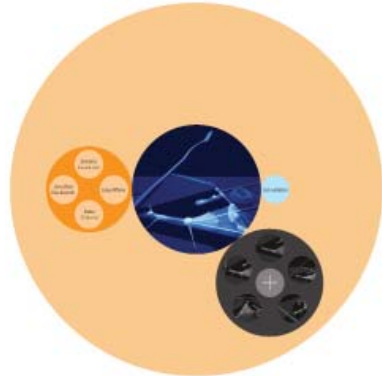


Ikon Tower (1998)

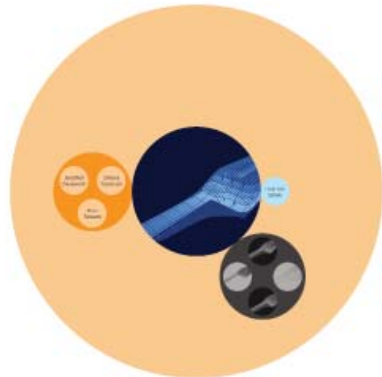
1999



King Pin (1999)

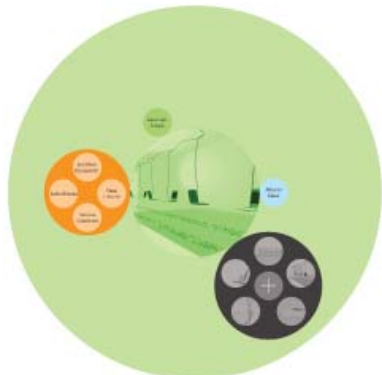


Victoria Harbour (1999)



WIPO (1999)

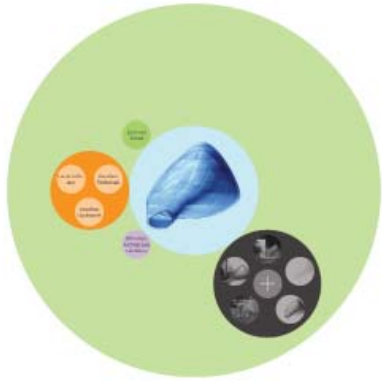
2000



Venice Biennale (2000)

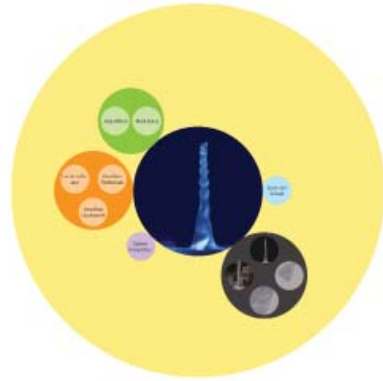
Timeline of Project Diagrams

2001



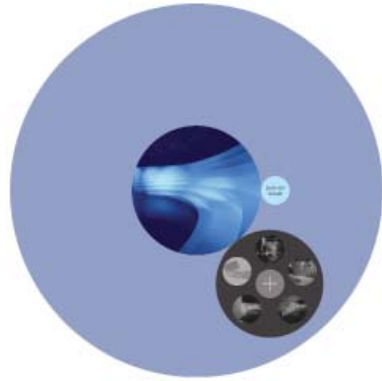
Digital Architecture Gallery (2001)

2002



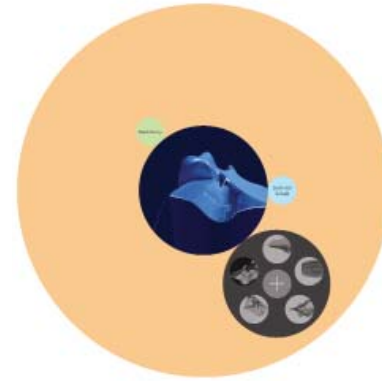
Powerhouse (2002)

2003



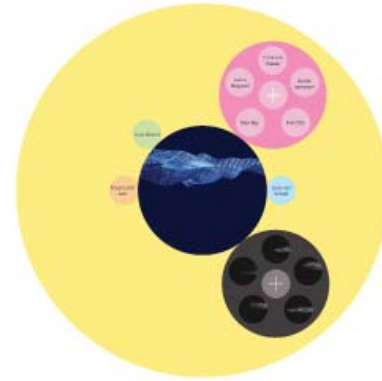
Urban Attitude Federation Square (2003)

2004



Amatruda Penthouse (2004)

2005

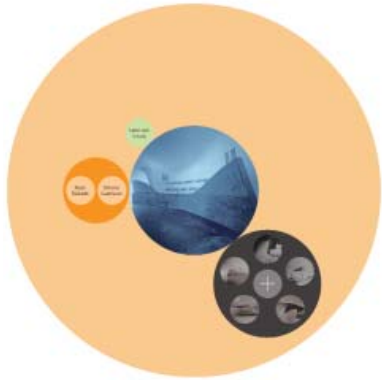


St Kilda Guggenheim (2005)

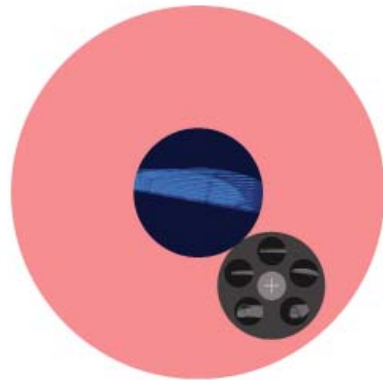
2006



Space Station (2006)



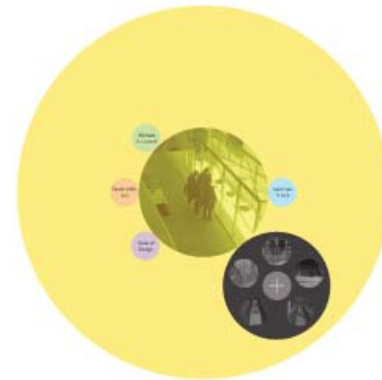
Glow Queen St (2001)



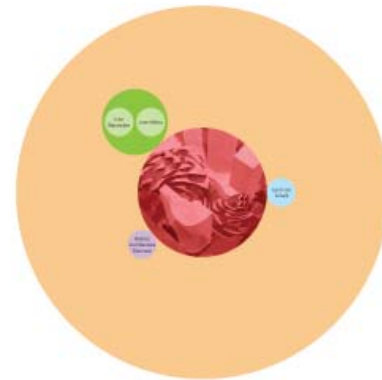
Space Station (2002)



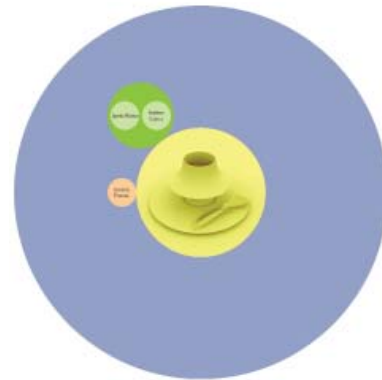
Visualising the Virtual Concourse (2003-08)



Alessi Federation Square Exhibition (2004)



FabHab (2005-2008)



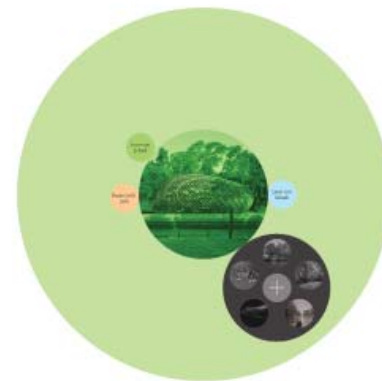
Alessi Espresso Cup + Saucer (2006)



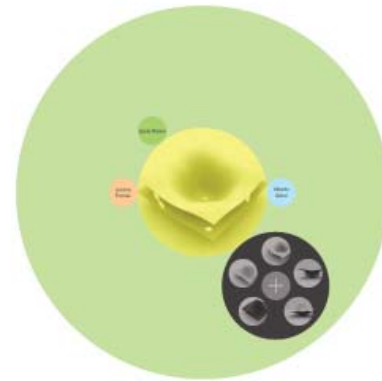
Alessi Tea & Coffee Towers (2001)



RMIT Digital Design Gallery (2002)



Venice Virtual Pavilion (2004)



Alessi Espresso Cup (2005)



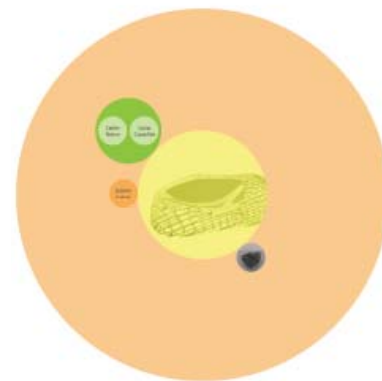
Alessi Serpentine (2006)



World Trade Center (2002)



Digital Biennale (2004)



Cappellini Couch (2005)



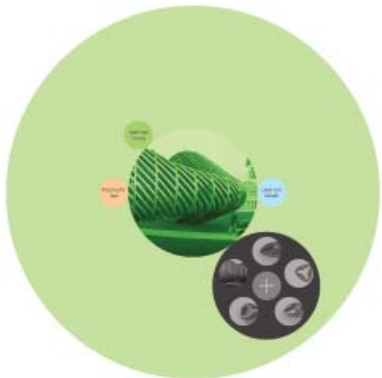
Alessi Superstar (2006)

Timeline of Project Diagrams

2006

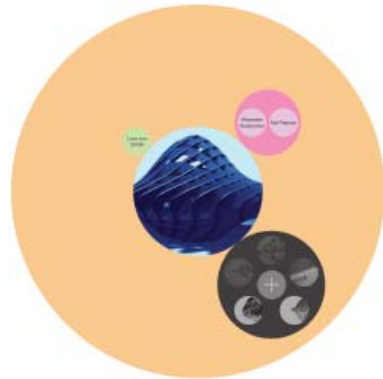


Beijing Pavilion (2006)



London Biennale (2006)

2007



TWMA Garden Pavilion (2007)

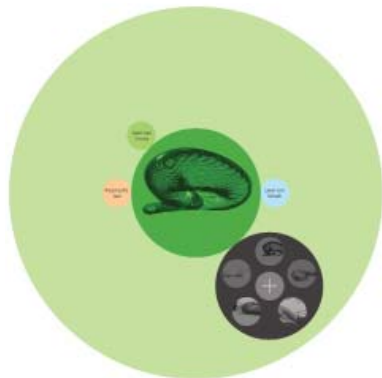
2008



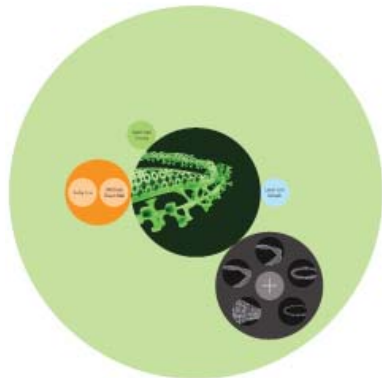
x-tremes (2008-2011)



Alessi Shakers (2008)

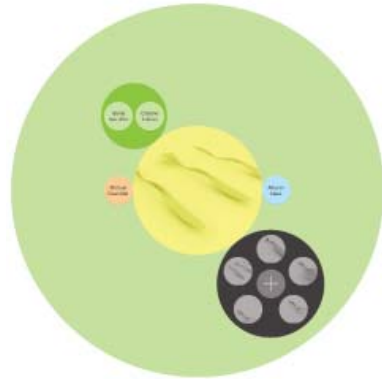


Melbourne Museum Exhibition (2008)



Seville Pavilion (2008)

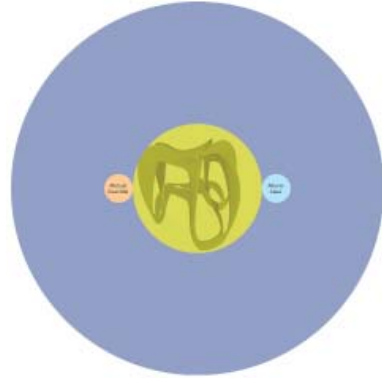
2009



Alessi Cutlery (2009)



Alessi Egg Cup (2009)



Alessi Stool (2009)

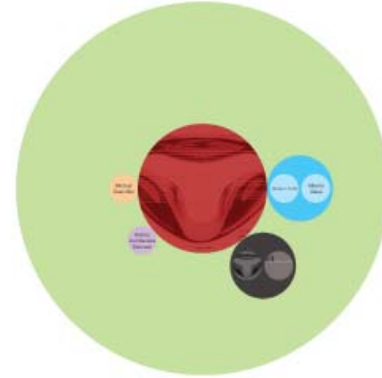
2010



Abu Dhabi Tower (2010)



Glacier Villa (2010)



Alessi Mutants (2010-2013)



Alessi Pepper & Salt Grinder (2010)

2011



2112ai 100YC (2011-2012)



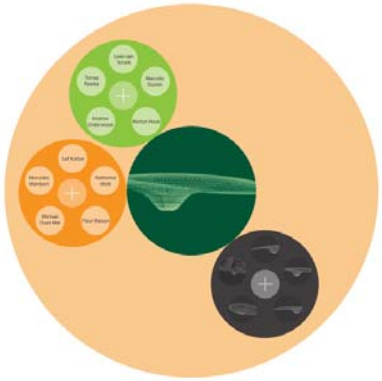
Alessi Fauna (2011)



100YC 2112ai (2011)

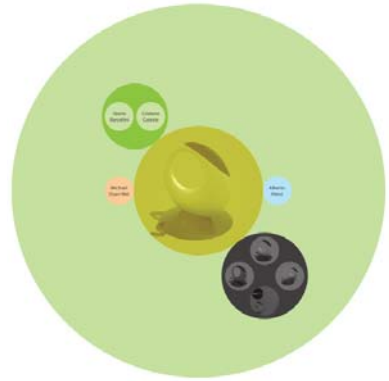
Timeline of Project Diagrams

2012



Maribor Pavilion (2012)

2013



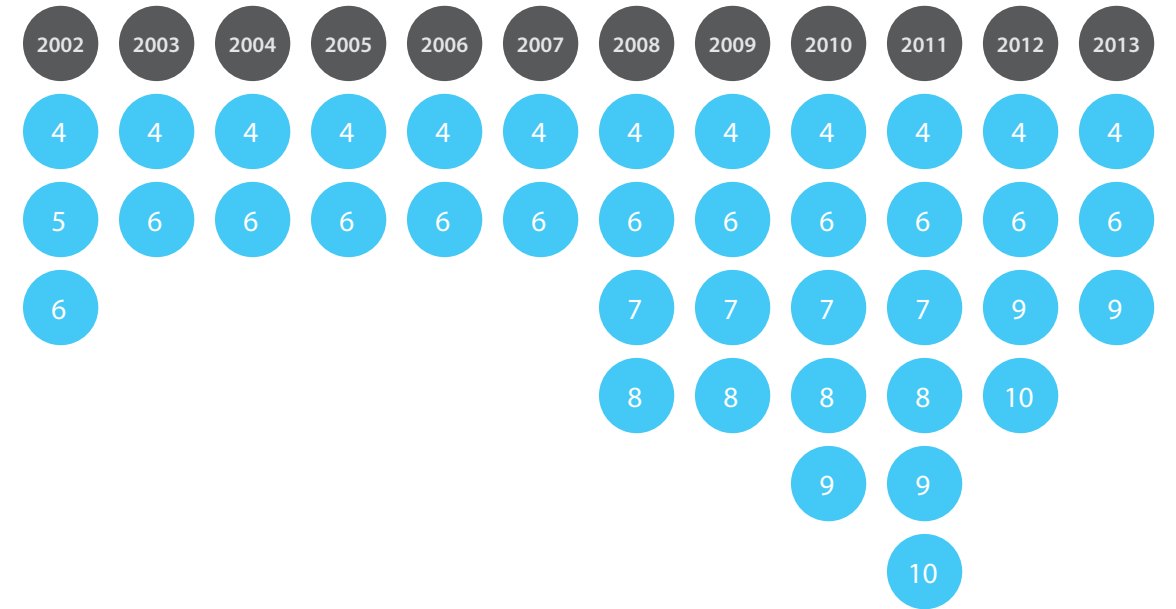
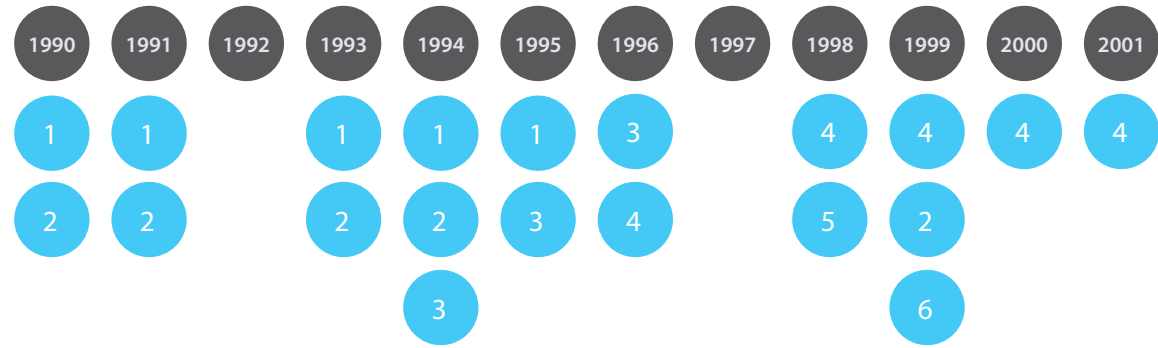
Alessi Kettle & Water Pitcher (2013)

 Mentors

Within the document submitted, mentors are defined and represented as critical associations with individuals who were supportive in guiding and shaping dimensions of knowledge. The mentors provided a testing ground for both my personal development and professional direction. This engagement with mentors over time, has enabled the practice to make informed decisions for creative, administrative and political projects to develop in critical ways towards an informed practice whilst aligning critical decisions with my goals for, and the priorities of, the practice. Selected decisions were implemented to better reflect my goals as drivers dedicated to particular projects and to the practice as a whole. Mentors enabled a shift from individual decisions to that of a 'team', developing a program that identified strategic directions and encouraged the practice to embrace a research-led approach which enabled a focus on the individual development of a collective engagement of a scalable practice.

Two important descriptions about my work by two mentors who have made significant contributions to my architectural practice and thinking are listed below. These serve to capture the essence of my beliefs and ideals, and form, what I consider to be an exemplary description of the directions of my life, work and the core principles of architecture that I still hold to be as important today as they were at the time of their conception.

Mentors Timeline



For copyright reasons please refer to footnoted reference for images (Table of Images 2.2).

Timeline of Mentors

Table 2.2 (Top to Bottom, Left to Right, by Year) // [1] Dale Jones-Evans (1990-1995), [2] Jon Lelleton (1990-1994, 1999), [3] Kai Chen (1994-1996), [4] Leon van Schaik (1996, 1998-2013), [5] Frederic Migayrou (1998, 2002), [6] Alberto Alessi (2001-2013), [7] Wolf D. Prix (2008-2011), [8] Niels Jonkhans (2008-2011), [9] Reiner Zettl (2010-2013), [10] Richard Blythe (2011-2012).



Dale Jones-Evans

Dale Jones-Evans has long worked in private architectural practice in Melbourne, Victoria (1983–1993) and Sydney, New South Wales, Australia (1993-present). His architectural accomplishments are nationally and internationally recognised, having been awarded nine Royal Australian Institute of Architects national and state awards, as well as numerous industry awards from the USA. His practice, Dale Jones-Evans Architecture, has completed a diverse body of highly awarded projects in Australia, Europe, China and the United States. Dale has lectured in technology, interior and architectural design at The School of the Built Environment, RMIT (1980-1981, 1981-1988) in addition to the final year design program at The University of Sydney, Australia (1995-1996), and in urban design in the undergraduate Planning School and Masters of Urban Development Program at the University of New South Wales. Dale has twice represented Australia at the 5th International Architecture Biennale in Venice, Italy (1991 and 2008).³

"Tom Kovac is alone. His architectural dementia has no parallel in Australia. Only Brett Whiteley, with two lines, could extract the essence of form that Kovac extracts from space. His curvaceous and taut sensual forms invert on themselves to create a continuity of lines like Kelly Slater or Martin Potter leave on a wave.

"This Slovenian-born Australian architect's work is somewhat dispossessed amidst a litany of contemporary works whose addiction to pop (Melbourne), bush junkieism (Sydney) or climate (Darwin) offer us only variations on a theme, sameness. But when Hundertwasser stated that "the quickest way to hell is to draw a straight line", Kovac was listening. For here or something else.

"Kovac's space of flows is not that of Gaudi, Steiner or Aalto, but of Brancusi or Noguchi. In contemporary architecture, Neimeyer is the closest referent and only Gehry can dream of these forms... because this fresh and dynamic work and nothingness, empty and omnipresent.

"With a career since 1989 in interiors - Cherry Tree hotel (1990), Succhi shoe store (1991), which both won RAlA interior Awards, and residential projects since 1991 (Gan house 1992, and the unbuilt Island Atlas houses, documented 1994) - it is not surprising that

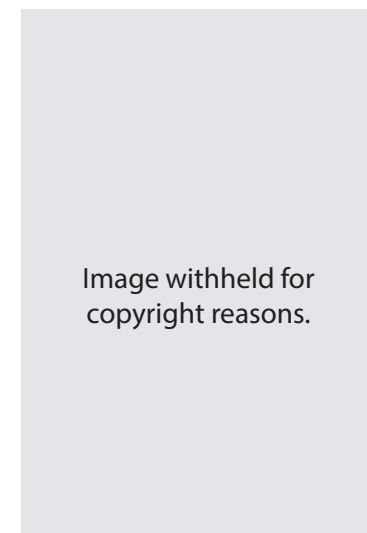
Kovac's architecture is handled from the inside out.

"Kovac revisits the interior Capitol nightclub. Not his strongest project (made on a shoestring budget in seven weeks), it is, nevertheless, a commanding metaphysical landscape underpinned by a clear concept. A carved white space, optically transformed through the movement and colour of artificial light.

"Working around the existing plant, offices, and fridges, this stuff and stucco interior fluidity wraps around a 2.8 meter-high basement. Kovac's skilful, spatial scraping of folded and buckled ceilings and cyke-type walls flirt with the horizontal illusion of depth. The horizontal expands through compression the vertical dimension as the ceilings cranks down to only 1.7 meters over the bar-tops, Recessed into this smooth, draped, lunar crust, artificial light sources and slotted, cut or folded ... and appear to impregnate the form from another source.

"The plan and form are foetal, containing three pods that rotate off a central core ... pierced by a forest of three existing columns. The pods designate dance, sitting and drinking areas.

"Over five years, Kovac's work has simultaneously stripped and added a new dimension to architecture. The work does not derive from theory, rational argument, semantic icon or nuts and berries; nor is it an urbanist's vision. It is, of and unto itself, emotionally charged work and one man's shot at injecting the program into an obsession with pure form."⁴



Dale Jones Evans has been actively mentoring the development of my own career and that of the practice from its early inception. Dale has supported the practice by encouragement, collaboration, advising on creative and technical solutions and participated in the critical evolution of my personal development sharing his tools of professional knowledge about the practices of creative culture, exhibitions and professional development both locally and internationally.

Architecture Australia

2.201 // Architecture Australia, January 1995



Leon van Schaik

Leon van Schaik AO LFRAIA, RIBA, PhD, is Professor of Architecture (Innovation Chair) at RMIT, from where he has promoted local and international architectural culture through design practice research. He studied at the Architectural Association (AA) in London before becoming an innovation professor of architecture at the Royal Melbourne Institute of Technology (RMIT). He has promoted local and international architectural culture through practice-based research. His unique research program invites architects with a body of work demonstrating mastery to reflect upon the nature of their work and speculate on future practice through design as well as the commissioning of innovative architecture. He writes on architecture for many journals and has published several books. In 2006, he was made an Officer (AO) in the General Division of the Order of Australia, for service to architecture as an academic, practitioner and educator, and to the community through involvement with a wide range of boards and organisations related to architecture, culture and the arts.⁵

"The work of Tom Kovac has attracted international attention, being reviewed with growing intensity beginning in The Interior, Ambiente, and in 1995, reaching a crescendo in Monument, Architecture Australia, Blueprint, and the Architectural Review.

"Kovac, who graduated from RMIT in 1986, has commenced a post graduate investigation into the context of his work which he located within a milieu created by his awareness of, and admiration for the works of Rothko, Judd, Serra, Caro and lately, Hepworth.

"The predominance of sculptors in this field of influence is no accident. Kovac was aware during his undergraduate years that his interests in space were reflected more in the work than they were in the solipsistic self-referencing of late modern architects.

"The spatial plasticity of Kovac's work is also a conscious response to his conception of the Australian condition, and a deliberate rejection of the cargo cult approach to architecture which prevails amongst those who choose to work within the thin transitions of modern precedent.

"The work seeks to review the new, in the new world, and sets

itself in contradistinction to the imported legal frameworks which define Australian space. The forms that he uses may have their own modernist architectural precedent in Kiesler's Endless House (1950), but unlike that freestanding work, much of Kovac's work presses against the orthogonal constraints that surveyors and planners have laced over the Australian city - constraints that seem to mock the vast expanses of the island continent and to reflect the crabbed social models that are the heritage of the colonial period.

"Characteristically, his Gan House has an internal envelope that pushes up to the limits of the height gained from the planning scheme by canting the walls inwards at the top, and this reach for the fullest spatial effect is combined with a seeking for light that makes the architect's interiors microcosms of a wider, freer world out there... Kovac's studio is filled with models of flowing idealised spaces, multiple utopias of worlds that could be - were we to accept our experience in priority to importing other people's histories."⁶

Professor Leon van Schaik, Dean, Faculty of Environmental Design and Construction, RMIT, September 1995

Leon van Schaik has been a central figure in the evolution and creative development of my practice from its early stages, assisting me in understanding the various roles and responsibilities relevant to a successful practice. Leon's introduction to and guidance with my career has established direction in pathways that exposed me to leadership values within pedagogical organisations, international events, publishing and conferences. Leon's mentoring has provided constructive criticism and guidance, which enabled me to make informed decisions not only about my practice but also in my personal life. Through the many years of development, I have gained an invaluable knowledge and understanding of processes and, procedures that have led towards attaining a knowledge that has made it possible for me to make contributions within the field of creative practice.



Gallery of Modern Art, Celje, Slovenia

2.202 // Exhibition Catalogue (1995)



Jon Lelleton

Jon Lelleton studied law at Melbourne and RMIT Universities. He is a financial engineer of first indemnity capital mergers and acquisitions of public and private companies.

Under his aegis as CEO of Lellco, the company erected superstructures in Queensland and Melbourne including the Alfred Hospital Trauma Centre, amongst others. As CFO of Palladio Capital, Lelleton has led numerous infrastructure consortia including the Victoria a Harbour winning redevelopment government tender with Bechtel USA and the St Kilda Marina redevelopment.

Lelleton is currently involved in many international development project including Malaysia Eco-sustainability Cyberjaya project and the 14th Venice Architecture Biennale, 100YC. He is the Founder of Area Contemporary Art Space and an active member of the Cluster Munition Coalition.

Jon Lelleton was central to my early career development in supporting my creative direction and enabling me to realise my first projects. This furthered the development of my practice, establishing national and international recognition. Jon also advanced the practice's direction by supporting the winning tender with our proposed scheme for Victoria Harbour, which was sadly, unrealised. Jon has been a pivotal to the core of my early practice: without his efforts, the projects, visions and current direction of the practice would not be possible.



Kai Chen

Architect, Kai Chen graduated from the University of Melbourne and soon founded his own practice, Robinson Chen. He is known for a series of meticulously wrought residential projects, gaining international note. Chen's approach is both thoughtful and instinctive, seeking to negotiate contemporary demands with respect for the significance of place.

In 1991, Chen joined the practice of Peter Lovell as Principal Designer, becoming Director in 2005 where he is now responsible for the design direction and management of all architectural projects in the office.

He works across a large scale of projects, including major institutional buildings, urban space planning, master planning and multi-unit residential. Projects have included many of Melbourne's iconic landmarks, including the new Court of Appeal at the Supreme Court of Victoria as well as the city's hidden treasures, such as The Mingary at St Michael's Uniting Church, a quiet haven in the heart of the city of Melbourne.⁷

From its early stages, Kai Chen has been advising the practice on various approaches to construction methods, professional practice and, project administration. Kai introduced me to methods of contractual navigation through difficult projects and client negotiations. Kai was also part of my early cultural development, supporting the Curve Gallery exhibition program with Tolarno Galleries and advising on negotiation procedures and professional development of the international program.



Frederic Migayrou

Frederic Migayrou is a French historian and writer and is currently head of the architecture department at the Centre Pompidou in Paris. For more than a decade, he has been collecting work by up-and-coming architects from around the world, principally for France's central affairs office, amassing one of the most important collections in the world. He was described in a statement from University College London (UCL) as "one of the most influential cultural engineers of the contemporary international architectural scene." He was an adviser for the French Ministry of Culture, and during his time as Director of the *Fonds Regional d'Art Contemporain* (FRAC) assembled a remarkable collection of contemporary architecture. He has worked in several educational institutions including the *Ecole des Beaux-Arts* and the Bartlett School of Architecture where he is currently chair Professor of Architecture.⁸

Frederic Migayrou has invited me to participate in the FRAC Orleans program in France over a number of years and advised on project development of the Village Roadshow project with the Cultural Ministry in France. Frederic has also been central in inviting the practice to take part in the seminal 'Non-Standard Architecture' exhibition at the Centre Georges Pompidou in France. This was a very important international platform and recognition of the practice's contribution to architecture in the world.



Alberto Alessi

Born in Arona (Novara), Italy, in 1946, designer Alberto Alessi is President of Alessi S.p.A. and its head of Marketing Strategy, Communications, and Design Management. He is known for his significant influence in Italian and international product design culture.⁹

Upon finishing his law degree in 1970, Alberto joined Alessi S.p.A., the Alessi family company known for its innovative and original product designs. Since that time, he has collaborated with architects and designers around the world to enhance the company's collaboration with key names in the field of international design.¹⁰

Alberto Alessi has curated several exhibitions including "The Dream Factories: People, Ideas, and Paradoxes of Italian Design Factories" at the Triennale Design Museum in Milan in 2011. The exhibition presented Alessi's vision and analysis of what he refers to as the "factories of Italian design." In 1998, he received the MBA Design Award for Lifetime Achievement from the Brooklyn Museum of Art, New York. He also holds a number of honorary titles from various academic institutions.¹¹

Alberto Alessi invited me to take part in the acclaimed 'Tea & Coffee Towers' project and exhibition, which was developed under his and Alessandro Mendini's mentorship and direction for over three years and exhibited in major International events and Museums around the world. Alberto's invitations to design industrial objects and projects for Alessi have evolved my work and that of the practice on an international scale. Alberto also actively participates in the learning environment with the 'Alessi Mutants' workshop project with students from around the world, which develops invaluable industry related knowledge of material development and scalable forms within the field of architecture and design.



Wolf D. Prix

Born in Vienna in 1942, designer Wolf D. Prix was a co-founder, design principal and CEO of COOP HIMMELB(L)AU. Prix studied Architecture at the Vienna University of Technology, the Architectural Association of London, and the Southern California Institute of Architecture in Los Angeles. From (1993-2011), he was the Professor for Architecture (Studio Prix), and served as adjunct professor at both the SCI-Arc in Los Angeles and UCLA, then went on to become a Doctor Honoris Causa de la Universidad de Palermo, Buenos Aires, Argentina (2001). His commitment to training and education was recognised in receiving the Jencks Award; Visions Built prize for his major contribution to the theory and practice of architecture in 2008. The work of Wolf D. Prix has been published in numerous books, and his architectural designs have been featured in many museums and collections worldwide.¹²

Wolf D. Prix invited me to die Angewandte in Vienna where we undertook a shared masters studio project between RMIT and Angewandte students which culminated in a joint studio exhibition at DESSA Gallery in Ljubljana, Slovenia. Prix was also instrumental in inviting me to the Angewandte studio reviews over a number of years and introducing the "Alessi Mutants" project into the IoA Urban Strategies post graduate program which has been operational in Vienna since 2009.



Niels Jonkhans

Born in 1970 in Eindhoven, Netherlands, Professor Niels Jonkhans, Dipl.Arch., M.Arch currently lives and works in Vienna and Nuremberg. Jonkhans completed his Post Graduate Master of Architecture at the, Bartlett School of Architecture, University College London (UCL). In 1997, he completed his Diploma with distinction, Bartlett School of Architecture, UCL. Since 2004, Jonkhans has been an independent architect in Vienna. He was project and design architect at Kunsthaus Graz (spacelab / ARGE Kunsthaus, London / Graz) and co-founder and partner of spacelab / London (together with Sir Peter Cook, Colin Fournier and, Anja Jonkhans). Between 1997-2000, Jonkhans was an architect at Sir Michael Hopkins & Partners, London.¹³

Niels Jonkhans has been instrumental in assisting and developing the joint die Angewandte studio program with RMIT University, fostering, the student tours and exhibition projects between the two schools. Niels also lead the initial discussions of the first stages of the Alessi Mutants program placement in the Angewandte Post Graduate program.



Reiner Zettl

Associate Professor Reiner Zettl is an Art Historian, Co-director of "Alessi Mutants" and Program Coordinator and Head of Course: Urban Technique at IoA Die Angewandte's Urban Strategies. Reiner teaches at the University of Applied Arts, Vienna and the Academy of Fine Arts in Vienna. He has been variously, the Co-curator of "Design Now: Austria," Curator of "Rock over Barock: young and beautiful: 7+2," Curator of "Stadt = Form Raum Netz" (Austrian Pavilion, Venice Biennale 2006). Most recently, Reiner was Co-director of the Alessi Mutants exhibition at the 12th Venice Architecture Biennale, Austrian Pavilion.¹⁴

Reiner Zettl has been part of the development of the *xtremes studio* collaboration, which commenced in 2008 at the die Angewandte with the Wolf D. Prix studio. Reiner was central to establishing and driving the post graduate studio and workshop series 'Alessi Mutants,' which commenced in 2010 as a collaboration between IoA Urban Strategies, Alessi S.p.A in Italy and RMIT University.



Richard Blythe


Richard Blythe is a Professor of Architecture and Dean, School of Architecture and Design at RMIT University, a position that he has held since June 2007.

Prior to taking up his posts at RMIT, Richard lectured at the University of Tasmania for 14 years where he served as Deputy Head of the School of Architecture and was the Vice Chancellor's representative on the Tasmanian Government's Building and Construction Industries Council.

He is the Founding Director of the architecture firm *Terroir*, a practice that focuses on the design and procurement of buildings, and has been recognised nationally and internationally through numerous publications and exhibitions.

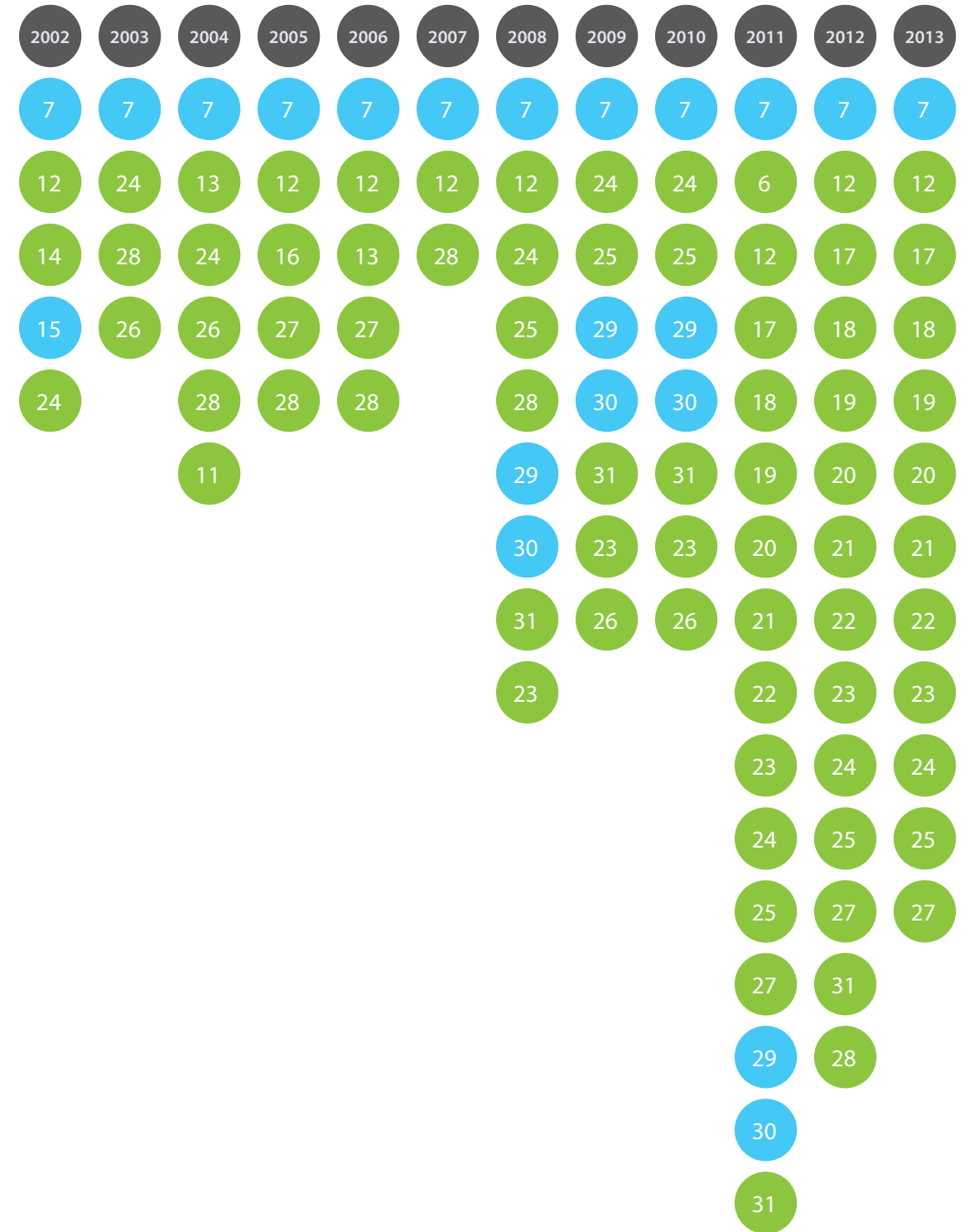
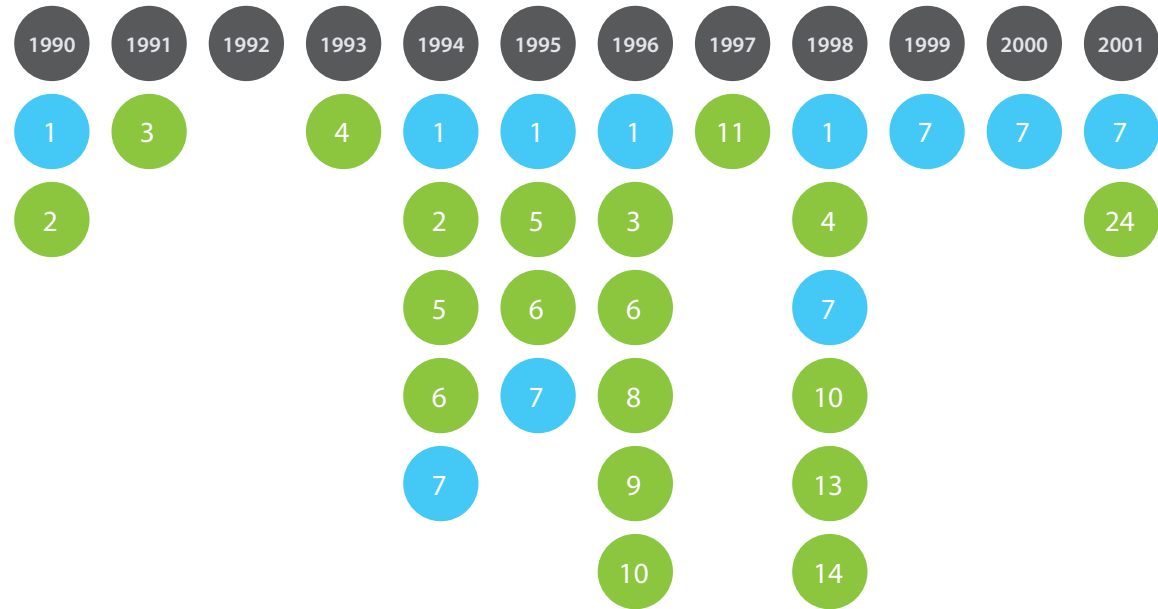
His pedagogical passion is creative practice, developing approaches to create practice research and in building communities of creative practitioner researchers.¹⁵

Richard Blythe has been a pivotal supporter of my design research practice and my international academic program since his commencement at RMIT in 2007. Richard has enabled the collaboration with IoA Angewandte to proceed and develop with the 'Alessi Mutants' project as well as supporting the 2012 Venice Biennale Architecture exhibition program and the 2012 European Capital of Culture Architecture exhibition at the Venice Architecture Biennale and in Maribor, Slovenia.

 Conversations

Conversations have made a crucial contribution to my practice. Over the years, these exchanges have been conducted both formally and on an informal basis with various individuals who are professionals within the architectural vocation, and with individuals in other professions and industries. Conversations have assisted both generically and with particular reference to specific projects and have aided in shaping a multidisciplinary dialogue. My knowledge has advanced into greater comprehension, and grown in organisational complexity. New technologies have evolved and a more comprehensive global view of architectural thinking about practice has emerged as a result. Conversations have enabled the discussion of valuable new information; pushed my design research into the rethinking of problems and prompted a broadening of design perspectives forging valuable personal connections. These conversations have assisted me in making new decisions based on ongoing, real world, learning practice, in shaping my thinking about my practice and have been central to its developing trajectory.

Conversations Timeline



Timeline of Conversations

Table 2.3 (Top to Bottom, Left to Right, by Year) // [1] Dale Jones-Evans (1990, 1994-1996, 1998), [2] Trevor Mein (1990, 1994), [3] Charles Jencks (1991, 1996), [4] Marie Ange Brayer (1993, 1998), [5] Jan Minchin (1994-1995), [6] Peter Zellner (1994-1996, 2011), [7] Leon van Schaik (1994-1995, 1998-2013), [8] Aaron Betsky (1996), [9] Linda Gregoriou (1996), [10] Peter Felicetti (1996, 1998), [11] Bart Lootsma (1997, 2004), [12] Jose Alfano (2002, 2005-2008, 2011-2012), [13] John Gollings (1998, 2004, 2006), [14] Mark Goulthorpe (1998, 2002), [15] Alberto Alessi (2002), [16] Hani Rashid (2005), [17] Marcelo Stamm (2011-2013), [18] Martyn Hook (2011-2013), [19] Andrew Underwood (2011-2013), [20] Tomaz Pandur (2011-2013), [21] Stojan Skalicky (2011-2013), [22] Matias de Campo (2011-2013), [23] Hernan Diaz Alonso (2011-2013), [24] Gloria Barcellini (2001-2004, 2008-2013), [25] Danilo Aliatta (2008-2013), [26] Michele Azzopardi (2004), [27] Spela Mlakar (2005-2006, 2011-2013), [28] Sean Kelly (2003-2008), [29] Neils Jonkhans (2008-2011), [30] Reiner Zettl (2008-2011), [31] Patrik Schumacher (2008-2012).

For copyright reasons please refer to footnoted reference for images (Table of Images 2.3).



Dale Jones-Evans

Dale Jones-Evans Architecture has 30 years of expertise creating award winning, globally recognised architecture and interior design.¹⁶

Dale Jones-Evans assisted in developing critical cultural awareness throughout the duration of the practice.



Trevor Mein

Trevor Mein is the director of Mein Photo, a leading studio for Architectural photography.¹⁷

Trevor Mein captured the images of the practice's early work and assisted in discussing its spatial qualities, enabling a visual language to emerge understanding and references for the built works.



Charles Jencks

Charles Jencks is an American architectural theorist, landscape architect and designer.¹⁸

Charles Jencks visited and discussed early projects including the Alessi Tea & Coffee Towers.



Marie Ange Brayer

Marie-Ange Brayer is director of the Centre Regional Contemporary Art Collection [FRAC, Centre] in Orléans, France.¹⁹

Marie-Ange Brayer discussed the digital processes and approach to practice through inclusion in the FRAC events between 1997 and 2002.



Jan Minchin

Jan Minchin is director of Tolarno Galleries in Melbourne and co-founder of Curve Architecture Gallery.²⁰

Jan Minchin discussed exhibitions and publications of my early practice assisting in gaining an understanding of curatorial processes.



Peter Zellner

Director of SCI FI program at SCI Arc, Los Angeles and co-founder of Curve Architecture Gallery.²¹

Peter Zellner furthered the development and engagement of critical discussion about the early part of practice and has assisted in an ongoing conversation at RMIT, and later, at SCI Arc.



Leon van Schaik

Leon van Schaik AO LFRAIA, RIBA, PhD, is Professor of Architecture (Innovation Chair) at RMIT.²²

Leon van Schaik has been critical in the development of an ongoing conversation about life and the practice of architecture.



Aaron Betsky

Aaron Betsky is an educator, writer on architecture and design and former director of the Cincinnati Art Museum.²³

Aaron Betsky has visited some of my early works and written about the projects after discussions about the work enabling an insight into a greater understanding of the practice.



Linda Gregoriou

Creator of Pure & General designer objects store in Sydney.²⁴

This conversation enabled the development of a more sophisticated process and approach to practice.



Mark Goulthorpe

Mark Goulthorpe is an Associate Professor at MIT Department of Architecture.²⁸

Mark was a central figure in conversations during my early digital period and development gaining a greater understanding about fabrication and robotics.



Peter Felicetti

Managing Director of Felicetti Pty Ltd, a civil engineering company in Melbourne.²⁵

Peter Felicetti facilitated a more holistic integrated conversation about the nature of the engineering contribution to practice.



Alberto Alessi

Alberto Alessi is president of Alessi S.p.A. and head of Marketing Strategy, Communications, and Design Management.²⁹

Conversations over many years about the design, understanding of typologies and manufacturing of industrial scale enabled a greater understanding of creative practice and sophistication of form.



Jose Alfano

M.Arch, Columbia University, New York, 1989. Jose Alfano currently serves as an associate professor at Melbourne University.²⁶

These conversations gained a greater insight into procurement and political processes within large scale works.



Hani Rashid

Hani Rashid is a principal and founder of Asymptote Architecture.³⁰

Conversations about digital practice, international platforms and nature of future practice helped shape a holistic view of global design practice.



John Gollings

John Gollings is one of Australia's leading architectural photographers specialising in hotels, resorts and built projects.²⁷

Conversations about visual language in relation to capturing the spatial qualities of the work have been instrumental.



Marcelo Stamm

Dr Marcelo Stamm is a Senior Research Fellow within the Architecture & Design programme at RMIT University.³¹

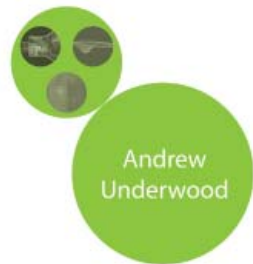
Conversations about the constellation of ideas in relation to practice enabled an insight into behaviours and understanding of creative practice.



Martyn Hook

Dr Martyn Hook is a Director of multi award winning practice iredale pedersen hook architects and Associate Professor of Architecture at RMIT University in Melbourne.³²

Conversations about the practices of architecture, politics and the nature of manoeuvring the corridors of the academic world and an understanding of the passage of rites.



Andrew Underwood

Andrew Underwood is the Business Development Manager at the Victorian Partnership of Advanced Computing (VPAC).³³

Conversations about technology, spatial applications and discussions about the nature of the physical virtual paradigm shift.



Tomaz Pandur

Tomaz Pandur is the Co-founder and Artistic Director of the international theatre organisation Pandur.Theaters.³⁴

Conversations about Maribor as a creative city and the curatorial process for the exhibition in Venice enabled a greater understanding in negotiating European government level politics and dealings.



Stojan Skalicky

Stojan Skalicky is the Maribor City architect and runs the firm Interminata s.p.

Conversations about the City of Maribor afforded an insight into large-scale processes and political agendas that drive the production of extreme scale projects and decisions.



Matias del Campo

Matias del Campo is a lecturer in architecture at the University of Pennsylvania and founder of the architecture practice SPAN.³⁵

Conversations about the penetration of digital practice within a larger global agenda and the scalable options of future practice.



Hernan Diaz Alonso

Hernan Diaz Alonso is principal and founder of Xefirotarch, a Los Angeles-based design practice and is Graduate Programs Chair at SCI-Arc.³⁶

Conversations over many years have developed a rich source of knowledge about future digital practice and values of international collaboration within practice and pedagogy.



Gloria Barcellini

Gloria Barcellini is metaproject assistant at Alessi S.p.A.³⁷

Many years of conversations about the Alessi design process and its methodology has provided a higher level of understanding about the nature of industry, its values and production methods.



Danilo Aliatta

Danilo Aliatta is a product development engineer at Alessi S.p.A.³⁸

Conversations about materiality, the limitations of manufacturing within commercial practice has evolved into a deeper understanding of the restrictions around and the possibilities of creating industrial forms.



Michele Azzopardi

Michele Azzopardi is a Principal Advisor at RMIT University and former Director of Design Victoria.³⁹

The conversations embraced design curation management and political agenda within government and public event structure. This has enabled a greater awareness and sophistication about the nature of and dealings surrounding architecture and design in this domain.



Spela Mlakar

Spela Mlakar is principal of CP Productions, a creative laboratory researching the psychophysiology or spatial perception and development of olfactory augmented environments.⁴⁰

Conversations have evolved into an acute and sophisticated awareness of spatial production and intellectual value in relation to new knowledge.



Sean Kelly

Sean Kelly is a technologist, design thinker and serial entrepreneur.⁴¹

Conversations about technology, architecture, software and life, in general added a level of unbridled awareness as to the future of practice and the possibilities of emergent tools and their impacts on living.



Niels Jonkhans

Niels Jonkhans is a professor at the Technical University of Nuremberg.⁴²

The conversations with Niels added a new understanding about pedagogical possibilities of research and integration of practice within learning culture.



Reiner Zettl

Reiner Zettl is Co-director of the 'Alessi Mutants' and Program Coordinator and Head of Course: Urban Technique at IoA Die Angewandte Urban Strategies.⁴³

Conversations about architectural culture and design in studio culture in Vienna and participation in 'Alessi Mutants' opened an awareness about the methodology of learning environments and the culture of design teaching.



Patrik Schumacher

Patrik Schumacher is Company Director and Senior Designer at Zaha Hadid Architects.⁴⁴

Conversations about practice and parametricism evolved a deeper understanding of systems of dynamic practices.

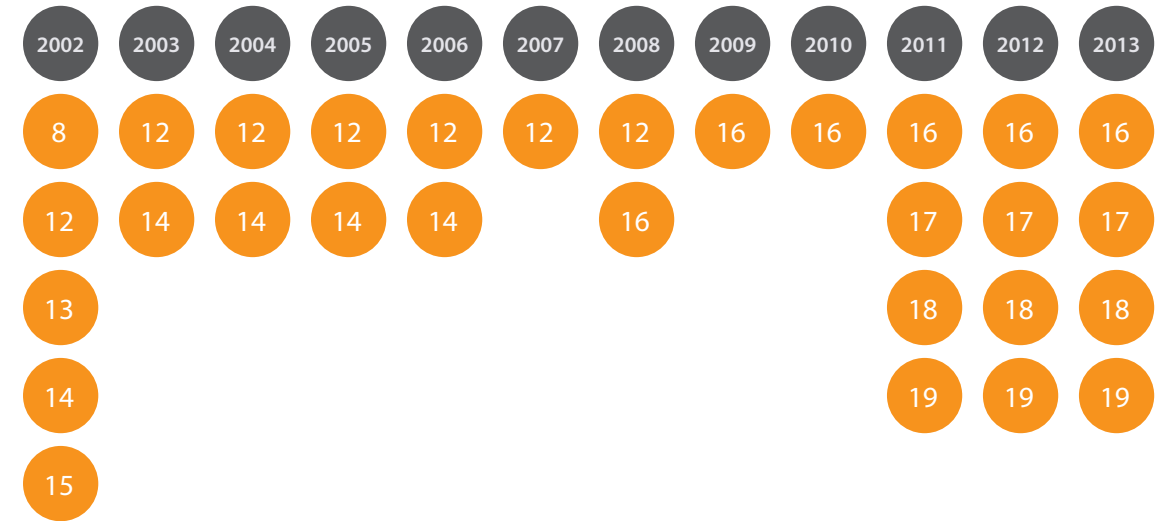
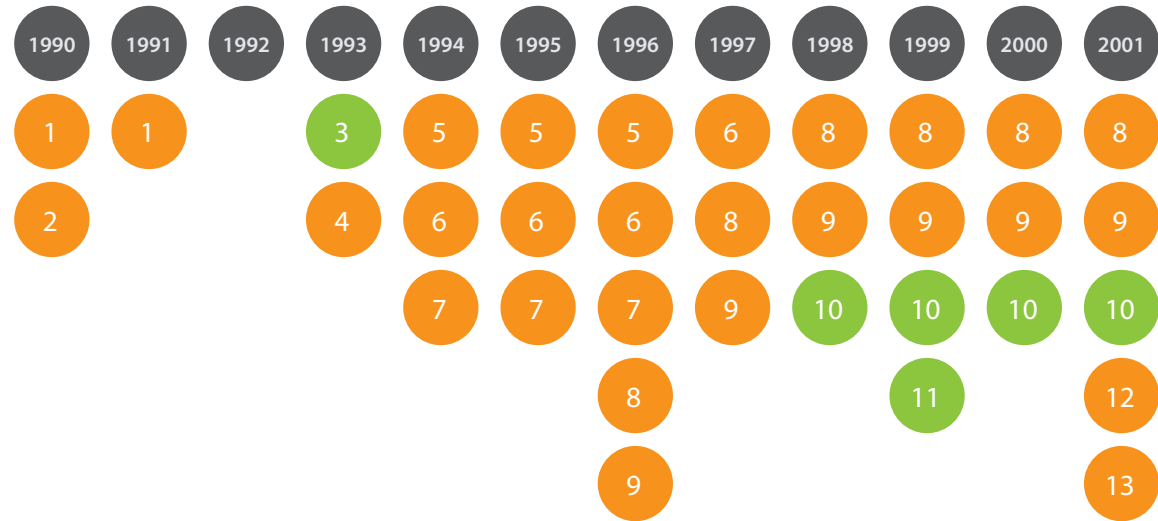


Bart Lootsma

Bart Lootsma is an historian, critic and curator in the fields of architecture, design and the visual arts.⁴⁵

Conversations about architecture and digital directions of practice.

Project Team Timeline



For copyright reasons please refer to footnoted reference for images (Table of Images 2.4).

Timeline of Project Team members

Table 2.4 (Top to Bottom, Left to Right, by Year) // [1] Leonard Hamersfeld (1990-1991), [2] David Edelman (1990), [3] Peter Zellner (1993), [4] Simone Koch (1993), [5] Cassandra Fahey (1994-1996), [6] Anthony Battersby (1994-1997), [7] Kristy Mckanna (1994-1996), [8] Jonathan Duckworth (1996-2002), [9] Anita Brieska (1996-2001), [10] Peter Felicetti (1998-2001), [11] Jose Alfano (1999), [12] Farzin Lotfi Jam (2001-2008), [13] Jonathan Podborsek (2001-2002), [14] Jerome Frumar (2002-2006), [15] Roland Snooks (2002), [16] Michael Duan Mei (2008-2013), [17] Mercedes Mambort (2011-2013), [18] Katherine Mott (2011-2013), [19] Fleur Watson (2011-2013).



Leonard Hamersfeld

Director and Founder of BUZZ Products, a global creative agency that solves marketing and business challenges through product design solutions.⁴⁶

Leonard actively participated in the technical production of early projects.



Cassandra Fahey

Director of the architecture firm "Cassandra Complex".⁵⁰

Cassandra Fahey was involved as a team member on early projects.



David Edelman

Founder of deArchitects.⁴⁷

David Edelman was responsible as both a team member and client for the development of early projects.



Anthony Battersby

Anthony Battersby joined SJB in 2000 and has worked on a variety of projects in Australia and China.⁵¹

He was involved as project manager and team member on early projects.



Peter Zellner

Founding Principal of ZELLNERPLUS, and Principal and Studio Design Lead at AECOM, Los Angeles.⁴⁸

Peter Zellner was involved as a project team member on early practice projects.



Kristy Mckanna

Kristy McKanna is an established figure in the architecture and design industry, graduating with honours from both RMIT and UNSW.⁵²

Kristy McKanna was involved as a project team member on early projects of the practice.



Simone Koch

Simone Koch has lectured part time at RMIT and Melbourne University and is currently working with Architectus.⁴⁹

Simone Koch was a team member on early projects.



Jonathan Duckworth

Dr Jonathan Duckworth is a Vice Chancellor's Research Fellow in the School of Media and Communication at RMIT University.⁵³

Jonathon Duckworth was involved as a project team member on early projects of the practice.

Anita Brieska

Anita graduated from RMIT Architecture in 2001 and is currently a design architect at David Edelman Architects.

Anita Brieska was involved as a project team member on early projects of the practice.



Jonathan Podborsek

Jonathan is an RMIT architecture graduate, currently working at the Seaway group in Slovenia.⁵⁷

Jonathan Podborsek was involved in the New World Trade Centre project as a team member.



Peter Felicetti

Peter is the founder of Felicetti Pty Ltd, a practice, which provides structural engineering responses to architectural projects.⁵⁴

Peter Felicetti was involved as an engineer and project team member on early projects of the practice.



Jerome Frumar

Jerome is a Practice Partner of MESNE, an architecture and urban design studio in Melbourne and Copenhagen.⁵⁸

Jerome Frumar was involved in the Alessi Superstar, Serpentine and Fab Hab studio projects.



Jose Alfano

MArch, Columbia University, New York, 1989. Jose Alfano currently serves as an associate professor at Melbourne University.⁵⁵

Jose Alfano was involved as a project team member on early projects of the practice.



Roland Snooks

Founder of Studio Roland Snooks and co-Director of Kokkugia, an experimental architectural research collaborative.⁵⁹

Roland Snooks was involved in the New World Trade Centre project as a team member.



Farzin Lotfi Jam

Farzin has 10 years of professional experience at architectural practices in Australia, Germany and Slovenia.⁵⁶

Farzin Lotfi Jam was part of the practice and part of the Virtual Venice Biennale project and Alessi exhibition team.



Michael Duan Mei

Michael is an RMIT Architecture graduate and a studio leader at RMIT University, currently working at Lyons Architecture, Melbourne.⁶⁰

Michael Duan Mei participated in the European Capital of Culture and Venice Architecture Biennale projects as a project member of the exhibitions and participated in RMIT design studios as a research assistant.



Mercedes Mambort



RMIT architecture graduate, active member and representative of SONA RMIT. ⁶¹

Mercedes Mambort participated in the European Capital of Culture and Venice Architecture Biennale projects as a project team member of the exhibitions and events.

Katherine Mott



Currently works at RMIT as a project manager and marketing communications specialist. ⁶²

Katherine Mott participated in the European Capital of Culture and Venice Architecture Biennale projects as a project team member of the exhibitions and events.

Fleur Watson



Currently holds the position of Curator at RMIT Design Hub and is a founding partner of Pin-up Architecture and Design Project Space. ⁶³

Fleur Watson participated in the European Capital of Culture and Venice Architecture Biennale projects as a project team member of the exhibitions and events.

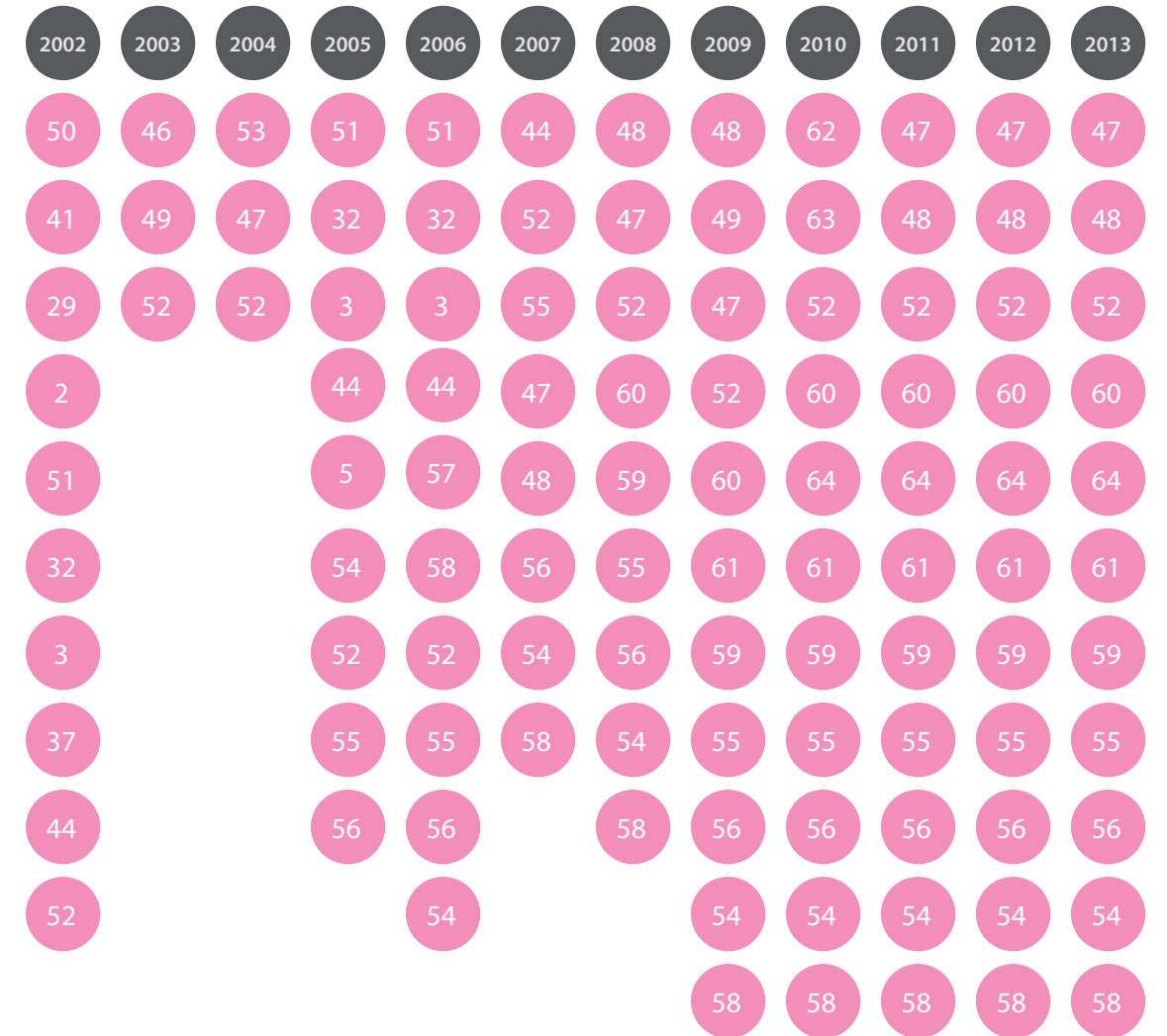
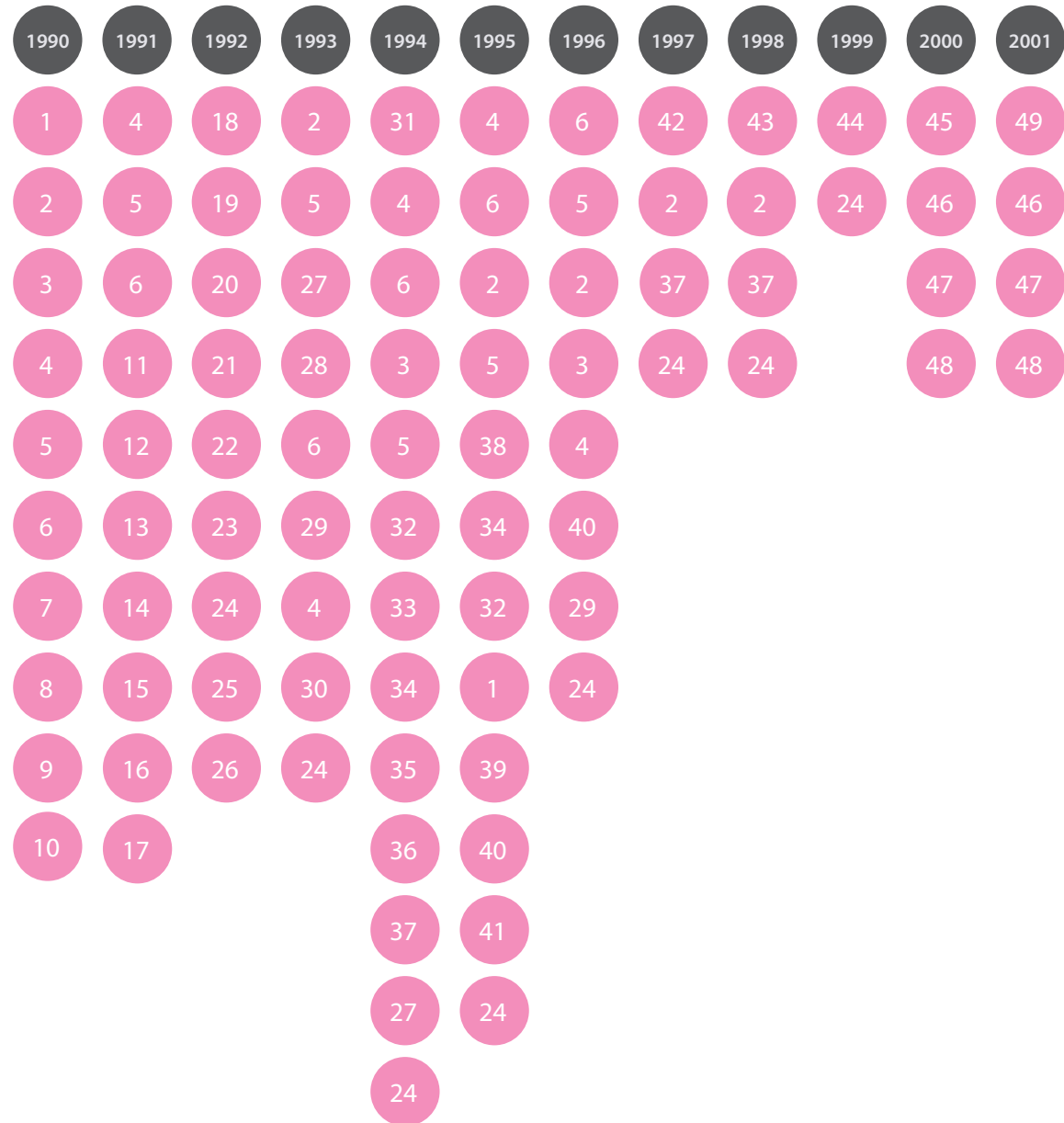
The practice has been influenced by interventions, conversations and readings that significantly impacted my knowledge base. These conversations have been spontaneous and intuitive as well as grounded in historical systems proposed by influencers. These connections assisted in shaping the practice and the transition of the idea to projects and the built environment. The PhD identifies the participation of the ever-growing number of influencers and tendencies that explicitly connect ideas, projects, design methodologies, processes and the associated technical complexities that frame the projects. The influencers of my work, from my undergraduate studies onward, have been critical reference points of inquiry, shapers of conjectures, theories and beliefs that I have tested in my student project work and which I have collected during my practice as continuing triggering points for testing methodologies and directions. These conversations and discussions are the source of my design energies. Influencers form an ongoing real and virtual connection with the outside world of knowledge. They create strategic frames of reference during the many stages of development in my architectural practice. I have separated and listed the various Influencers into groups identifying the tendencies that formed the design languages in different stages and periods within the practice timeline. Utilising a digital process of word associations, such as *#built*, *#unbuilt*, *#conceptual* and *#theoretical*, the projects can be expanded upon, where each activated 'tag' leads to further information about the influencer. This has been done in the hope of improving knowledge and other people's histories. The notion of paradigms is central to this discourse. I sought tendencies for projects outside architectural histories, seeking new knowledge with questions about the nature of existence, evolution from single cell to multi cellular organisms and the more universal enquiries that surround the work.⁶⁴

Timeline of Influencers (over page)

Table 2.5 (*Top to Bottom, Left to Right, by Year*) // [1] Max Bill (1990, 1995), [2] Frederick Kiesler (1990, 1993, 1995-1996, 2002), [3] Isamu Noguchi (1990, 1994, 1996, 2002, 2005-2006), [4] Barbara Hepworth (1990-1991, 1993-1996), [5] Oscar Niemeyer (1990-1991, 1993-1996, 2005), [6] Le Corbusier (1990-1991, 1993-1996), [7] Luigi Moretti (1990), [8] Frank Lloyd Wright (1990), [9] Oskar Schlemmer (1990), [10] Vittorio Giorgini (1990), [11] Robert Maillart (1991), [12] Joseph Mills (1991), [13] Herbert Matter (1991), [14] Arne Jacobsen (1991), [15] Vladimir Tatlin (1991), [16] Antonio Gaudi (1991), [17] Mario Bellini (1991), [18] Peter Eisenman (1992), [19] Auguste Mobius (1992), [20] Karl Weierstrass (1992), [21] Eugène Freyssinet (1992), [22] Herbert Matter (1992), [23] Bruno Munari (1992), [24] Frank Gehry (1992-1999), [25] Rudolf Steiner (1992); [26] William Marsten (1992); [27] Eero Saarinen (1993-1994), [28] Bruno Taut (1993), [29] Hans Arp (1993, 1996, 2002), [30] Jorn Utzon (1993), [31] Henry Moore (1994), [32] Man Ray (1994-1995, 2002, 2005-2006), [33] El Lissitzky (1994), [34] Alvar Aalto (1994-1995), [35] Constantin Brancusi (1994), [36] Wassily Kandinsky (1994), [37] Rudolf von Laban (1994, 1997-1998, 2002), [38] Antoine Pevsner (1995), [39] Charles Eames (1995), [40] Luciano Baldessari (1995-1996), [41] Jan de Swart (1995, 2002), [42] Bernard Tschumi (1997), [43] Lucio Fontana (1998), [44] Michael Leyton (1999, 2002, 2005-2007), [45] Giovanni Michelucci (2000), [46] Abraham Robinson (2000-2001, 2003), [47] Stephen Wolfram (2000-2013), [48] Ray Kurzweil (2000-2013), [49] Clayton Christensen (2001, 2003, 2007), [50] Andre Ramseyer (2002), [51] Frei Otto (2002, 2005-2006), [52] Bill Joy (2002-2013), [53] Carl Pearson (2004), [54] Craig Venter (2005-2013), [55] Matt Ridley (2005-2013), [56] Elon Musk (2005-2013), [57] Etienne-Jules Marey (2006), [58] Aubrey de Grey (2006-2013), [59] Peter Thiel (2008-2013), [60] Manuel de Landa (2008-2013), [61] Olivia Judson (2009-2013), [62] Manfredi Nicoletti (2010), [63] Walter Gropius (2010), [64] Jaan Tallinn (2010-2013).

Project images from the diagrams (2.501-2.578) are referenced in Table of Images.

Influencers Timeline



For copyright reasons please refer to footnoted reference for images (Table of Images 2.5).

Figures

Jane Callaghan & Catherine Palmer

2.501 Jane Callaghan & Catherine Palmer
American Artists ⁶⁵
Space Shapes, 1943

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical

Etienne-Jules Marey

2.502 Etienne-Jules Marey
05/03/1803 - 21/05/1904
French Scientist, Physiologist, Chronophotographer ⁶⁶
Chronophotographie race of man, 1896

Projects Influenced: Alessi Espresso Cup & Saucer (2006)
Tags: #unbuilt #theoretical

Oskar Schlemmer

2.503 Oskar Schlemmer
04/09/1888 - 13/04/1943
German Painter, Sculptor, Designer, Choreographer ⁶⁷
Egocentric Spatial Delineation, 1924

Projects Influenced: St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Rudolf von Laban

2.504 Rudolf von Laban
15/12/1879 - 01/07/1958
Hungarian Dance Artist, Theorist ⁶⁸
Illustration from Sketches of the "Scales", 1926

Projects Influenced: Museum of Victoria (1994), World Trade Centre (2002), St Kilda Guggenheim (2005), Space Station (2006)
Tags: #unbuilt #theoretical

Le Corbusier

2.505 Le Corbusier
6/10/1887 - 27/08/1965
French Architect, Designer, Painter, Urban Planner, Writer ⁶⁹
Design and Photography for the Chair LC4, 1928-1929

Projects Influenced: St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Mathematical

Karl Weierstrass

2.506 Karl Weierstrass
31/10/1815 - 19/02/1897
German Mathematician ⁷⁰
Model Curve Weierstrass, 1952

Projects Influenced: Digital Architecture Gallery (2001), World Trade Centre (2002), Digital Design Gallery (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Man Ray

2.507 Man Ray
27/08/1890 - 18/11/1976
American Painter, Photographer ⁷¹
The Merry Wives of Windsor, 1948

Projects Influenced: World Trade Centre (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Unknown

2.508 Unknown
Plaster model representing algebraic functions of the 3rd degree, 1956

Projects Influenced: Digital Design Gallery (2002)
Tags: #unbuilt #theoretical

Max Bill

2.509 Max Bill
22/12/1908 - 9/12/1994
Swiss Architect, Artist, Painter, Industrial Designer ⁷²
Slivers Sense Old, 1936

Projects Influenced: Digital Architecture Gallery (2001)
Tags: #unbuilt #theoretical

Auguste Ferdinand Mobius

2.510 Auguste Ferdinand Mobius
17/11/1790 - 26/09/1868
German Mathematician, Theoretical Astronomer ⁷³
Anneau de Mobius, 1858

Projects Influenced: Powerhouse (2002)
Tags: #unbuilt #theoretical

Alvar Aalto

2.511 Alvar Aalto
03/03/1898 - 11/05/1976
Finnish Architect, Sculptor, Painter, Designer ⁷⁴
Test with Bentwood, 1930

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical

Le Corbusier

2.512 Le Corbusier
6/10/1887 - 27/08/1965
French Architect, Designer, Painter, Urban Planner,
Writer ⁷⁵
Diagram of a cloud of smoke in Algiers, 1931

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical

El Lissitzky

2.513 El Lissitzky
23/11/1890 - 30/12/1941
Russian Artist, Designer, Photographer, Typographer,
Architect ⁷⁶
Hand and Compass, 1924

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical

Wassily
Kandisky

2.514 Wassily Kandisky
16/12/1866 - 13/12/1944
Russian Painter, Theorist ⁷⁷
Point and Line to Plane, 1926

Projects Influenced: Abu Dhabi Tower (2010)
Tags: #unbuilt #theoretical

Constantin
Brancusi

2.515 Constantin Brancusi
19/02/1876 - 16/03/1957
Romanian Sculptor ⁷⁸
Endless Column, 1924

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical

Lucio
Fontana

2.516 Lucio Fontana
10/02/1899 - 07/09/1968
Italian Painter, Sculptor, Founder of Spatialism ⁷⁹
Installation IX 'Milan Triennale, 1960

Projects Influenced: Powerhouse (2002)
Tags: #unbuilt #theoretical

Giovanni
Michelucci

2.517 Giovanni Michelucci
02/01/1891 - 31/12/1990
Italian Architect, Urban Planner, Designer ⁸⁰
Church of the Highway to Florence, drawing, 1961

Projects Influenced: Museum of Victoria (1994)
Tags: #unbuilt #theoretical



2.518 Robert Maillart
06/02/1872 - 05/04/1940
Swedish Civil Engineer ⁸¹
Hall d'Exposition, 1939

Projects Influenced: Succhi (1991)
Tags: #built #conceptual



2.519 Eugene Freyssinet
13/07/1879 - 08/06/1962
French Structural, Civil Engineer ⁸²
Construction Shed, Orly, 1921-1923

Projects Influenced: Cherry Tree (1990), Succhi (1991)
Tags: #conceptual #built



2.520 Vittorio Giorgini
25/08/1898 - 02/01/1971
Italian Architect, Biological Systems ⁸³
House Saldarini, Baratti, 1960-1962

Projects Influenced: Atlas House (1996), Island House (1997)
Tags: #conceptual #built



2.521 Michael Pollack
The Ulm School, 1964

Tags: #inspirational #theoretical #research #unbuilt



2.522 Arne Jacobsen
11/02/1902 - 24/03/1971
Danish Architect, Designer ⁸⁴
Restaurant Bella Vista, Herrenhauser Park, Hanover, Germany, 1964

Projects Influenced: Pless House (1996)
Tags: #theoretical #unbuilt



2.523 Alvar Aalto
03/03/1898 - 11/05/1976
Finnish Architect, Sculptor, Painter, Designer ⁸⁵
Viipuri Library, 1927-35

Projects Influenced: Cherry Tree (1990), Succhi (1991), Capitol Nightclub (1994)
Tags: #built #conceptual



2.524 Antonio Gaudi
25/06/1852 - 10/06/1926
Spanish Architect ⁸⁶
Casa Mila, Barcelona, 1905-1910

Tags: #inspirational #theoretical #research #unbuilt

Ribbons

Le Corbusier

2.525 Le Corbusier
6/10/1887 - 27/08/1965
French Architect, Designer, Painter, Urban Planner,
Writer ⁸⁷
Le Modulor 2 study, 1949

Projects Influenced: Cherry Tree (1990), Capitol Nightclub (1994), Gibbs Church Conversion (1994), Museum of Victoria (1994), Atlas House (1996), Federation Square (1996), Urban Attitude St Kilda (1996)
Tags: #unbuilt #built #theoretical #conceptual

Man Ray

2.526 Man Ray
27/08/1890 - 18/11/1976
American Painter, Photographer ⁸⁸
Lampshade, 1919

Projects Influenced: Gibbs Church Conversion (1994), Museum of Victoria (1994), Sapore Restaurant (1995), World Trade Center (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #built #theoretical #conceptual

Barbara Hepworth

2.527 Barbara Hepworth
10/01/1903 - 20/05/1975
British Artist, Sculptor ⁸⁹
Curved Forms, 1956

Projects Influenced: Cherry Tree (1990), Squire Boutique (1990), Capitol Nightclub (1994), Museum of Victoria (1994), Federation Square (1996), Urban Attitude St Kilda (1996)
Tags: #unbuilt #built #theoretical #conceptual

Max Bill

2.528 Max Bill
22/12/1908 - 09/12/1994
Swedish Architect, Artist, Painter, Industrial designer ⁹⁰
Untitled, 1951

Projects Influenced: Cherry Tree (1990), Squire Boutique (1990), Sapore Restaurant (1995)
Tags: #built #conceptual

Isamu Noguchi

2.529 Isamu Noguchi
17/11/1904 - 30/12/1988
Japanese/American Artist, Landscape Architect,
sculptor ⁹¹
The Great Serpent Mound, 1945

Projects Influenced: Squire Boutique (1990), Cherry Tree (1990), Capitol Nightclub (1994), Museum of Victoria (1994), Federation Square (1996), Urban Attitude St Kilda (1996), World Trade Centre (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #built #theoretical #conceptual

Luciano Baldessari

2.530 Luciano Baldessari
10/12/1896 - 06/09/1982
Italian Architect, Designer ⁹²
Pavilion Breda, Milan, 1952

Projects Influenced: Gibbs Church Conversion (1994), Sapore Restaurant (1995), Atlas House (1996)
Tags: #built #conceptual

Carl Pearson

2.531 Carl Pearson
27/03/1857 - 27/04/1936
British Eugenist, Mathematician⁹³
*Surface Generated by the Intersection of Two Waves
Molecularies, 1950*

Projects Influenced: TWMA Garden Pavilion (2007)
Tags: #unbuilt #theoretical

Frederick Kiesler

2.532 Frederick Kiesler
22/09/1890 - 27/12/1965
Austrian-American Architect, Theoretician, Theatre
Designer, Artist⁹⁴
The Arch as a Rainbow of Shells, 1960-1965

Projects Influenced: Space Station (2006)
Tags: #unbuilt #theoretical

Antoine Pevsner

2.533 Antoine Pevsner
30/01/1886 - 12/04/1962
Belarusian Sculptor⁹⁵
Construction of a Developable Surface, 1938

Projects Influenced: Ryan Studio (1995)
Tags: #built #conceptual

Peter Eisenman

2.534 Peter Eisenman
11/08/1932-
American Architect⁹⁶
*Drawings for the Extension of the College of Design,
Cincinnati, 1990*

Projects Influenced: Ikon Tower (1998)
Tags: #unbuilt #theoretical

Bernard Tschumi

2.535 Bernard Tschumi
25/01/1944
Swedish Architect, Writer, Educator⁹⁷
Manhattan Transcripts, Block 4, 1977-1981

Tags: #inspirational #theoretical #teaching

Hellical

Walter Gropius

2.536 Walter Gropius
18/05/1883 - 05/07/1969
German Architect ⁹⁸
Exposure to Steel, Berlin, 1936

Projects Influenced: Abu Dhabi Towers (2010), Glacier Villa (2010)
Tags: #unbuilt #theoretical

Vladimir Tatlin

2.537 Vladimir Tatlin
28/12/1885 - 31/05/1953
Russian Painter, Architect ⁹⁹
Third Monument to the "International", 1920

Projects Influenced: Powerhouse (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Le Corbusier

2.538 Le Corbusier
6/10/1887 - 27/08/1965
French Architect, Designer, Painter, Urban Planner, Writer ¹⁰⁰
Le Modulor, 1946

Projects Influenced: Powerhouse (2002), World Trade Centre (2002)
Tags: #unbuilt #theoretical

Bruno Munari

2.539 Bruno Munari
24/10/1907 - 30/09/1998
Italian Artist, Designer, Painter, Sculptor, Industrial Designer ¹⁰¹
Billobotanique, 1950

Projects Influenced: Powerhouse (2002), Space Station (2006)
Tags: #unbuilt #theoretical

Frank Lloyd Wright

2.540 Frank Lloyd Wright
08/06/1867 - 09/04/1959
American Architect, Designer, Writer, Educator ¹⁰²
Guggenheim Museum, New York, 1958

Projects Influenced: St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Manfredi Nicoletti

2.541 Manfredi Nicoletti
16/06/1930
Italian Architect ¹⁰³
Helicoidal Skyscraper Model, 1971

Projects Influenced: Abu Dhabi Towers (2010), Glacier Villa (2010)
Tags: #unbuilt #theoretical

Shells

Frederick Kiesler

2.542 Frederick Kiesler
22/09/1890 - 27/12/1965
Austrian-American Architect, Theoretician, Theatre Designer, Artist ¹⁰⁴
The Shrine of the Book, Jerusalem, 1965

Projects Influenced: Squire Boutique (1990), Gan House (1993), Curve Gallery (1995), Sapore Restaurant (1995), Atlas House (1996), Pless House (1996), Federation Square (1996), World Trade Centre (2002), St Kilda Guggenheim (2005)
Tags: #built #unbuilt #conceptual #theoretical

Eero Saarinen

2.543 Eero Saarinen
20/08/1910 - 1/09/1961
Russian-American Architect, Industrial Designer ¹⁰⁵
TWA Terminal, New York, 1962

Projects Influenced: Gan House (1993), Museum of Victoria (1994)
Tags: #built #unbuilt #conceptual #theoretical

Frei Otto

2.544 Frei Otto
31/05/1925
German Architect, Structural Engineer ¹⁰⁶
German Pavilion, Montreal Exhibition, 1967

Projects Influenced: World Trade Centre (2002), St Kilda Guggenheim (2005)
Tags: #unbuilt #theoretical

Bruno Taut

2.545 Bruno Taut
04/05/1880 - 24/12/1938
German Architect, Urban Planner ¹⁰⁷
Glass Pavilion, Werkbund Exhibition, Cologne, 1914

Projects Influenced: Gan House (1993)
Tags: #built #conceptual

Oscar Niemeyer

2.546 Oscar Niemeyer
15/12/1907 - 05/12/12
Brazilian Architect ¹⁰⁸
Ibirapuera Park, Sao Paulo, 1951

Projects Influenced: Squire Boutique (1990), Succhi (1991), Gan House (1993), Capitol Nightclub (1994), Museum of Victoria (1994), Curve Gallery (1995), Sapore Restaurant (1995), Atlas House (1996), Federation Square (1996), Barkly Apartments (1996), Pless House (1996), Pontian Centre (1996), World Trade Centre (2002), St Kilda Guggenheim (2005)
Tags: #built #unbuilt #conceptual #theoretical

Bio morphs

Frei Otto

2.547 Frei Otto
31/05/1925
German Architect, Structural Engineer ¹⁰⁹
Space Frames, 1962

Projects Influenced: World Trade Centre (2002)
Tags: #unbuilt #theoretical

Frederick Kiesler

2.548 Frederick Kiesler
22/09/1890 - 27/12/1965
Austrian-American Architect, Theoretician, Theatre Designer, Artist ¹¹⁰
Endless House, model, 1950-1959

Projects Influenced: World Trade Centre (2002), Sapore Restaurant (1995)
Tags: #built #unbuilt #conceptual #theoretical

Rudolf Steiner

2.549 Rudolf Steiner
25-27/02/1861 - 30/03/1925
Austrian Philosopher, Architect, Social Reformer ¹¹¹
House Duldeck, Dornach, 1913-1922

Projects Influenced: Gan House (1993), Atlas House (1996)
Tags: #built #conceptual

Le Corbusier

2.550 Le Corbusier
6/10/1887 - 27/08/1965
French Architect, Designer, Painter, Urban Planner, Writer ¹¹²
Notre-Dame-Duhaut, Ronchamp, 1950-1955

Projects Influenced: Squire Boutique (1990), Cherry Tree (1990), Gan House (1993), Atlas House (1996)
Tags: #built #conceptual

Jean Arp

2.551 Jean Arp/Hans Arp
16/09/1886 - 07/06/1966
German/French Sculptor, Painter, Poet, Artist ¹¹³
Shape Pixie, 1949

Projects Influenced: World Trade Centre (2002)
Tags: #unbuilt #theoretical

Jan de Swart

2.552 Jan de Swart
American Artist, Designer ¹¹⁴
Sculpture, 1956

Projects Influenced: Sapore Restaurant (1995)
Tags: #built #conceptual

André Ramseyer

2.553 André Ramseyer
31/01/1914 - 15/01/2007
Swedish Sculptor ¹¹⁵
Atlantic, 1952

Projects Influenced: World Trade Centre (2002)
Tags: #unbuilt #theoretical

Charles Eames

2.554 Charles Eames
1907 - 1978
American Industrial/Graphic Designer, Fine Art, Film ¹¹⁶
Maker, Sculptor *Experimental Molded Plywood, 1943*

Projects Influenced: Sapore Restaurant (1995)
Tags: #built #conceptual

Imprints

Herbert Matter

2.555 Herbert Matter
25/04/1907 - 08/05/1984
Swiss-American Photographer, Graphic Designer ¹¹⁷
Mobile Alexander Calder Movement, 1939

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #research #theoretical

Etienne-Jules Marey

2.556 Etienne-Jules Marey
05/03/1830 - 21/05/1904
French Scientist, Physiologist, Chronophotographer ¹¹⁸
Movements nets smoke, 1900-1901

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical

Joseph A. Mills

2.557 Joseph A. Mills
Reflections, 1942

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #research #theoretical

William Marston

2.558 William Marston
09/05/1893 - 02/05/1947
American Psychologist, Writer ¹¹⁹
Virtual Volume, 1941

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical

Forms

Gunter Gurschel

2.559 Gunter Gurschel
German Architect ¹²⁰
Structure Semi-Cylindrical Vault, 1951

Projects Influenced: Capitol Nightclub (1994), Barkly Apartments (1996), Federation Square (1996), Pontian Centre (1996)
Tags: #built #unbuilt #conceptual #theoretical

Henry Moore

2.560 Henry Moore
30/07/1898 - 31/08/1986
British Sculptor, Artist ¹²¹
Two Forms, 1966

Projects Influenced: Capitol Nightclub (1994)
Tags: #built #conceptual

Barbara Hepworth

2.561 Barbara Hepworth
10/01/1903 - 20/05/1975
British Artist, Sculptor ¹²²
Pendour, 1947

Projects Influenced: Squire Boutique (1991), Succhi (1991), Gan House (1993), Capitol Nightclub (1994), Museum of Victoria (1994), Curve Gallery (1995), Pless House (1996), Urban Attitude St Kilda (1996), Federation Square (1996)
Tags: #built #unbuilt #conceptual #theoretical

Luigi Moretti

2.562 Luigi Moretti
02/01/1907 - 14/07/1973
Italian Architect ¹²³
Study for a Tennis Court, 1960

Projects Influenced: Capitol Nightclub (1994)
Tags: #built #conceptual

Forms

Mario Bellini

2.563 Mario Bellini
01/02/1935 -
Italian Architect, Designer ¹²⁴
Study for Function Keys on a Keyboard, 1965

Projects Influenced: Barkly Apartments (1996), Pontian Centre (1996)
Tags: #unbuilt #theoretical

Science

Michael Leyton

2.564 Michael Leyton
American Physicist at Rutgers's University ¹²⁵

Projects Influenced: World Trade Centre (2002), St Kilda Guggenheim (2005), Space Station (2006), TWMA Pavilion (2007)
Tags: #unbuilt #theoretical

Clayton Christensen

2.565 Clayton Christensen
06/04/1952 -
American Teacher & Consultant ¹²⁶

Projects Influenced: Alessi Tea & Coffee Towers (2001)
Tags: #built #conceptual #theoretical

Abraham Robinson

2.566 Abraham Robinson
06/10/1918 - 11/04/1977
German Mathematician ¹²⁷

Tags: #inspirational #research #teaching #geometry #theoretical #unbuilt

Ray Kurzweil

2.567 Ray Kurzweil
12/02/1948 -
American Author, Inventor, Futurist, a Director of Engineering at Google ¹²⁸

Tags: #inspirational #teaching #theoretical #unbuilt

Stephen Wolfram

2.568 Stephen Wolfram
29/08/1959 -
British Mathematician, Theoretical Physicist, Computer Scientist, Entrepreneur, Pioneer Researcher in Elementary Cellular Automata ¹²⁹

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical #unbuilt

Bill Joy

2.569 Bill Joy
8/11/1954 -
American Computer Scientist, Co-founder Sun Microsystems ¹³⁰

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical #unbuilt

Aubrey de Grey

2.570 Aubrey de Grey
20/5/1963 -
British Author and Theoretician in the field of biomedical gerontology. Founded SENS Research Foundation ¹³¹

Tags: #inspirational #research #teaching #theoretical #unbuilt

Craig Venter

2.571 Craig Venter
14/10/1946 -
American Biologist and Entrepreneur ¹³²

Tags: #inspirational #research #teaching #theoretical #unbuilt

Jaan Tallinn

2.572 Jaan Tallinn
14/02/1972 -
Estonian Programmer, Co-developer of Skype, FastTrack/Kazaa, Co-founder Centre for the Study of Existential Risk (CSER), MetaMed ¹³³

Projects Influenced: Visualising the Virtual Concourse (2003-2008), 2112 Ai 100YC (2011-2012)
Tags: #inspirational #teaching #theoretical

Frank Gehry

2.573 Frank Gehry
28/2/1929 -
Canada, USA. Pritzker Prize-winning architect ¹³⁴

Projects Influenced: St Kilda Guggenheim (2006)
Tags: #unbuilt #theoretical

Olivia Judson

2.574 Olivia Judson
1970 -
British Evolutionary Biologist and Science Writer ¹³⁵

Tags: #inspirational #teaching #theoretical #research

Peter Thiel

2.575 Peter Thiel
11/10/1967 -
German-born American Entrepreneur, Co-founder PayPal ¹³⁶

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical

Science

Manuel de Landa

2.576 Manuel de Landa
1952 -
Mexican-American Writer, Artist, Media Programmer
and Philosopher ¹³⁷

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical

Matt Ridley

2.577 Matt Ridley
7/2/1958 -
British Journalist ¹³⁸

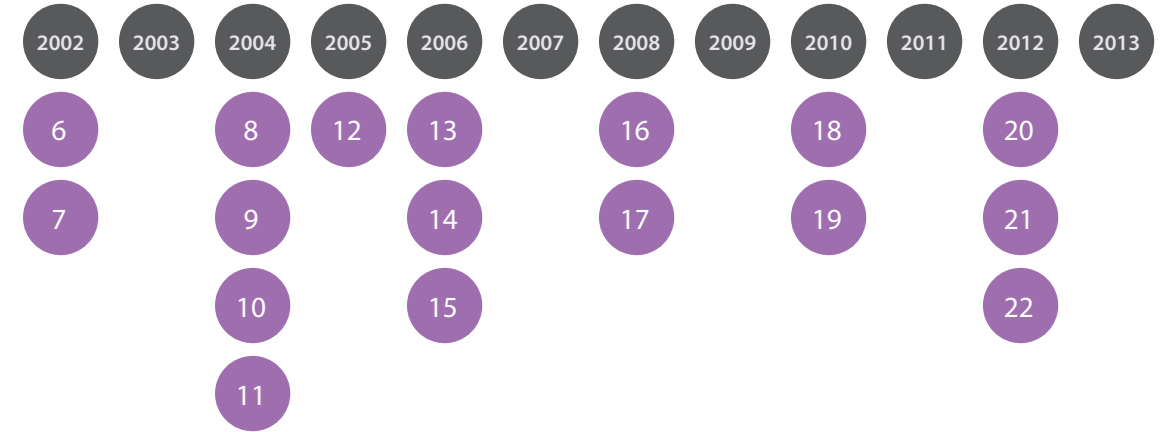
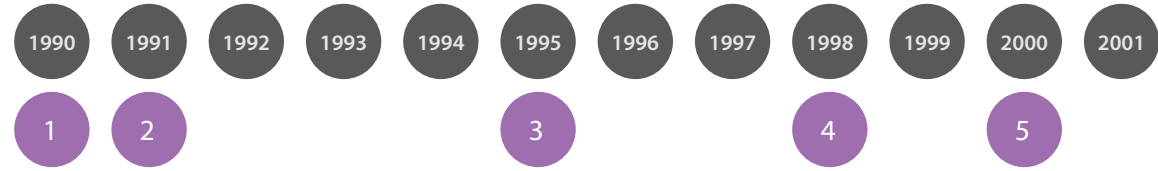
Tags: #inspirational #teaching #theoretical #research

Elon Musk

2.578 Elon Musk
28/6/1971 -
Business Magnate, Engineer, Entrepreneur, Investor and
Inventor ¹³⁹

Projects Influenced: Visualising the Virtual Concourse (2003-2008)
Tags: #inspirational #teaching #theoretical #research

Exhibitions Timeline



For copyright reasons please refer to footnoted reference for images (Table of Images 2.6).

Table of Exhibitions

Table 2.6 (*Top to Bottom, Left to Right, by Year*) // [1] UP Gallery (1990), [2] Design Forum Project CIA Space (1991), [3] Gallery of Contemporary Art, Celje (1995), [4] FRAC Centre (1998), [5] 7th International Architecture Exhibition (2000), [6] American Library of Congress (2002), [7] 8th International Architecture Exhibition (2002), [8] lab.3000 Digital Design Biennale (2004), [9] Architectures Non-Standard (2004), [10] Sir John Soane Museum (2004), [11] 9th International Architecture Exhibition (2004), [12] Wexner Museum (2005), [13] Museum of Modern Art (2006), [14] London Design Week (2006), [15] 10th International Architecture Exhibition (2006), [16] State of Design (2008), [17] 11th International Architecture Exhibition (2008), [18] Beijing Architecture Biennale (2010), [19] 12th International Architecture Exhibition (2010), [20] Milano Triennale (2012), [21] Maribor European Capital of Culture (2012), [22] 13th International Architecture Exhibition (2012).



1990
 Up Gallery
 Melbourne, Australia
Projects exhibited: Squire Boutique, Cherry Tree, Gan House, Succhi



1991
 Design Forum Project CIA Space
 Tokyo, Japan ¹⁴⁰
Projects exhibited: Squire Boutique, Cherry Tree, Gan House, Succhi



1995
 Gallery of Contemporary Art
 Celje, Slovenia ¹⁴¹
Projects exhibited: Squire Boutique, Cherry Tree, Gan House, Succhi, Capitol Nightclub, Gibbs Church Conversion, Museum of Victoria, Curve Gallery, Ryan Studio, Sapore Restaurant, Atlas House, Pontian Centre



1998
 FRAC Centre
 Orleans, France ¹⁴²
Projects exhibited: Squire Boutique, Cherry Tree, Gan House, Succhi, Capitol Nightclub, Gibbs Church Conversion, Museum of Victoria, Curve Gallery, Ryan Studio, Sapore Restaurant, Atlas House, Pontian Centre



2000
 7th International Architecture Exhibition
 Venice, Italy ¹⁴³
Project exhibited: Ikon Tower



2002
 American Library of Congress
 Washington, United States of America ¹⁴⁴
Project exhibited: World Trade Center



2002
 8th International Architecture Exhibition
 Venice, Italy ¹⁴⁵
Projects exhibited: World Trade Centre, Alessi Tea & Coffee Towers



2004
 lab.3000 Digital Design Biennale
 Melbourne, Australia ¹⁴⁶
Projects exhibited: Alessi Tea & Coffee Towers



2004
 Architectures Non-Standard
 Centre Georges Pompidou, France ¹⁴⁷
Projects exhibited: Alessi Tea & Coffee Towers, Powerhouse, World Trade Center, RMIT Digital Design Gallery



2004
 Sir John Soane Museum
 London, England ¹⁴⁸
Project exhibited: Alessi Tea & Coffee Towers



2004
 9th International Architecture Exhibition
 Venice, Italy ¹⁴⁹
Projects exhibited: Amatruda Penthouse, Venice
 Virtual Pavilion



2005
 Wexner Museum
 Ohio, United States of America ¹⁵⁰
Project exhibited: Alessi Tea & Coffee Towers



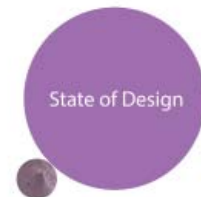
2006
 Museum of Modern Art
 New York City, United States of America ¹⁵¹
Project exhibited: Alessi Tea & Coffee Towers



2006
 London Design Week
 London, England ¹⁵²
Project exhibited: Alessi Superstar



2006
 10th International Architecture Exhibition
 Venice, Italy ¹⁵³
Project exhibited: Singapore Marina Line



2008
 State of Design
 Melbourne, Australia ¹⁵⁴
Project exhibited: Alessi Federation Square
 Exhibition



2008
 11th International Architecture Exhibition
 Venice, Italy ¹⁵⁵
Project exhibited: Alessi Serpentine



2010
 Beijing Architecture Biennale
 Beijing, China ¹⁵⁶
Projects exhibited: Fab Hab, x-tremes



2010
 12th International Architecture Exhibition
 Venice, Italy ¹⁵⁷
Project exhibited: Alessi Serpentine



2012
 Milano Triennale
 Milan, Italy ¹⁵⁸
Projects exhibited: Alessi Tea & Coffee Towers,
 Alessi Superstar



2012
 Maribor European Capital of Culture
 Maribor, Slovenia ¹⁵⁹
Project exhibited: Maribor Pavilion



2012
 13th International Architecture Exhibition
 Venice, Italy ¹⁶⁰
Project exhibited: 2112ai 100YC

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Case Study of Fade
Back Practice //
Cherry Tree

Chapter 03

Projects



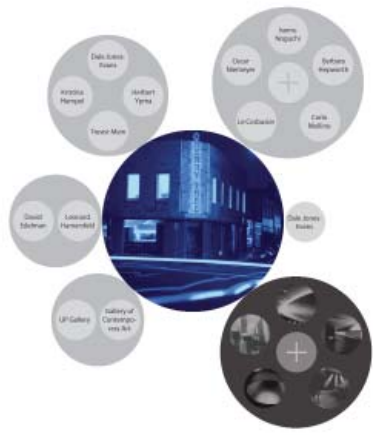
Cherry Tree

The Cherry Tree is an existing pub located in an industrial area of Melbourne, on a site bounded by a sweeping arterial road and a railway overpass. The main objective in remodelling the building was to unify the interior into a single space, articulated by the existing walls and structure. Within this, the client specified three distinct areas: the front room facing the street was to become a bar; the back room, a restaurant and performance space; whilst level one would contain the offices and management zone. The external form of the building had to be retained due to the local authority's heritage requirements. However, the interior did call for a remodelling of the site's irregular shape, though the original building's central core had to be retained as it contains the services around which the spaces are organised.

Accepting the operating conditions, the entire ground floor was divided by the service areas and the rear extended by 100 square metres to open the pub into a large space, which also accommodated the mandatory off-street parking and storage facilities. The entire ground floor hinges on a narrow circulation passage; this is the ordering device for the distribution of the formal mass and its spatial 'scraping' within the shell of the building. The front entrance engages a floating ceiling that continues over the bar and the plaster-encased stair to engage the void above, vaulting to the rear and up to an ovoid cupola light source. The plaster form is supported by the existing walls and ceilings, which guide the sculpture from a ceiling level of 2.4 metres to a height of 6 metres. It is intended as a three-dimensional form shaping the interior and engaging the exterior. The continuity of space ruled out the use of beams or columns. Instead, transitions are made through sculptural shapes and a limited use of colour, which emphasise form through contrast.

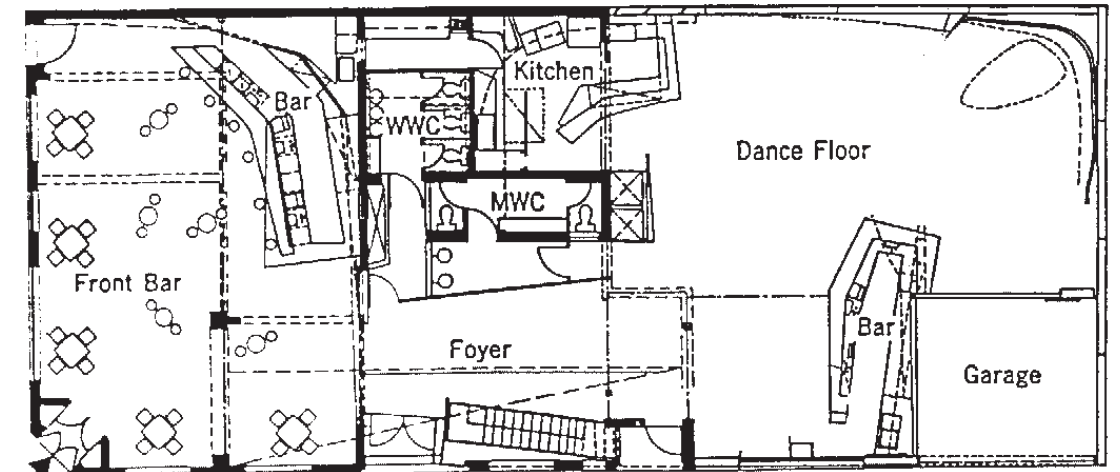
The Cherry Tree was the first project within the practice that embraced the principles of 'just in time' design using that as a base to test an idea's growth. The project interior required a design and building completion within a twelve (12) week period. A normal estimated time frame for a project of this scale would be a twelve (12) week end for design/documentation/ permits and twenty-four (24) weeks for construction time. The practice agreed to produce schematics overnight and commence construction within forty-eight hours, which was also supported by the client with a fixed architect's fee with a cost plus construction agreement based on a construction guesstimate. This project proceeded according to the initial architect's design intent due in part to the client being an architect who trusted the schematic idea drawn on a few napkin sketches (blown up to AO size) and who used these to gain investors' trust. The construction method was streamlined by selecting one material for shaping the form of the space and ordering service area's materials, designing the layouts for services immediately and trusting initial decisions around placements of key functioning zones such as kitchen and bars. The entire existing interior was wrapped with plaster sheets as a continuous ribbon joining the disconnected zones into one fluid motion. The use of sheet plaster as the primary material meant we could control a cost effective material with one trade and create the spaces with on site direction. Any changes could be made without disturbing the flow of work. It shifted the standard practice system to one of responding to the 'unanticipatable', by inventing changes to the working methods. Speeding up all processes eliminated any traditional consultants who could not participate in the project due to non-compliance with the disruptive innovation of our system.

The method also diminished the planning and building authorities' ability to provide timely responses. The project construction was completed before statutory authorities managed a response to our submitted drawings, which were created with minimal required information. Building surveyors inspecting the site were shocked to find the project almost completed and required what was known as the 'show cause' clause to demonstrate that all



works and details were performed and compliant under codes of building construction. These were signed by the responsible engineer and contractor, and a building permit was issued before the date of operation. This project generated a design/construct philosophy based on a belief that architecture could only come into being with great risk and challenge something akin to a hacker who combines excellence, playfulness, cleverness and exploration in performed activities that make something seemingly impossible real. There was the youthful exuberance of a start up and the associated adrenalin of risk normally associated with hackers at play.

The practice became known for producing curved spaces with provocative volumes, which rapidly won accolades and awards. The pages of local and international design publications and magazines featured the practice's method of producing effective solutions within the hospitality and retail industry with speed and efficiency between. Occupying high rent locations and trading at optimal points within seasons enabled us to generate a system of delivery that required talent areas not normally associated with traditional practice. The office was inhabited by young undergraduate students translating sketches to models, making critical design outcome decisions with contractors and material providers. Students would frequently inquire to work as interns just to be present and make things that seemed to be 'of the time' and exciting to produce.

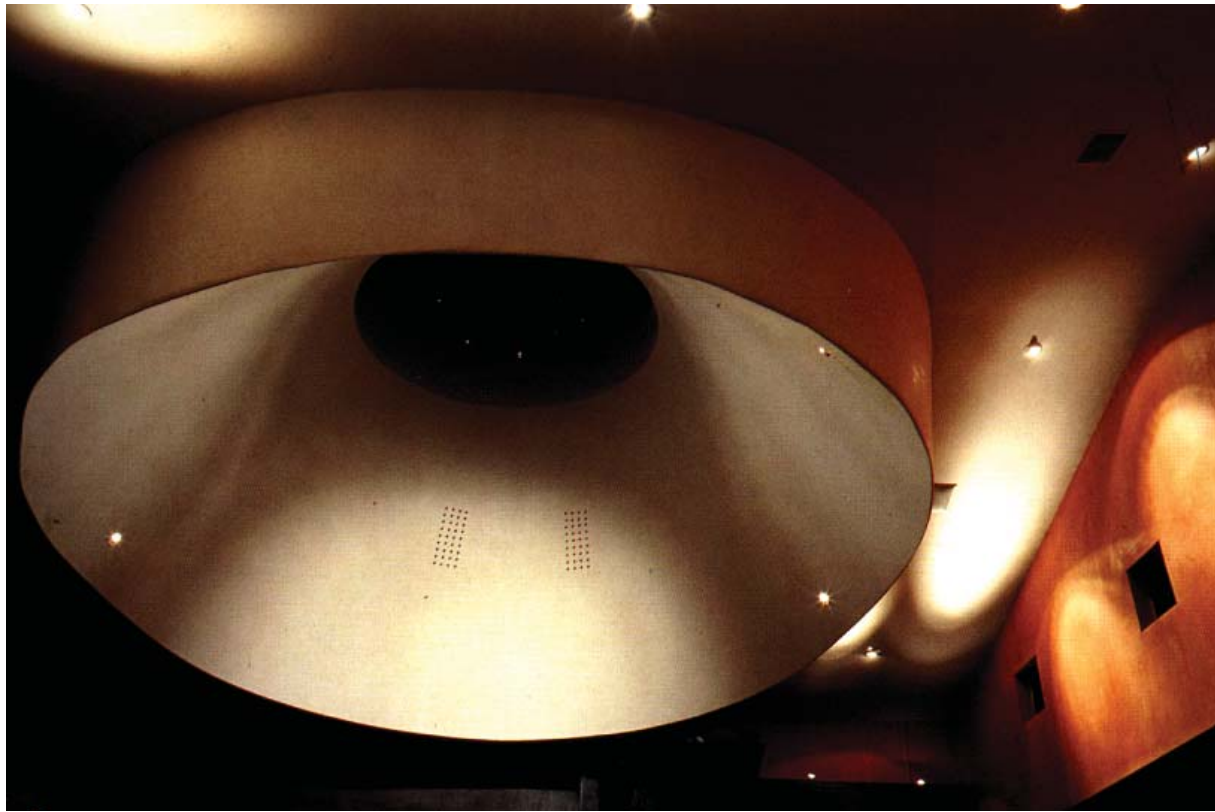


Ground floor plan



Cherry Tree (1990)

3.101 (Above) // A ground floor plan, outlining spaces program and usages within the building.
 3.102 (Below) // An image of the exterior view of the building, illustrating the building's connection to the site and the surrounding buildings and roads.



Cherry Tree (1990)

3.103 (Above) // An image of the ceiling, demonstrating the impact of the light and shadow, as well as different depth size of the ceiling.

3.104 (Below) // Image of the kitchen area, outlining the impact of the light in the interior space. The image has been taken from entrance and main bar.



Cherry Tree (1990)

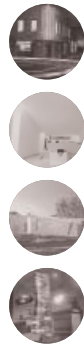
3.105 (Above) // Surface transformation between public and server zone.

3.106 (Below) // Ceiling detail, and the impact of the light in space, creates a unique atmosphere.



Cherry Tree (1990)

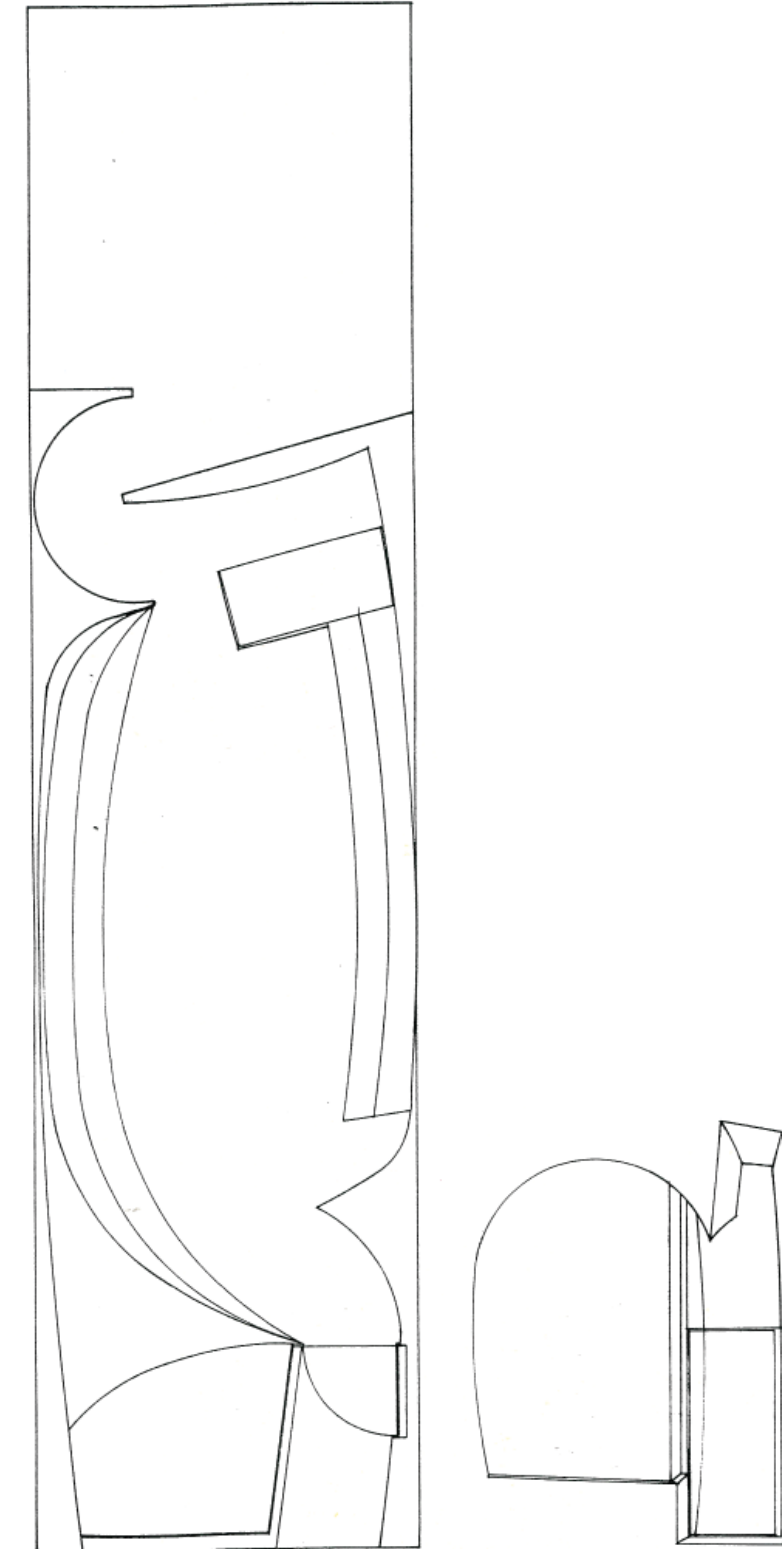
3.107 // A stair rail leading to first floor of the building.



Succhi

Created within the shell of a Victorian building, the Succhi shoe shop injected an architectural form and presence into the ephemeral commercial arena of retail interiors. Succhi was sculpted on site by issuing daily instructions, based on initial sketches, while building at full scale; thus the different symmetries and lines were edited in a way that would have been impossible to control from the drawing board.

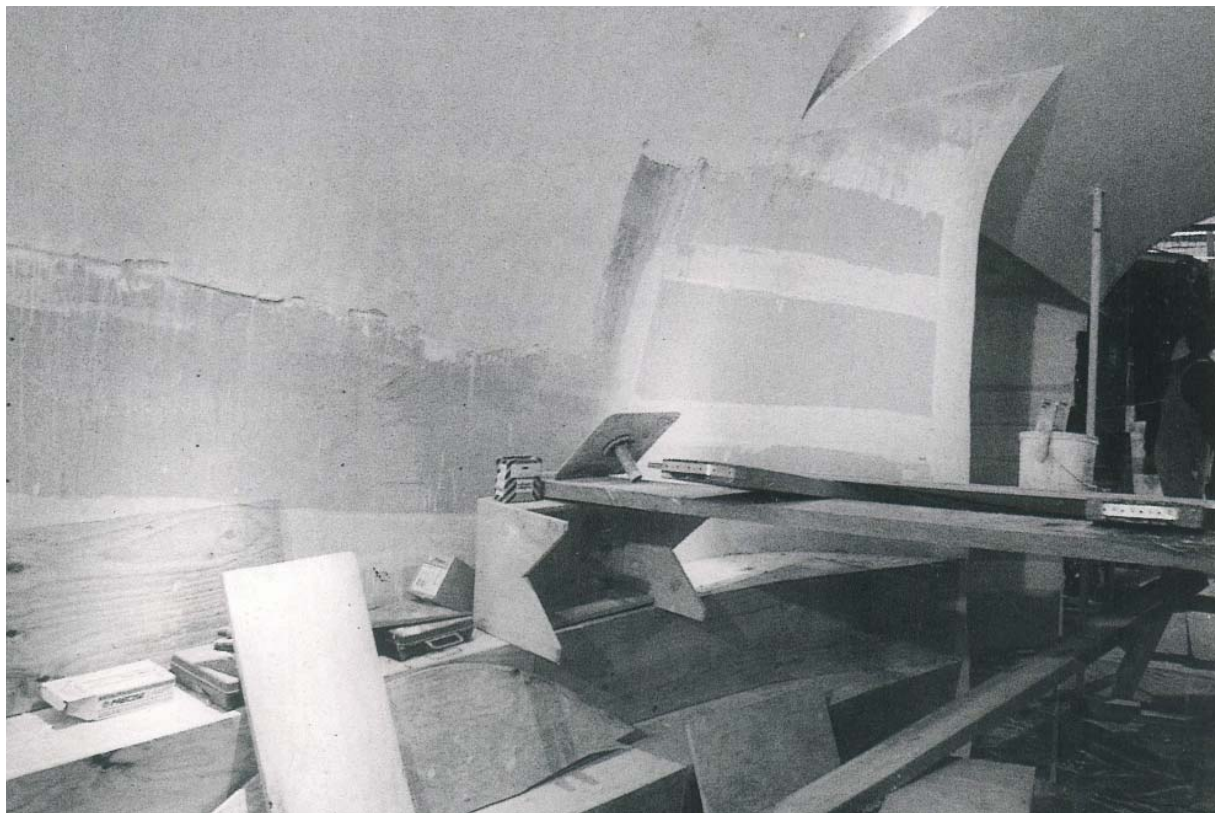
The plaster-lined forms of the ceiling and wall merged, forming a continuous spatial sequence that extended over the existing rectilinear space. The internal skin pushed out to engage the street facade, visually connecting to the outside fabric: its invisible plaster thickness articulating a formal dialogue between existing and inserted form. The austere interior was produced as a coherent extruded space that exuded a sense of permanence and stood in contrast to the ordered streetscape outside. The space was conceived around two principal elements - the new facade and the inner void - which were interrelated to imply a scale and form to legitimise the building's existence beyond its commercial reality. (When the shoe shop closed down in 1996, the work was demolished; all that now remains is the door handle.)



Succhi (1991)

3.201 (Left) // Floor plan depicting spatial layout.

3.202 (Right) // Front elevation with curvaceous characteristics of form.



Succhi (1991)

3.203 (Above) // Ceiling construction, showing the curvilinear spatial transformation.
 3.204 (Below) // Plasterboard and render application, showing the curvilinear nature of interior volume.



Succhi (1991)

3.205 (Above) // Interior view of the building upon completion, demonstrating dynamic spatiality.
 3.206 (Below) // View from interior of the building, showing the volume toward the storefront entrance.



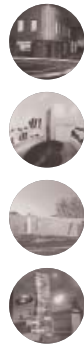
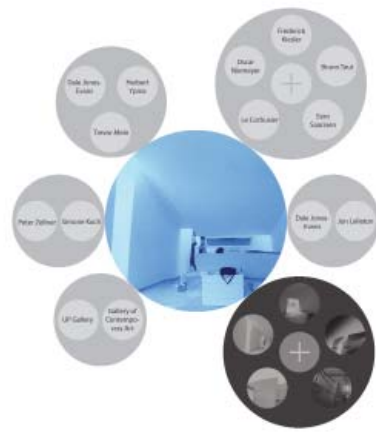
Succhi (1991)

3.207 // View of the storefront entrance and products within the pristine curvaceous interior.



Succhi (1991)

3.208 // Interior view of the building upon completion.

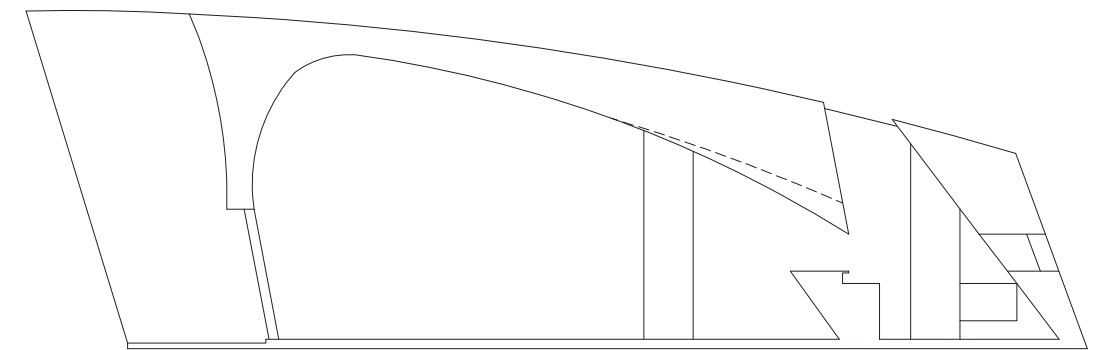
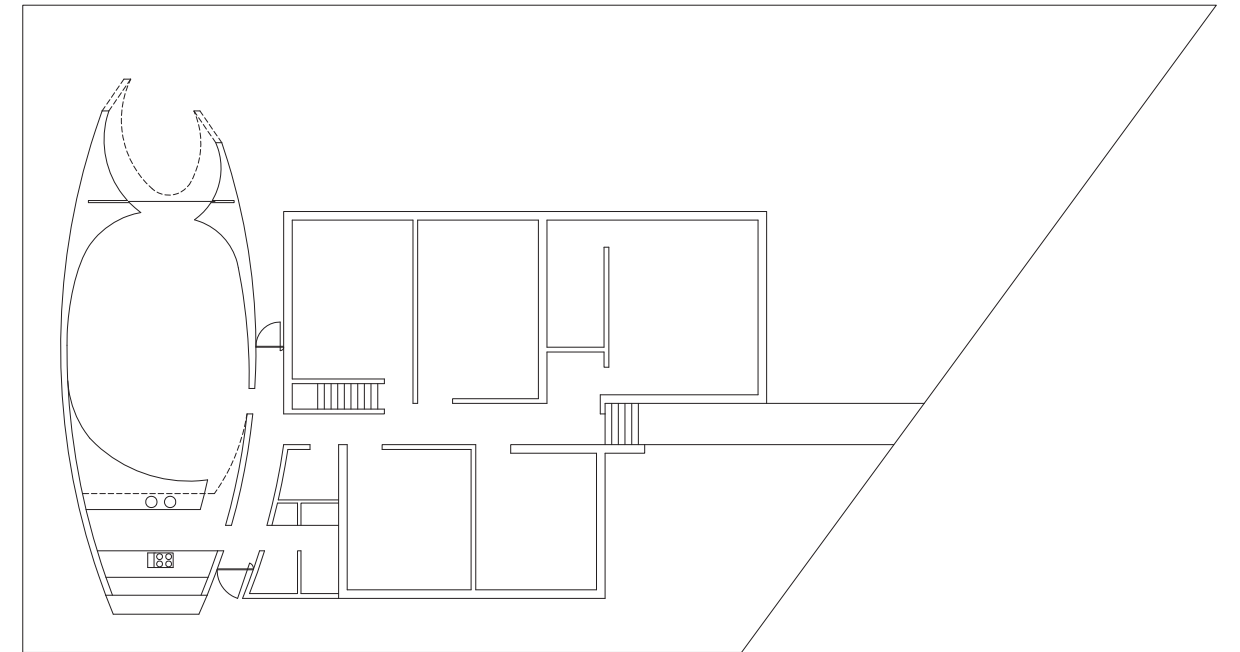


Gan House

The brief was to create a living and dining area for an existing house in a 100-square-metre addition. The design is a bold response to a period house. The new building rejects a sympathetic or contextual response to its setting. Conceived as an autonomous entity, no effort is made to reconcile it to the fabric of the older structure, to which it is tentatively connected by a glazed transparent spine.

The co-existence of the two structures brings into question preconceptions about traditional and conventional inhabitation and spatiality. The new addition generates its own presence and mysterious spatial volume. The form is generated as a single volume over five (5) metres high, with continuous curved walls and vertical slit openings for windows and entry points. Around the main pavilion are clustered smaller ancillary spaces for laundry, bathroom, and entrance and storage areas. The new building is placed at the rear of the site, independent from the boundaries and the original house.

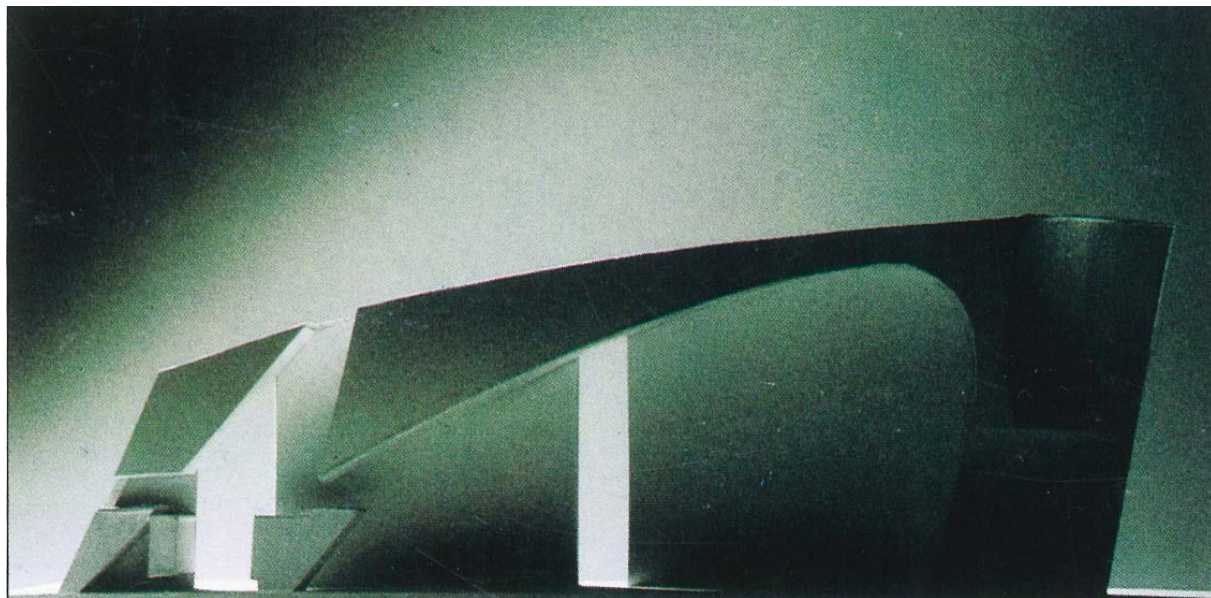
The construction technique used responded to the desire to create a building that could be read as a monolithic form against the fragmented urban condition. It also called into question existing planning codes and the restrictions they exert upon architectural expression. By gradually sloping the canted timber walls, we achieved the necessary building setbacks. These walls were lined with structural wire mesh and plywood sheets, which were in turn coated with a fine stucco rendered finish. This gave the building the articulation and appearance of an independent and clear form.



Gan House (1993)

3.301 (Above) // Floor plan showing the proposed extension as juxtaposed against existing conditions.

3.302 (Below) // Section of proposed addition with volumetric shifts in form and scale.



Gan House (1993)

3.303 (Above) // Physical plaster model of the building, showcasing the internal volumes/spaces with the vertical cut.

3.304 (Below) // Physical plaster model of the building outlining the interior spaces.



Gan House (1993)

3.305 (Above) // Building construction showing the scale changes through material transformation.

3.306 (Below) // Interior of the building, highlighting the sloping nature of the ceiling and volume changes of form.



Gan House (1993)

3.307 // Building construction process.



Gan House (1993)

3.308 // Exterior view of the building construction process.



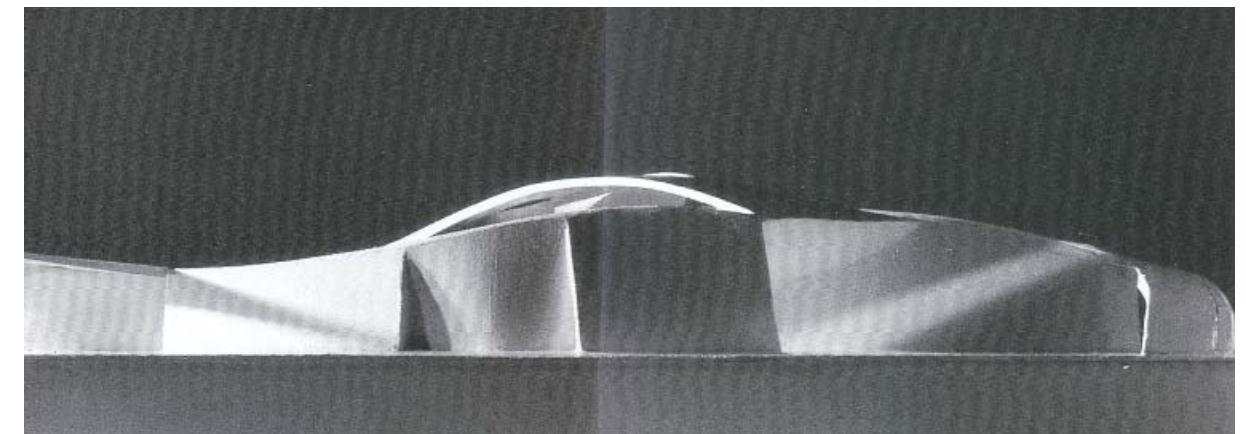
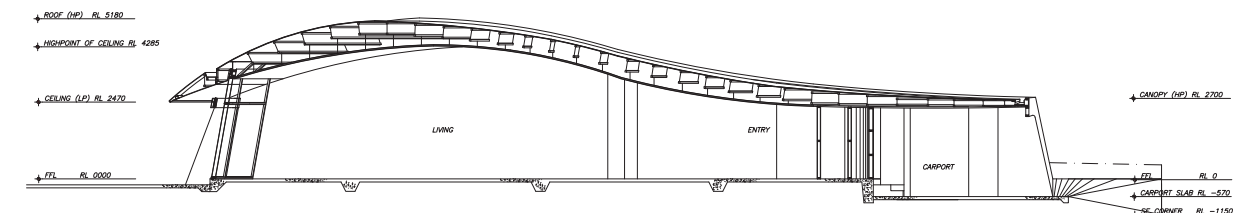
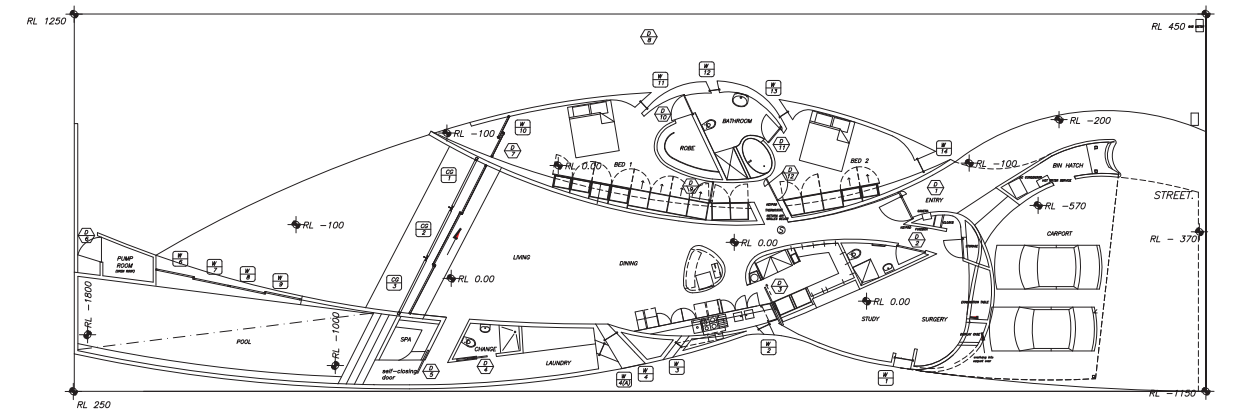
Atlas House

The Atlas House is a 350-square-metre residence built on the edge of public parkland in Hawthorn, a suburb of Melbourne. It has a mixture of semi-public areas for entertaining and private areas for the residents.

The house includes an ancillary zone, which accommodates a doctor's surgery, lap pool and utility areas, within the thickness of the wall facing the parkland that spans the length of the site. The central living space is entered through a narrow passage, which also functions as a dividing zone between the private bedroom wing and the expanse of the entertaining area. The western aspect of the building - which in Australia is traditionally shielded from the harsh sun light- is the pivotal one. It directs the living aspect into a courtyard and extends the building line. It also acts as a buffer from the park and freeway beyond. The internal spaces frame the views through narrow vertical openings in the thickness of the walls. They function as formal devices that define the grounded mass as a single object.

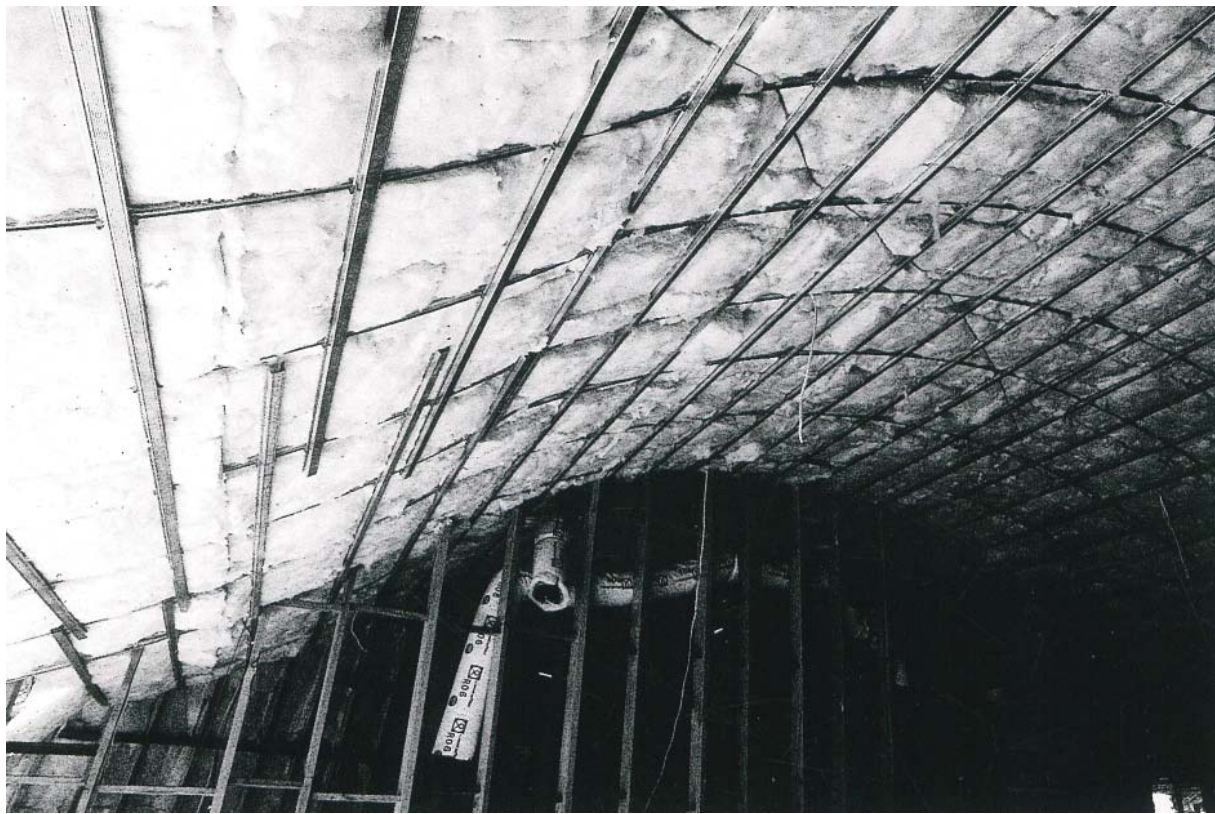
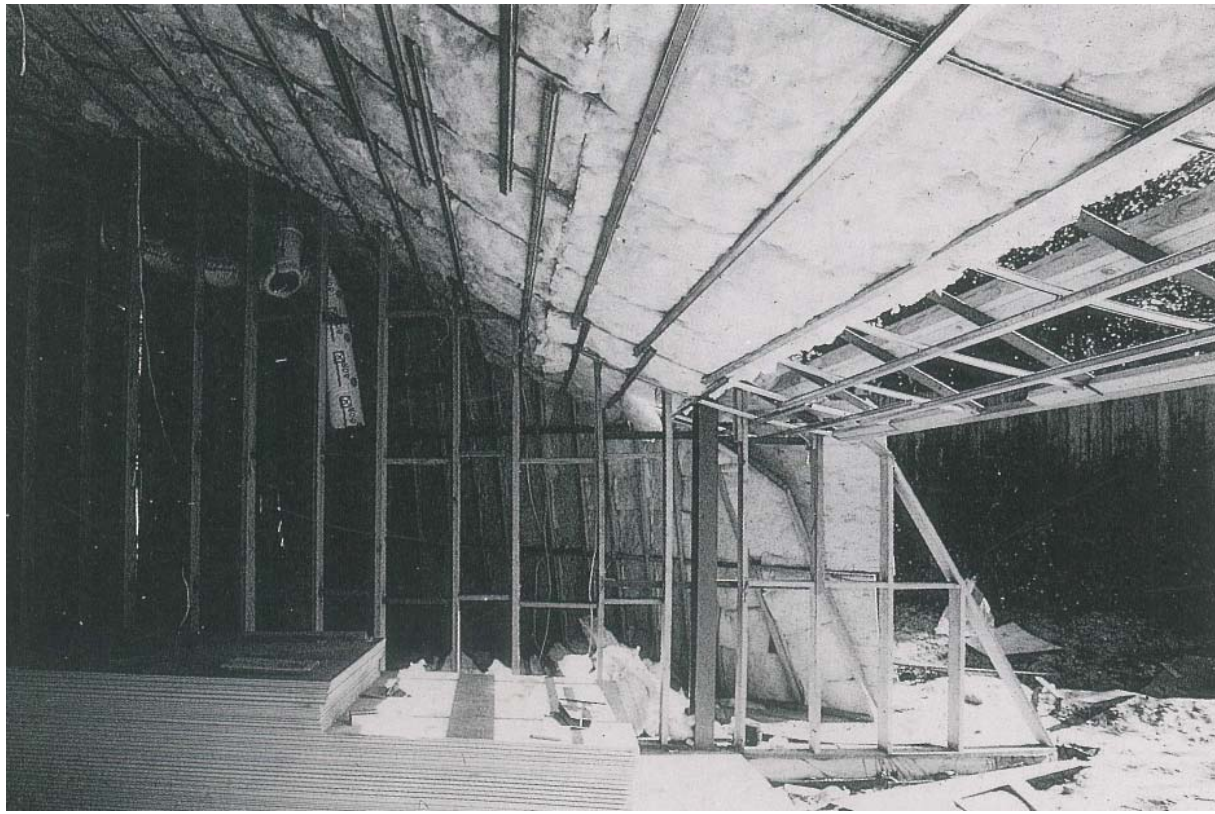
It was intended that the house would have a civic reading, an edge, and would define itself against the existing fabric of the suburban blur. Its sweeping form bends the statutory planning codes and addresses the conventional modes of production. The mass of the street frontage is maintained at a minimum height to allow minimum distance from the boundary. Maximum height is achieved in the living zone by canting the walls. This is gradually lowered at the front and rear to meet building codes.

The formal reading of the building was achieved partly through resistance to outmoded planning and building codes and a pragmatic response to the client's requirements. Materials were selected to express the plastic nature of the form. Render surface was used on the outside walls and fibre glass lining was used for the roof. This method produced a denser reading of the house. Traditional details were pared back, and fragmentation of form caused by additional material and texture removed. The relationship between interior and exterior is fused with the use of white plaster in the interior forms. The house is defined by its urban composition, in form, scale and the spatial consideration of the design brief, and the contextual conditions of the site.



Atlas House (1996)

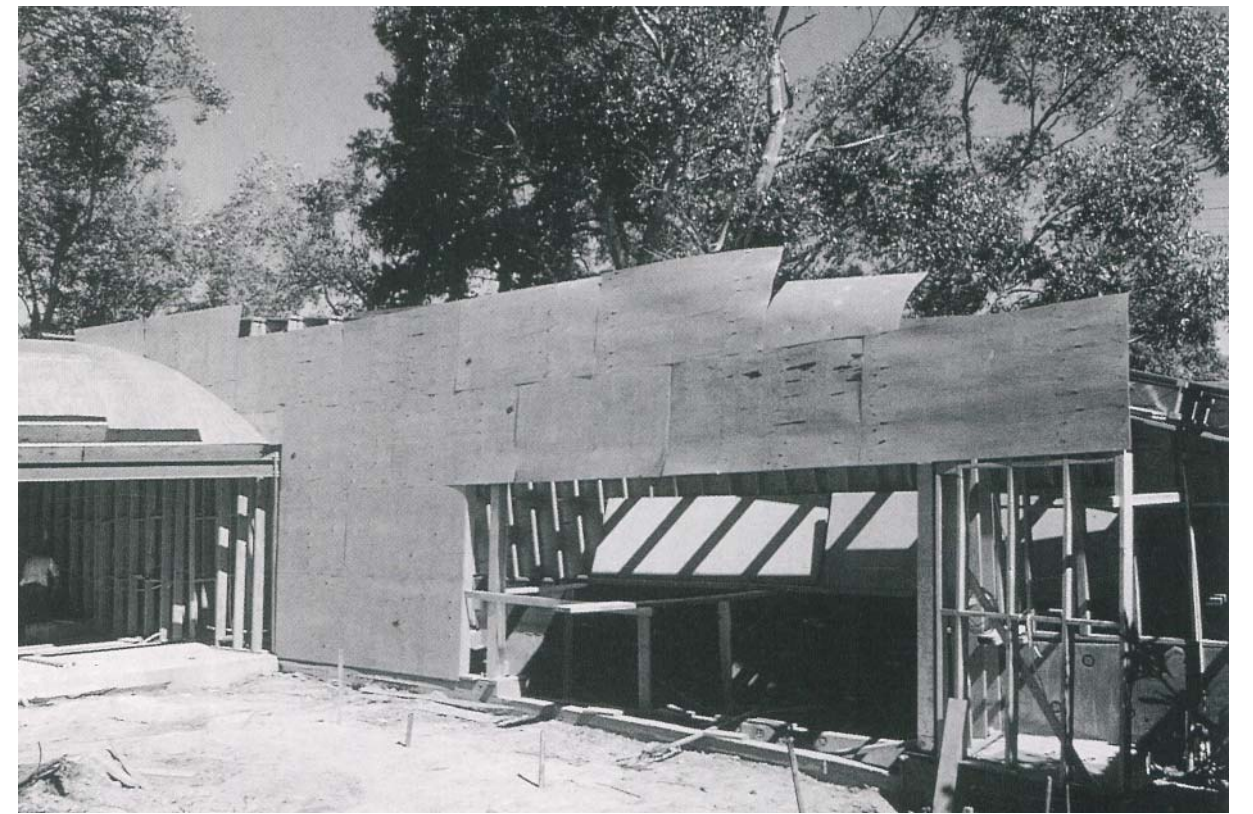
- 3.401 (Above) // Floor Plan showing the spine of house and supporting wings.
- 3.402 (Middle) // Section through living area and entrance hall showing dynamic and changing lines of house.
- 3.403 (Below) // Longitudinal elevation demonstrating spatial changes through shifting scales.



Atlas House (1996)

3.404 (Above) // Construction process of the interior.

3.405 (Below) // Construction process demonstrating the curved lines of the ceiling.



Atlas House (1996)

3.406 (Above) // Construction process of the exterior.

3.407 (Below) // View of construction wall and exterior surface.



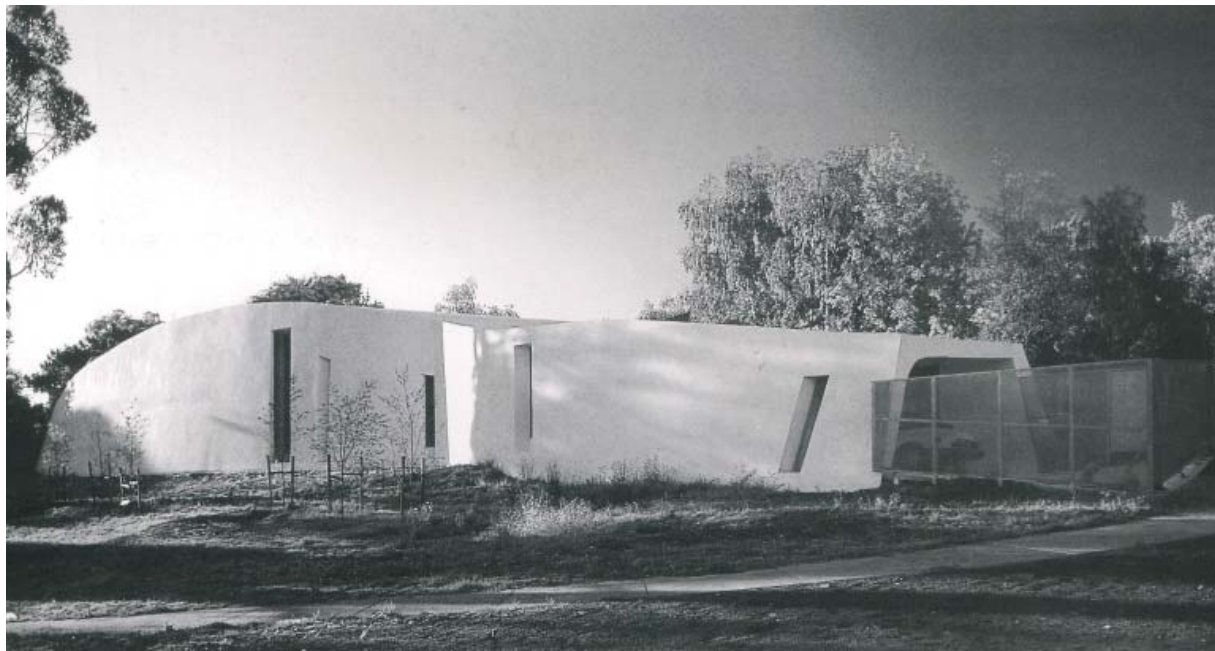
Atlas House (1996)

3.408 // Construction process of the living area.



Atlas House (1996)

3.409 // Detail construction view of bedroom wing showing scale changes to the living area.



Atlas House (1996)

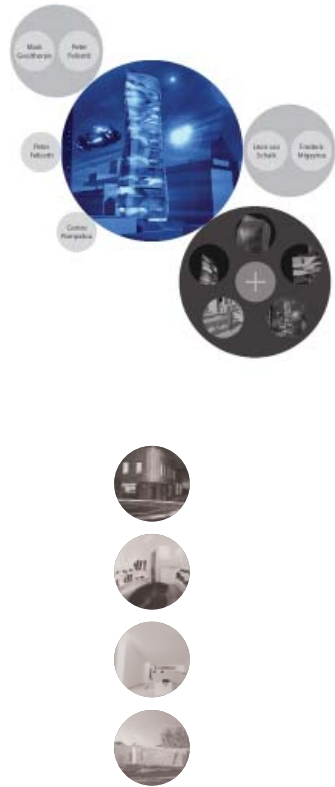
3.410 (Above) // View of the house from Kooyongkoot Road, showing the building's relationship to its site and curve exterior wall.

3.411 (Below) // View from Kooyongkoot Road, with facade breaks of window openings, demonstrating the formal characteristics of the public facade of the house.

Atlas House (1996)

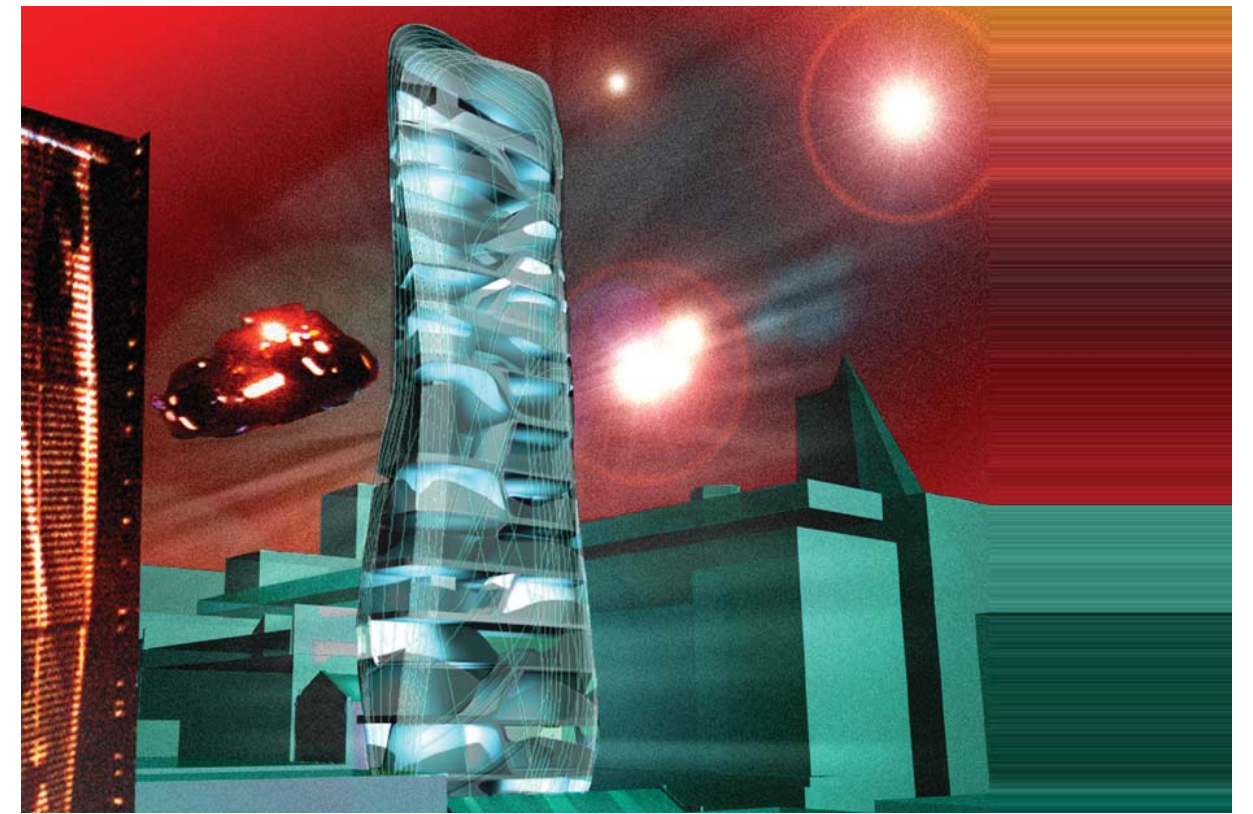
3.412 (Above) // Street entry from Kooyongkoot Road, emphasising the curved shaped exterior.

3.413 (Below) // Long elevation view from Kooyongkoot Road.



Ikon Tower

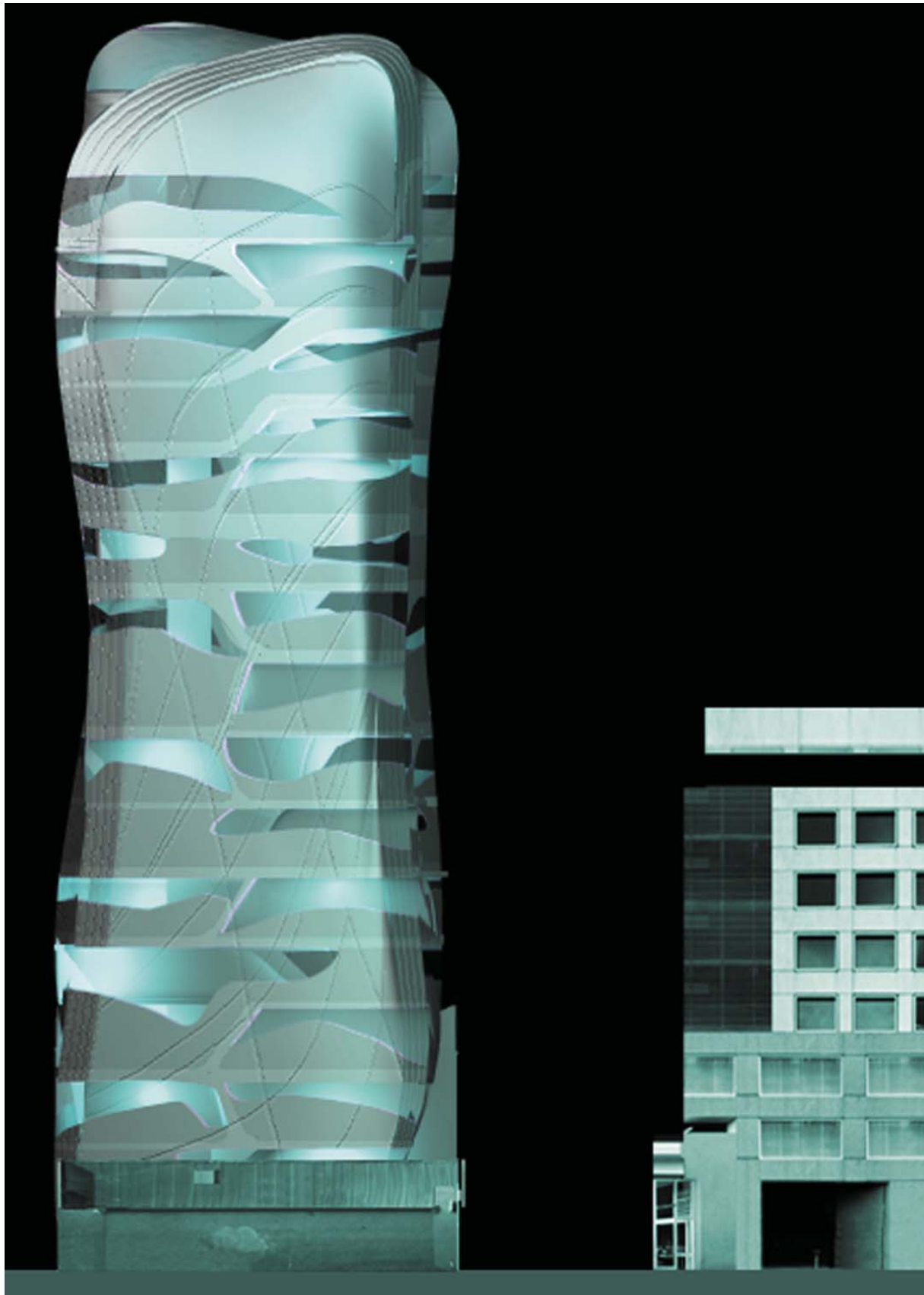
Ikon is a study in the use of computation in relation to aesthetics, specifically in architecture and design. The project offers an investigation into the terms, concepts, and processes of algorithmic architecture and provides a theoretical framework for its implementation in design. It delivers research into the technical, theoretical and design means to develop complex organisational forms of varying scales, allowing experimentation with design problems. Ikon researches new possibilities in three main areas: digital representation; geometrical investigations into fabrication and construction using hybrid materials; and processes that implement forms that push spatial composition to their limits. From topological geometry to folded surfaces, the project's formal properties are produced as ordering systems, attempting to readdress formal issues using new techniques and methods. Variability and customisation are an essential part of the program. The pedagogical value of this project is three-fold. Ikon's significance lies in its advance of theoretical frameworks, its expansion of innovative technical skills and as a source for design inspiration. It explores, discusses and critically evaluates the conceptual approach of new forms and spatial production techniques. Simultaneously, it uses advanced technologies to experiment with design and model construction. While its aesthetic value is a source of inspiration, its physical implementation challenges the very nature of what architecture could be.



Ikon Tower (1997)

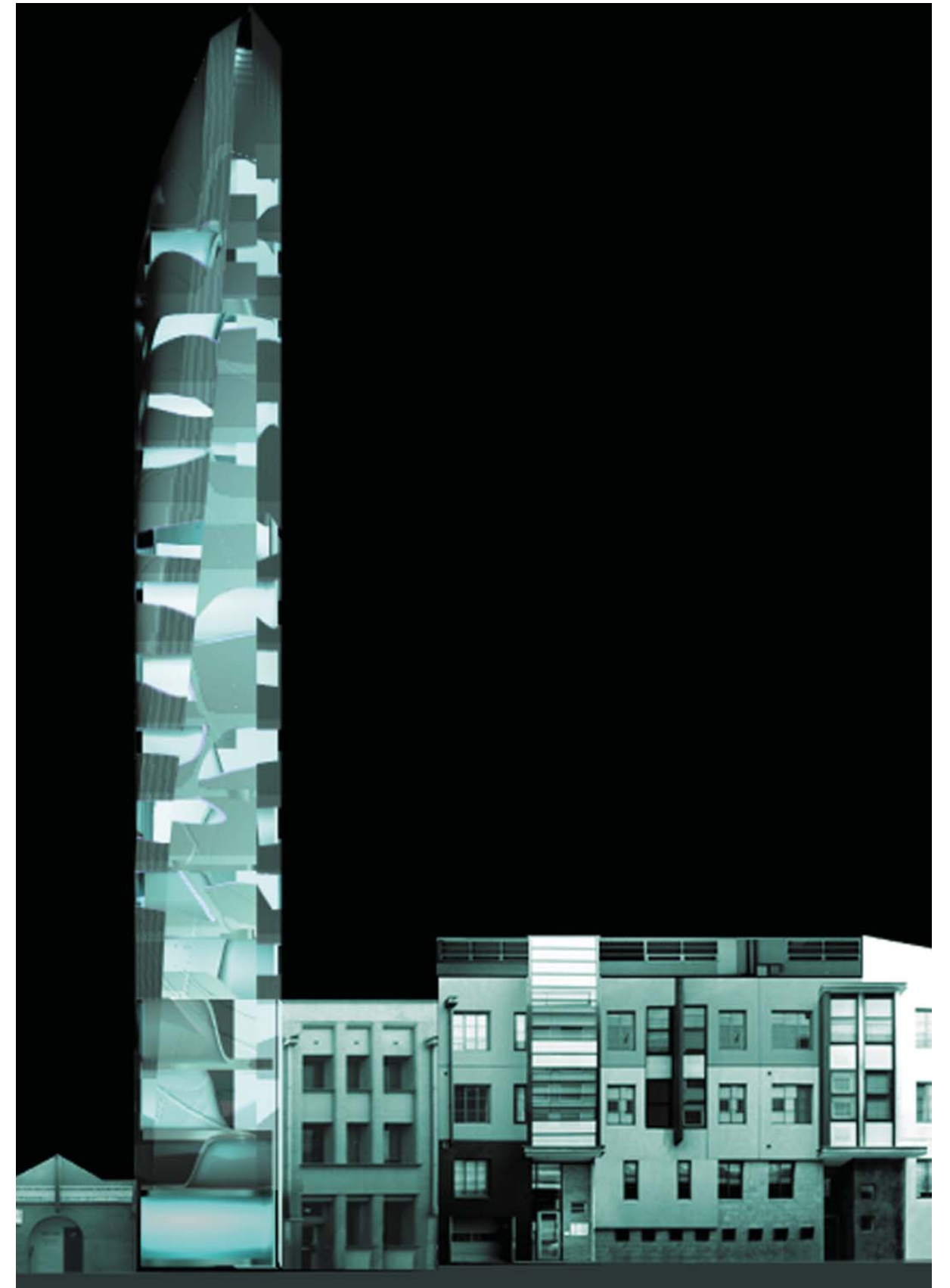
3.501 (Above) // Ikon tower complex showing the position of the building and its relation to its context.

3.502 (Below) // Dynamic analysis showing development from its structure and internal spaces to the overall skin of the building.



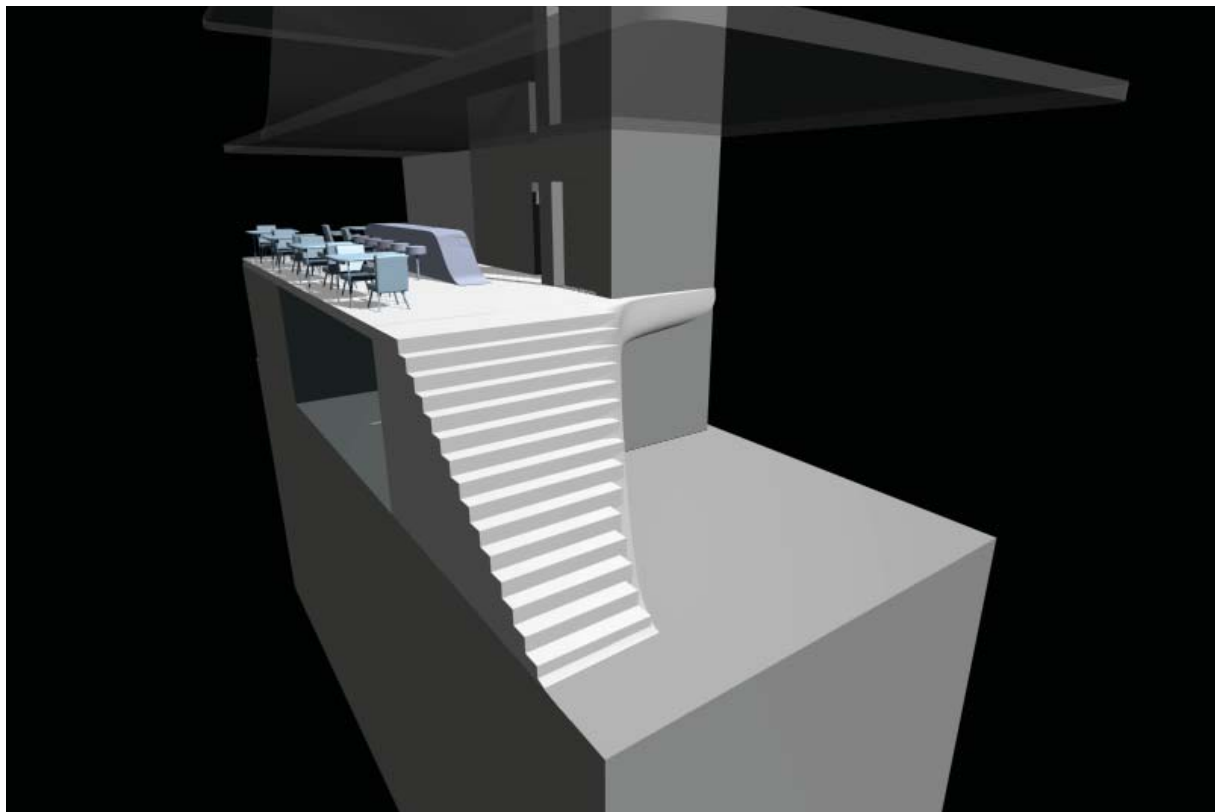
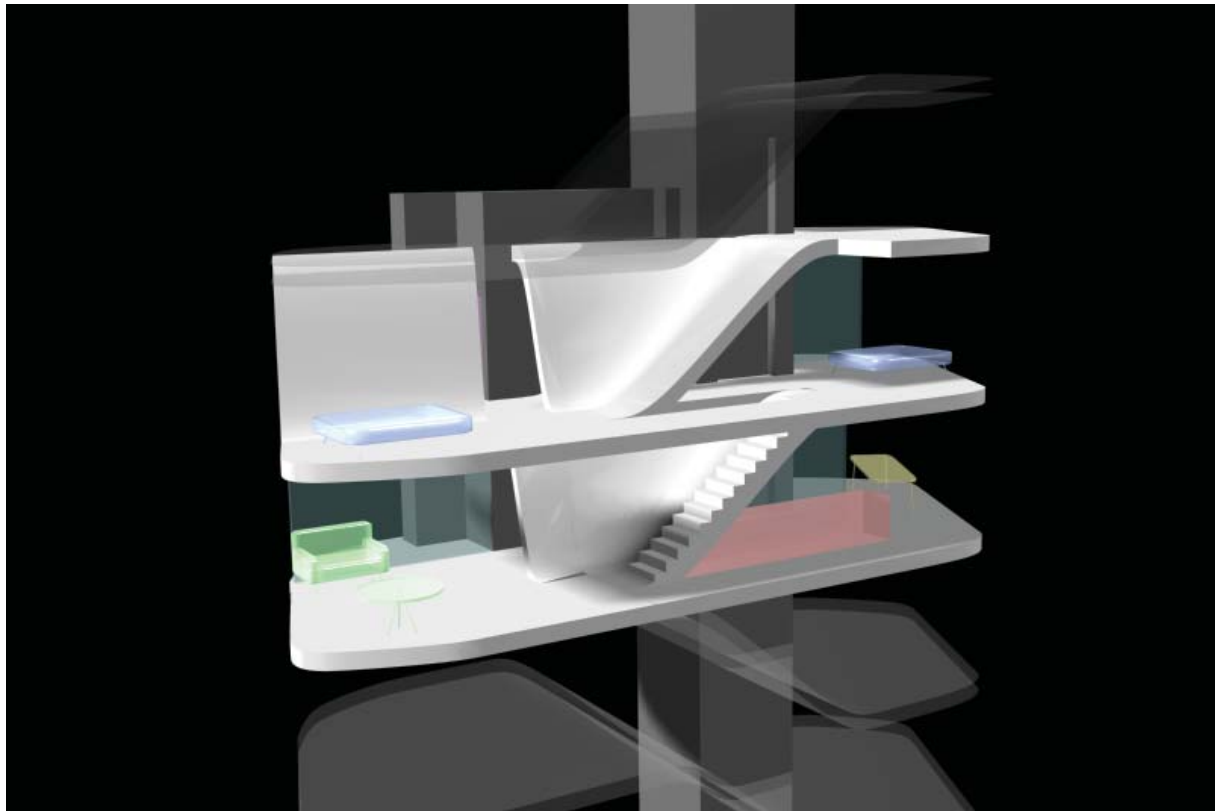
Ikon Tower (1997)

3.503 // Exterior image depicting variance in spatial and structural cells.



Ikon Tower (1997)

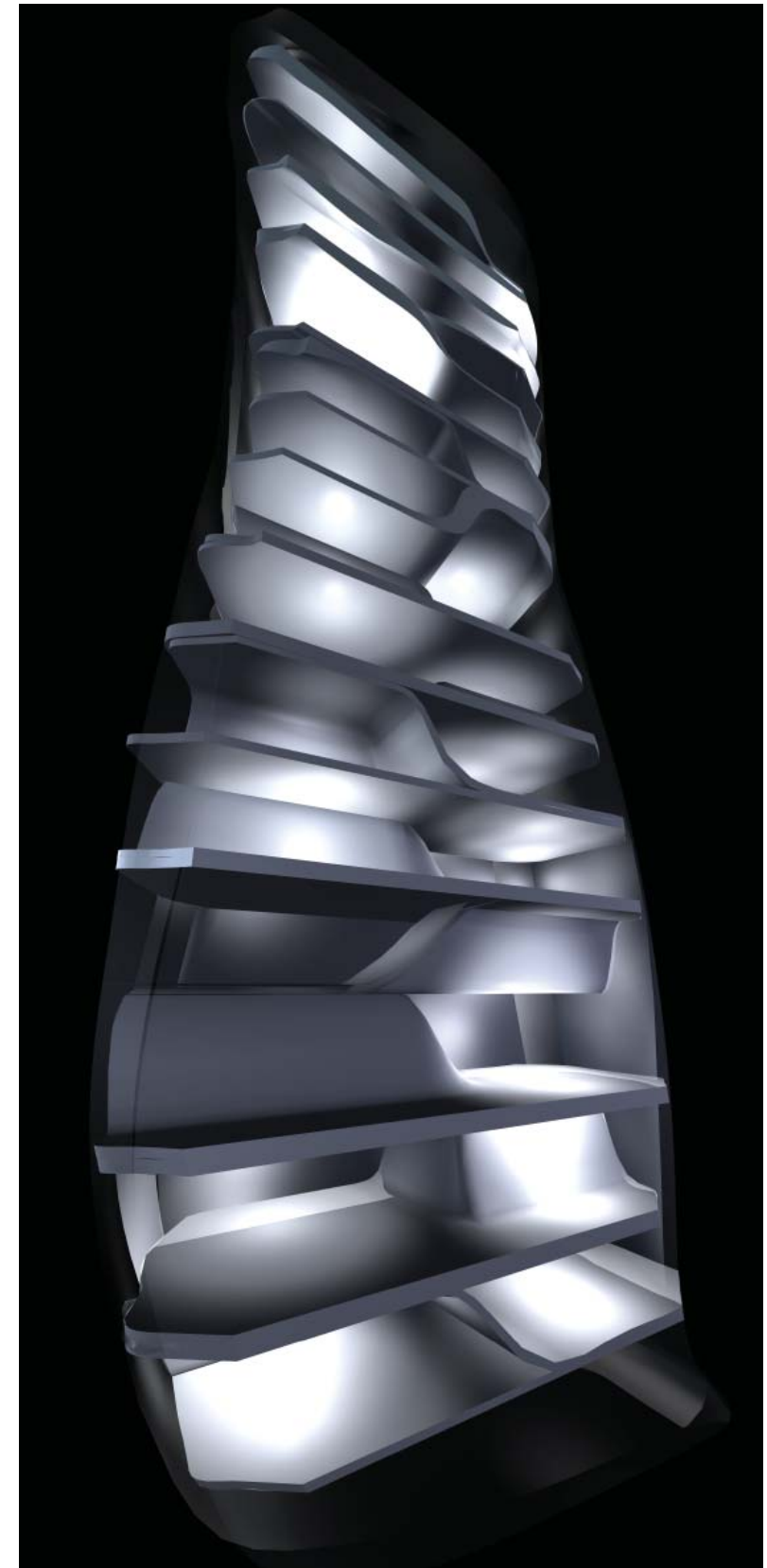
3.504 // Elevation scale study of proposed form in relation to surrounding built environment.



Ikon Tower (1997)

3.505 (Above) // Internal study of cell composition and internal spatial study.

3.506 (Below) // Study of the building's stair connection between floor areas.



Ikon Tower (1997)

3.507 // Interior study of spatial diversity and volumes.

Case Study //
RMIT Digital Design
Gallery

Chapter 04

Fast Forward
Practice Now

Projects

The post analogue practice evolved as an inevitable response to global tendencies towards digital practice. The adaptation of tools gained momentum as an organic growth engendering a practice that was more agile and responsive to projects of varying scales; creating ways of solving problems with more precise solutions. The needs of the architectural practice were also shifting its ambitions towards larger scale works that necessitated another level of sophistication. The digital transfer of critical thinking about methods of practice forged original types of architectural skill and new critical awareness and knowledge of my practice.

Innovative methods incorporating constantly emerging tools also necessitated the adoption of new theoretical developments. The investment of time and funding of licensed workstations and training to use the software presented a democratic perception of practice with conceptual ideas shared by teams rather than myself as the individual author.

This has removed a degree of the accidental of the analogue, introducing another level of precise sophistication. This direction has been further embraced in teaching digital design in architectural education as an extension of my design research practice. The practice's adaptation to an understanding that the [computer] mouse is a prosthetic extension of the hand demanded a re-examination of the haptic precision and connection of previous processes of analogue production. It re-scaled our ability to analyse, adopt and navigate beyond previous constraints, establishing a complexity of practice that re-examines the nature and definition of design and its associated problems. The digital domain presented new efficiencies and openings of possibilities in thinking about design: asking fresh questions about creative processes, potentialities, representation and the limits of spatial production.

Computational tools did not entirely remove the necessity of the sketch and authored schematic responses to practice. Applying new customised software tools enabled more precise, efficient decisions and a rethinking of our practice's possibilities. The project directions have been extended into testing scaleless spatial possibilities of the computer screen enabling shifts from 'sketch' to multidimensional observations of shapes and forms ranging from small objects to architecture and the virtual domains.

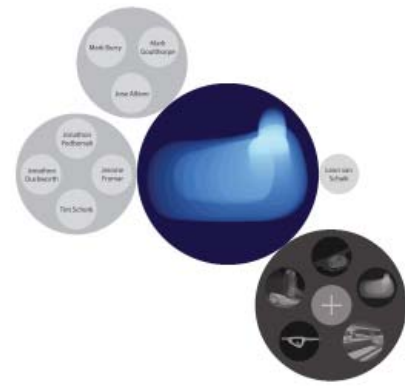
The possibility of a new understanding of generated geometries surpassed the inability of the analogue constraints of Gutenberg's galaxy into the space of endless generative possibilities. This thinking was first adapted in the IKON tower, where a logic of assembly and nested patterns was adopted as a large system similar to that

of the Digital Design Gallery RMIT (2002). The projects assumed a method and logic of geometrical correlation that evolved a progressive growth of forms, adapting to the required spatial scale shifts and geometric patterns that then responded to the performative capabilities of materials and economies of construction techniques.

Similar methods were also tested in the systems for designs at an industrial scale in objects created for the Italian manufacturer Alessi, which simultaneously began life as architecture: objects and virtual form responding to data inputs to symmetries with asymmetric outputs mapping duration and time. The resulting work included: Pavilions, Tea & Coffee Towers, Serpentine, Tarrawarra and Superstar. The scalable geometries enabled the practice to understand the possibilities of creating a component from the symmetries with values of growth through digital inputs, and testing these with the Alessi factory against material properties and its associated scales. The geometries of material capabilities created a feedback loop for testing values against forms, while the behaviour of the parent geometries was tweaked and subjected to shifts within an acceptable and stable environment constrained by the manufacturer's laser, milling, 3D printing and cold press technologies.

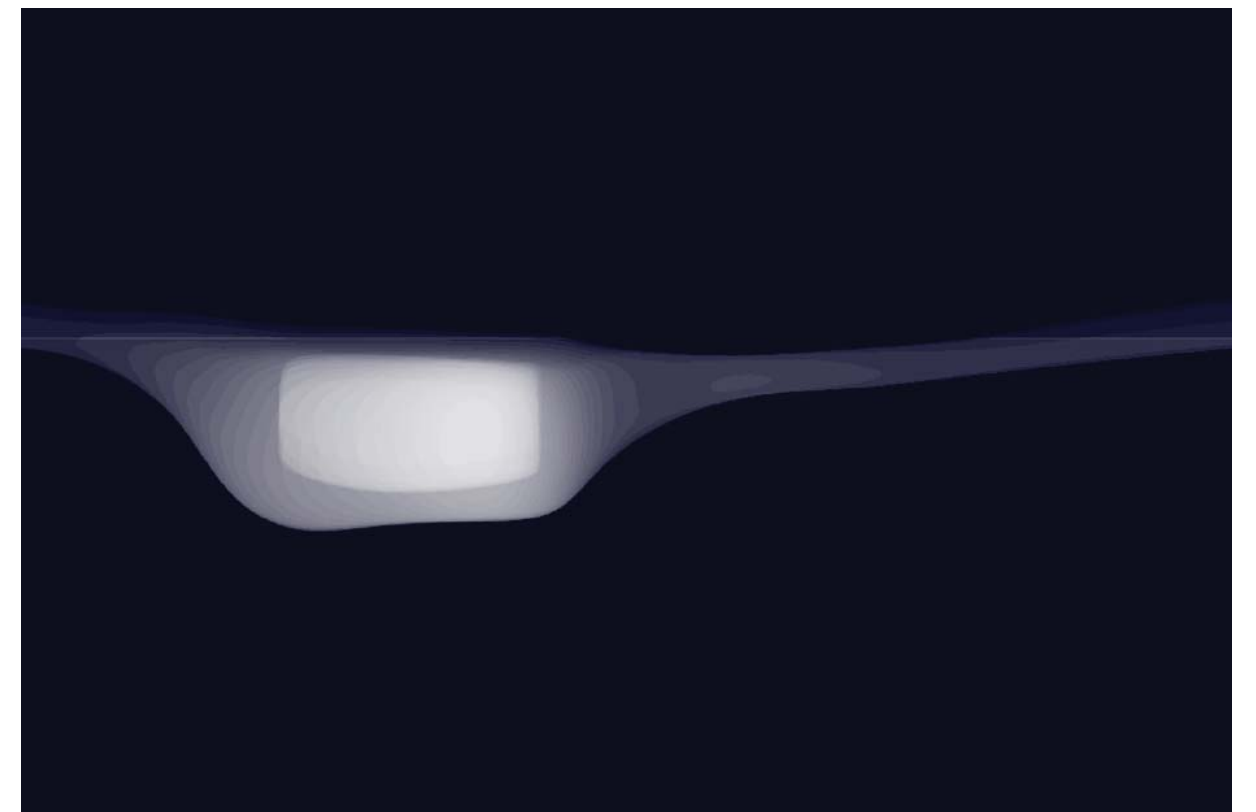
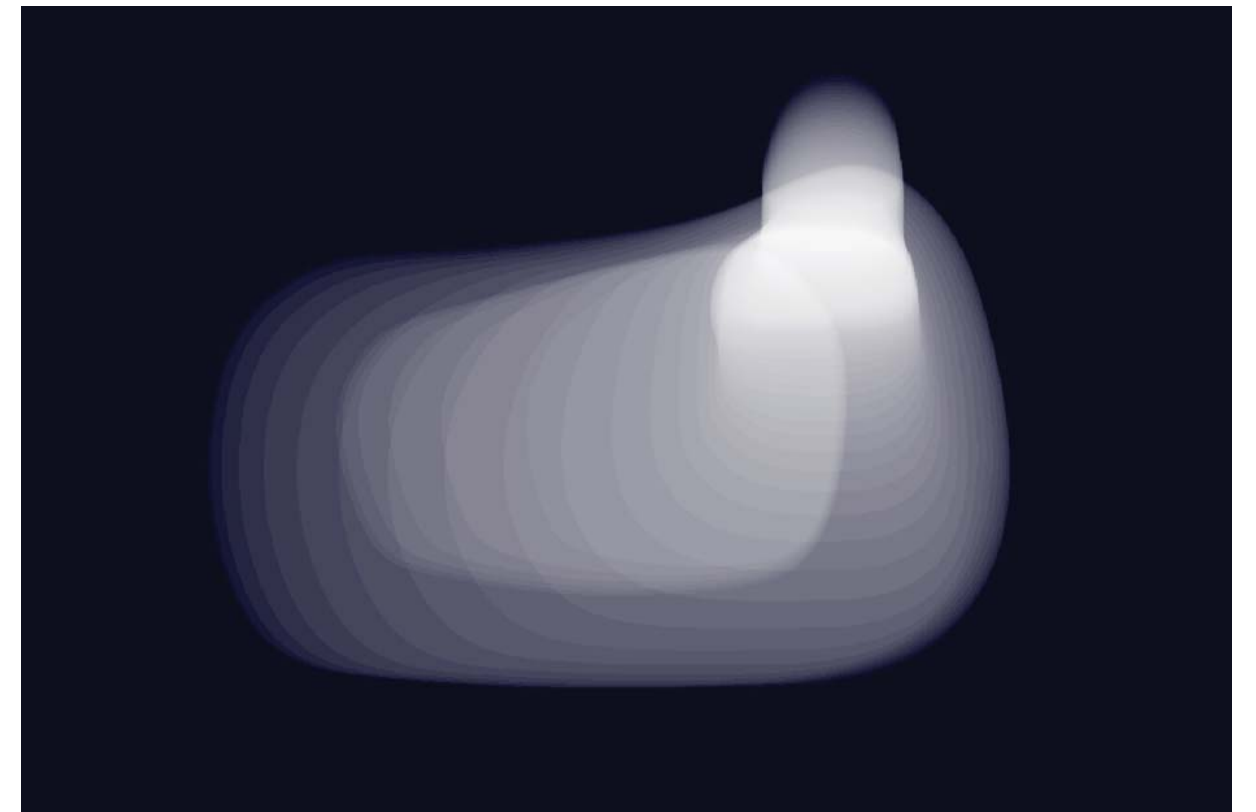
The logic and complexity of geometries and shapes were thought about as forms with abilities to transform across scales. Michael Leyton's diagrams of *minima* and *maxima* were inspiring as possible research about form generation and the transfer of memory and 'memory-less' from symmetrical systems to non-symmetrical systems of design.¹ Leyton's theory describes a Torus,² or symmetrical form as without memory, and only by data inputs does the form attain memory that can always be recalled back to its original shape.

The new knowledge attained and derived from testing these methodologies allowed for an adaptation of new definitions, and an understanding of performative processes that informed the practice and led to future practice directions that may prove valuable directions for tomorrow.



RMIT Digital Design Gallery

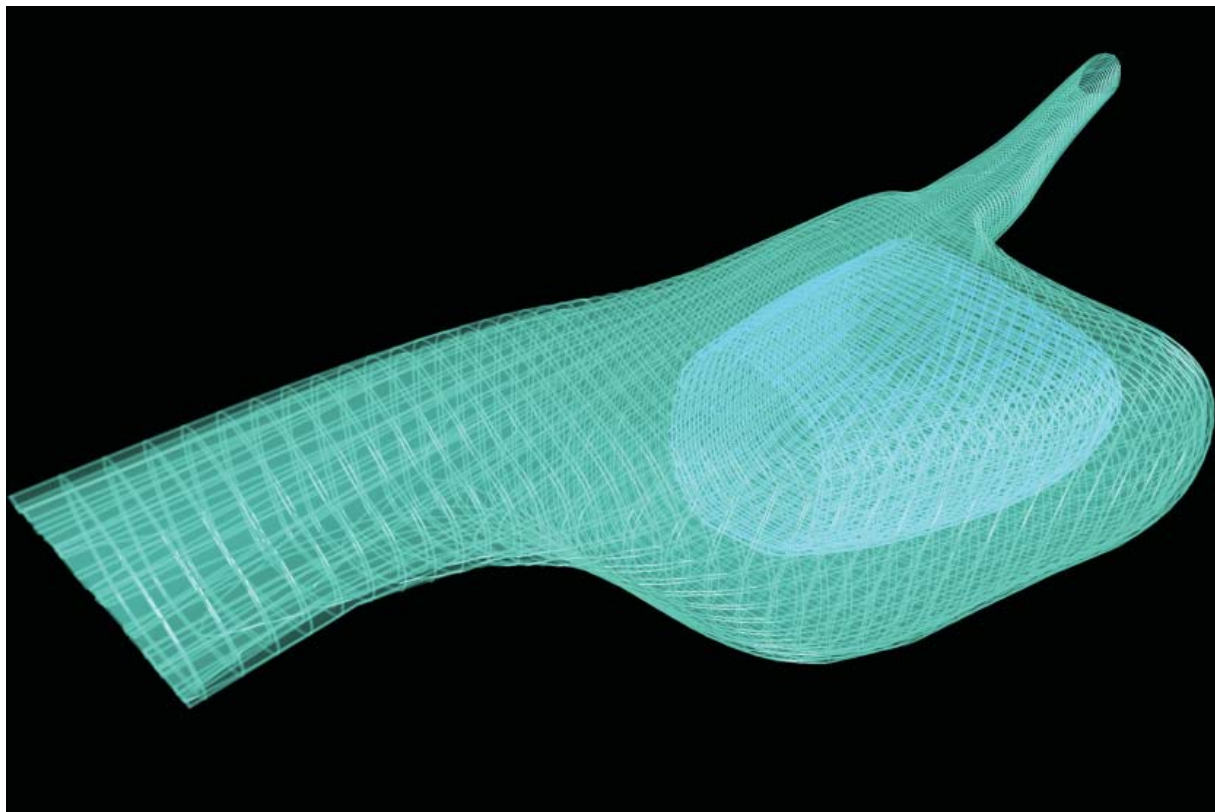
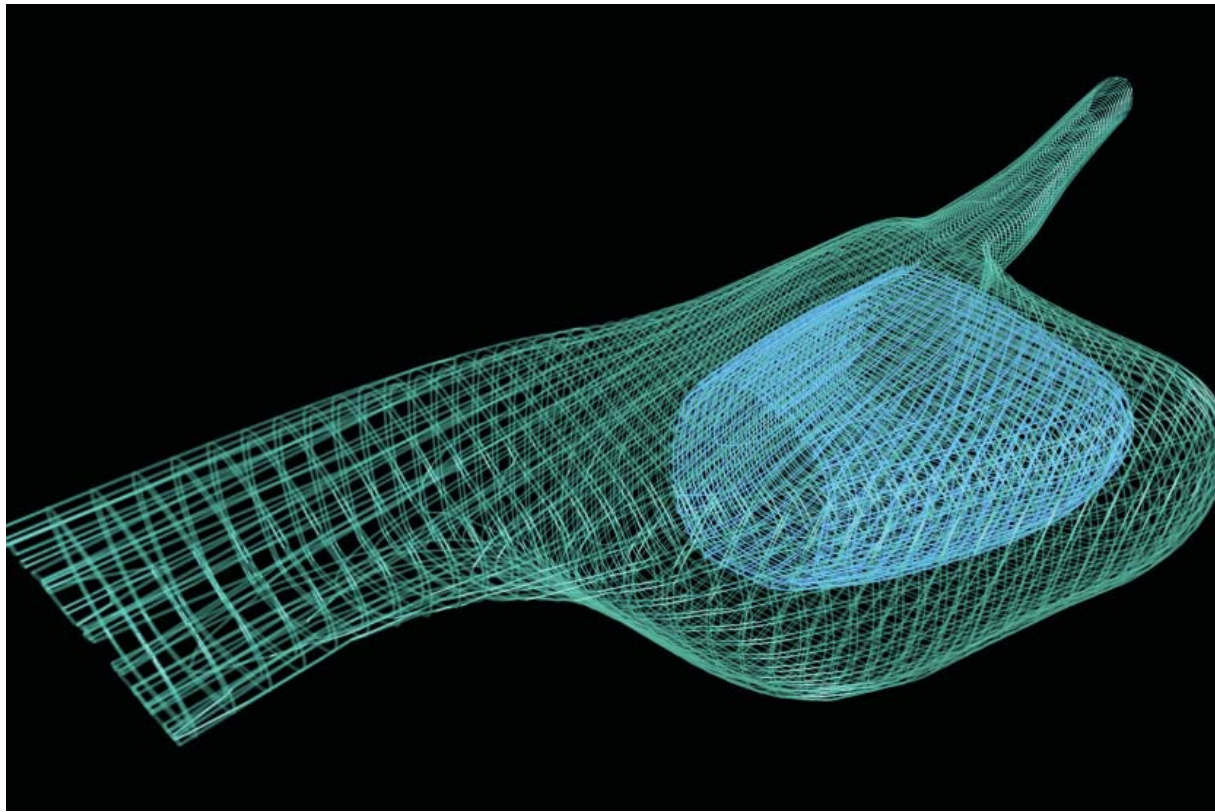
The Digital Design Gallery project was commissioned by RMIT University for the Centre of Excellence in Digital Design, a collaboration between RMIT and the State Government of Victoria. The exhibit comprises both the digital modellings and physical model of the project, developed within the Interactive Information Institute (I-cubed) at RMIT University. The Digital Design Gallery design was formed through complicated algorithms of parametric design, which form a substratum of supports to digital investigation. Above this supportive base flies a flamboyant ribbon in the shape of the infinity symbol. The sub-terrain structure was designed as a Centre of Excellence that would showcase contemporary architecture and design achieved through cutting-edge digital technology. The ribbon represents the conceptual flow of the gallery as a process-driven design. The Digital Design Gallery project was exhibited at three international biennales and two critically acclaimed architecture exhibitions. At the 8th Venice International Architecture Biennale it was included in the Education section of NEXT;³ at the 1st Beijing International Architecture Biennale, the design was shown as part of the *Fast Forward: Exhibition of International Avant-Garde Architects and Students Work*;⁴ and at the lab.3000 Digital Design Biennale at the Melbourne Museum,⁵ the work was critical in illustrating the exhibition philosophy. The work was also presented in the *Architectures Non Standard* exhibition at the Centre Pompidou, Paris in 2003-04, curated by Frédéric Migayrou and Zeynep Mennan,⁶ and was included in Leon van Schaik's exhibition *Melbourne Masters Architecture* at the Tarrawarra Museum of Art in 2004-05.⁷



RMIT Digital Design Gallery (2002)

4.101 (Above) // Front section/elevation study ghosting through interior layers.

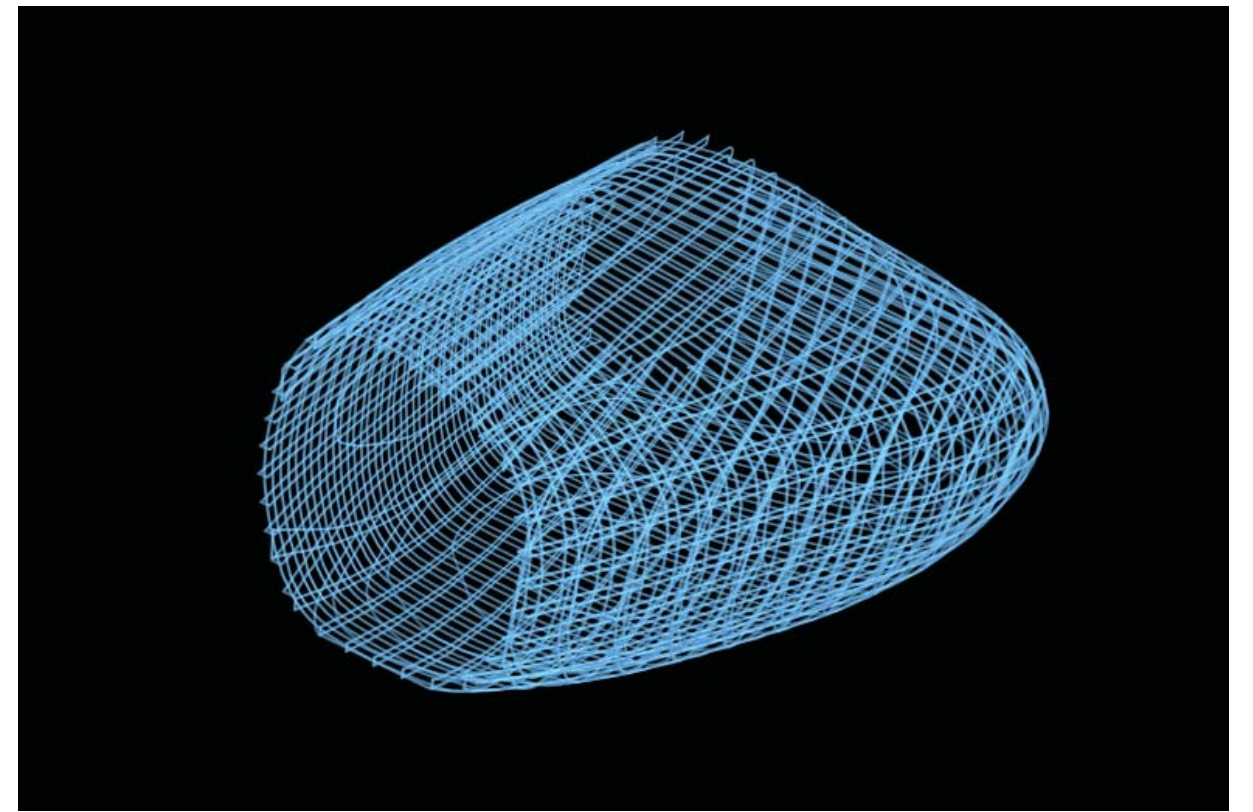
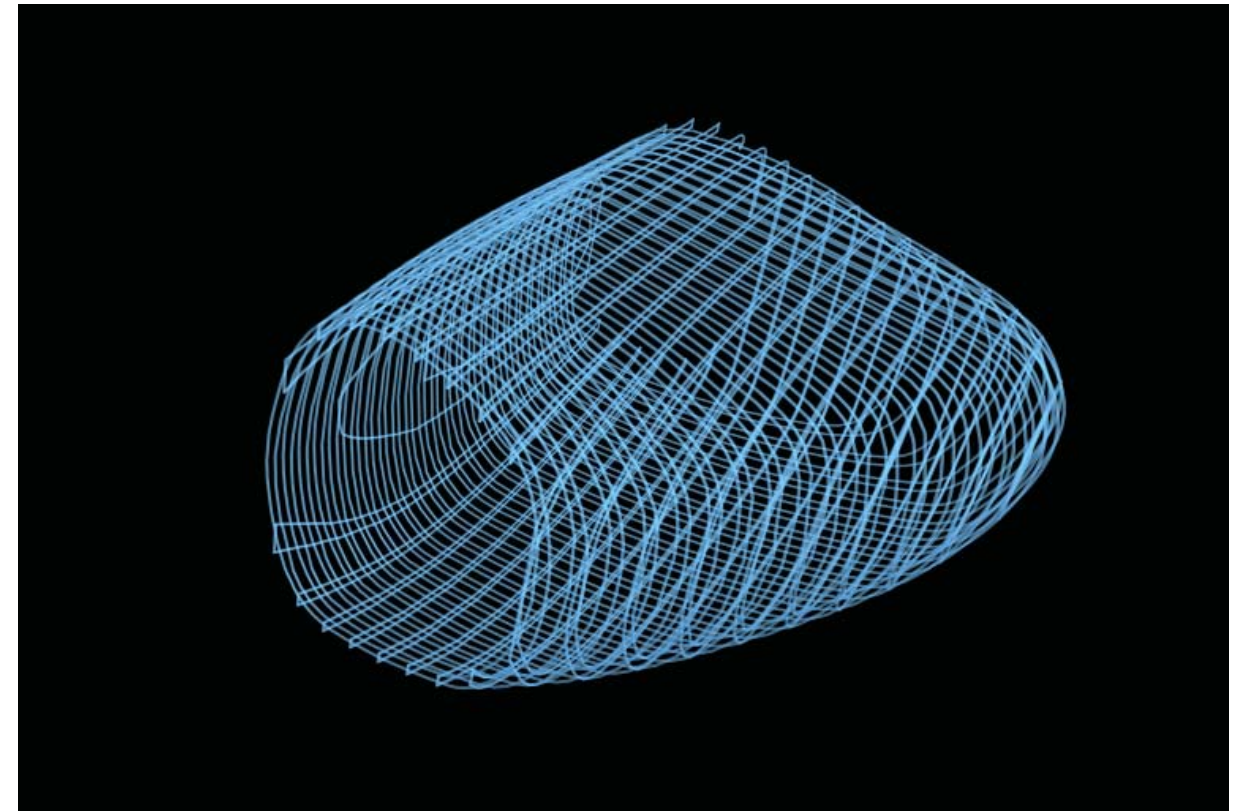
4.102 (Below) // Longitudinal section study of interior layers demonstrating the various scales of form.



RMIT Digital Design Gallery (2002)

4.103 (Above) // Overall digital model of the building depicting the scale changes of form.

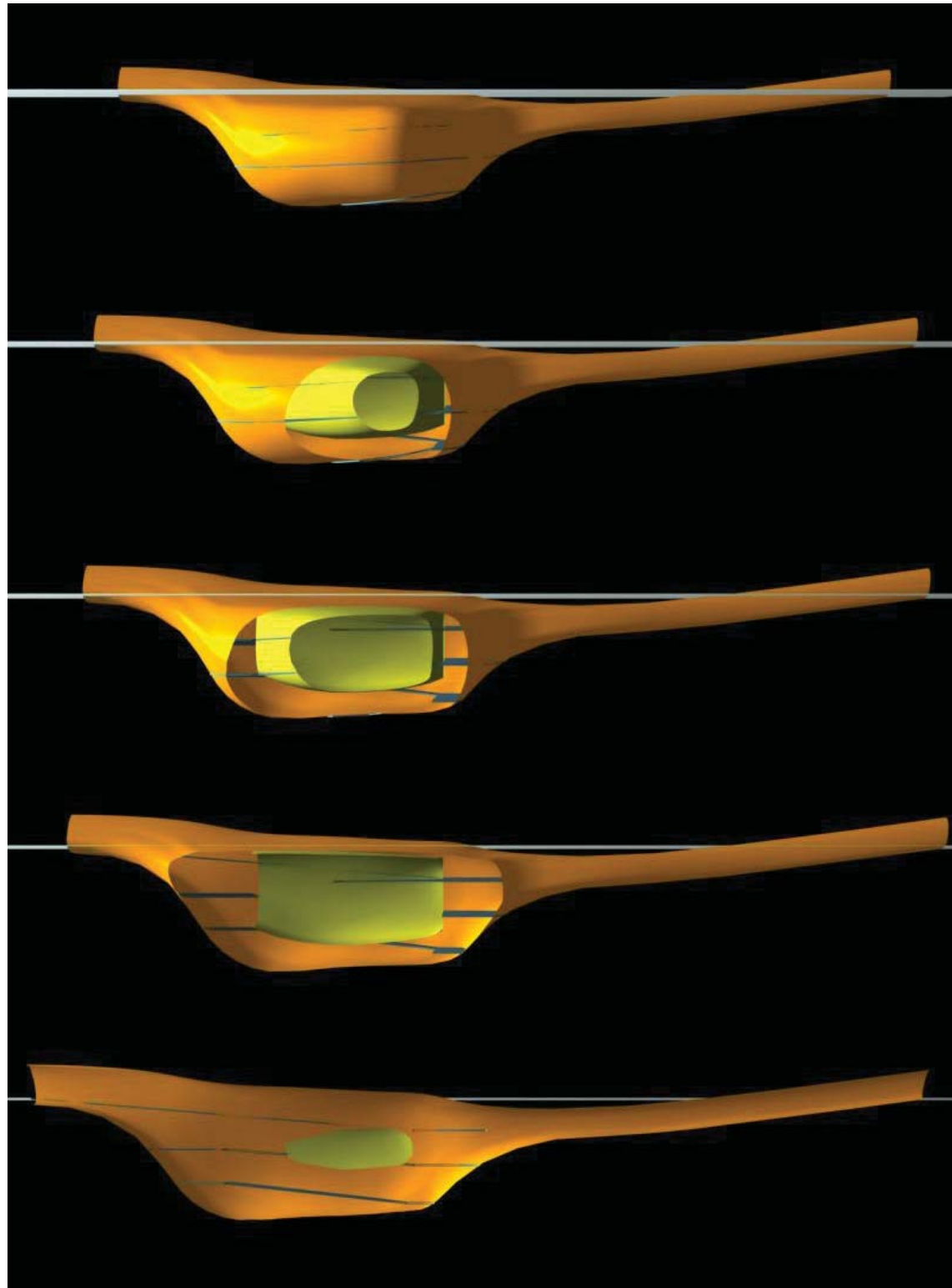
4.104 (Below) // Transformation study of internal volume in relation to external form outline.



RMIT Digital Design Gallery (2002)

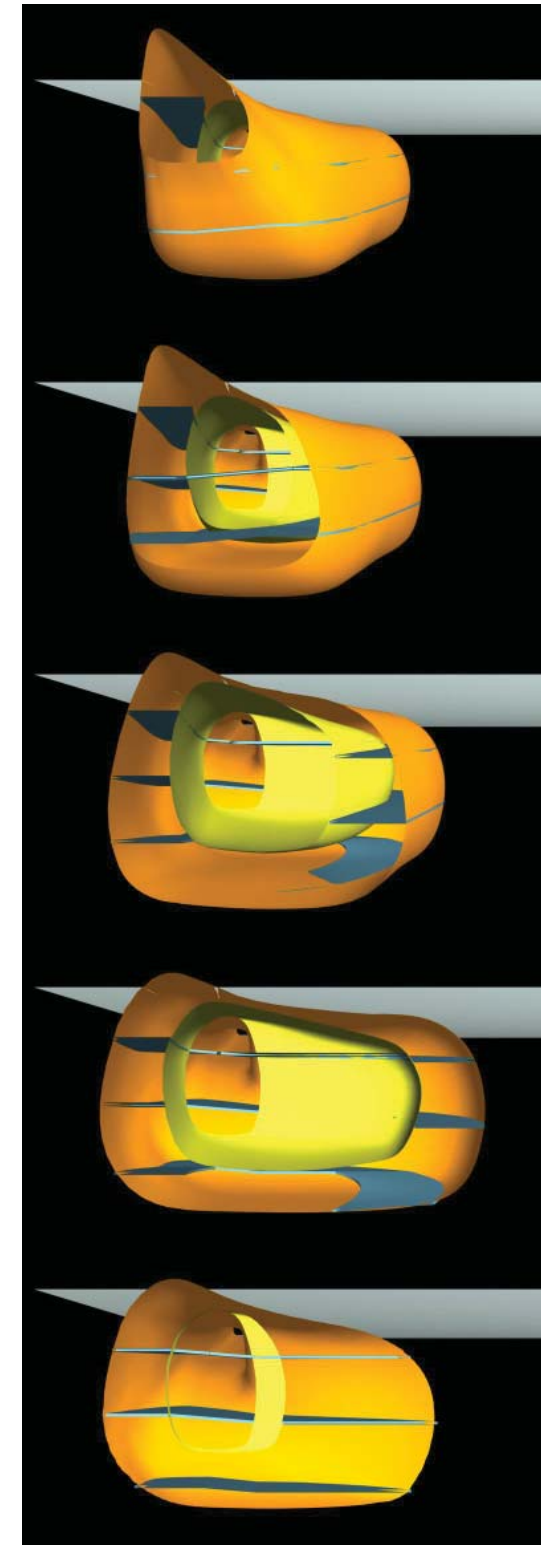
4.105 (Above) // Study of internal volume complexity demonstrating dynamic shifts in form.

4.106 (Below) // Development study of the internal gallery spaces.



RMIT Digital Design Gallery (2002)

4.107 // Different stages of section cut lines, demonstrating the internal spatial development.



RMIT Digital Design Gallery (2002)

4.108 // Front/short section cut lines, demonstrating the internal spatial progression.

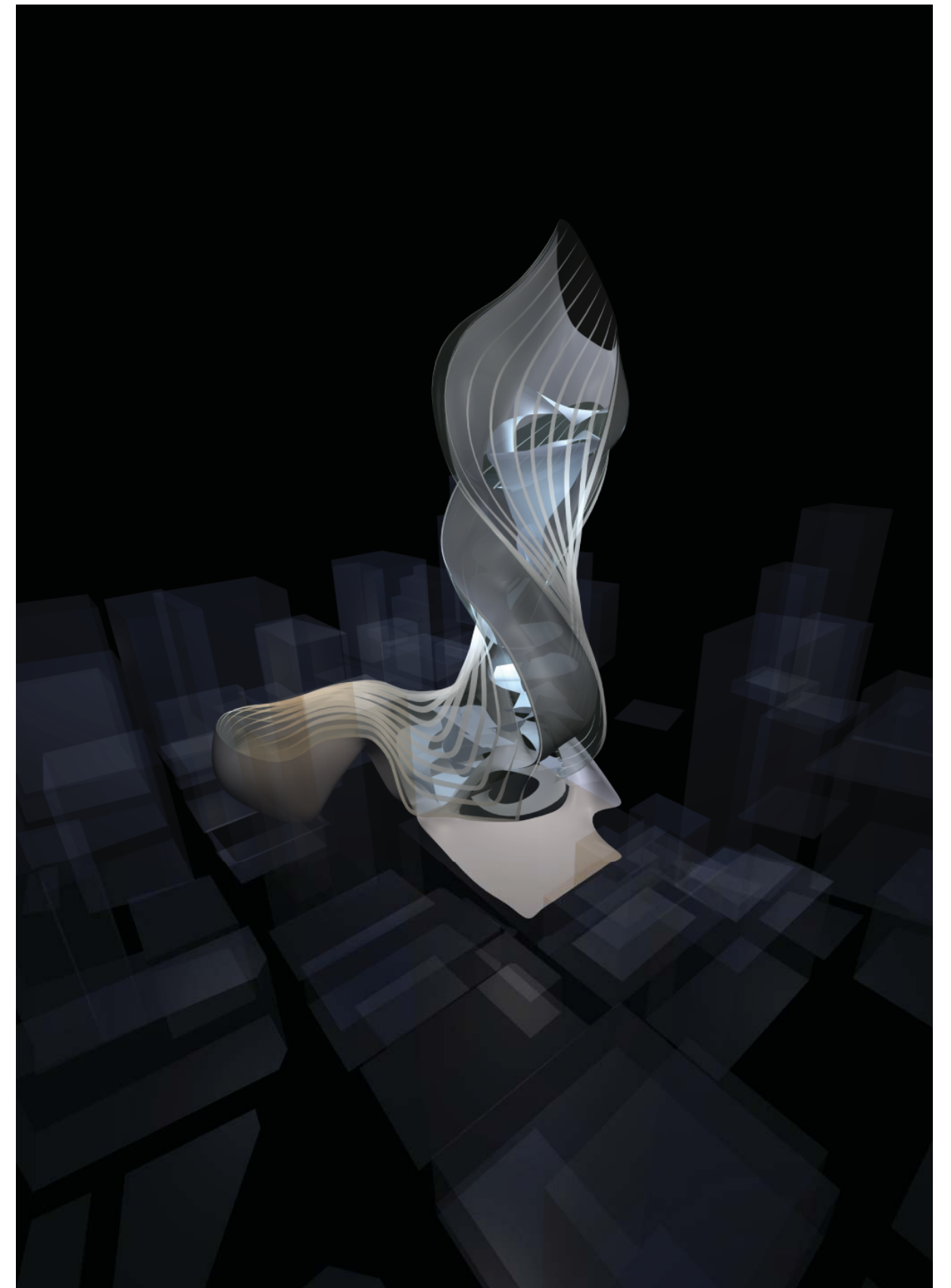


World Trade Centre

Exhibited at the Centre Pompidou, Paris in the *Architectures Non Standard* exhibition 2003-04,⁸ this project was initially developed for an invited architectural exhibition for alternative designs of a new World Trade Centre in New York.

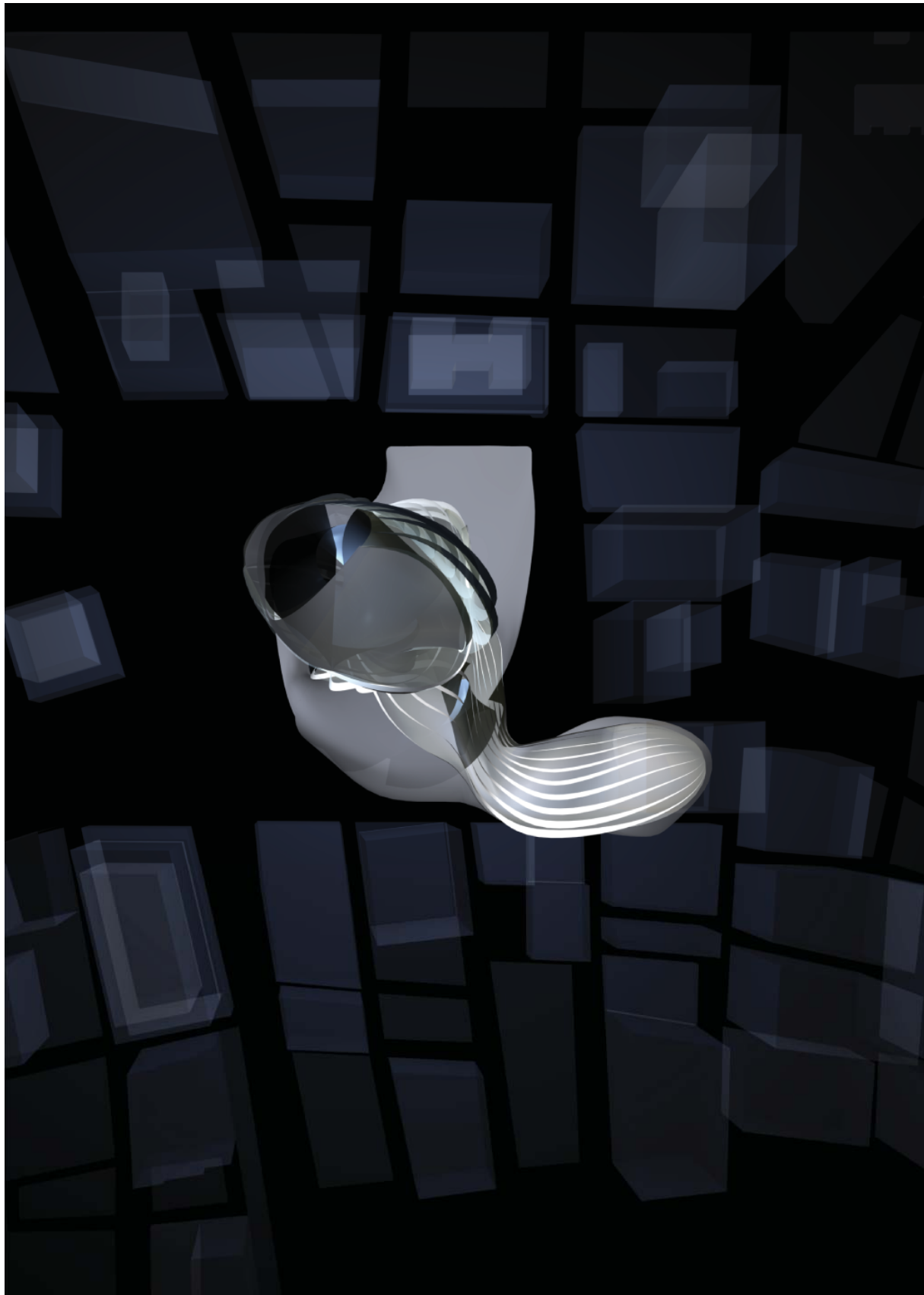
The new World Trade Centre design used an advanced software technique known as an 'efficiency web' to map complex topological relationships between organisations and humans in the previous World Trade Centre. The results illustrated dynamic spiraling, inclining spaces. This contrasts with a conventional geometrical understanding of space and the consequent design is imagined as a unique surface that could alter continuously in shape and size, providing endless architectural variation. Therefore, the memorial to loss is not monolithic but permeated with public space and programmes.

The New World Trade Centre design was published in the book accompanying the touring American Institute of Architects (AIA) and Max Protetch exhibition.⁹ It was exhibited in *Architectures Non Standard* at the Centre Pompidou in 2003, curated by Frédéric Migayrou and Zeynep Mennan.¹⁰ Following the exhibition, the design entered the Centre Pompidou permanent collection and is also represented in the permanent collection holdings of the American National Library of Congress.¹¹ The design was featured in publications including: *Imagining Ground Zero* (2004) edited by Suzanne Stephens, Ian Luna and Ron Broadhurst;¹² *10x10_2* (2008) published by Phaidon Press and edited by Miquel Adria, Julia Hasting, Alberto Campo Baeza and Kurt W. Forster;¹³ and *Mastering Architecture: Becoming a Creative Innovator* (2005) by Leon Van Schaik.¹⁴ International media coverage of the design includes: CBS television network in the USA;¹⁵ *Der Spiegel*, Germany¹⁶ and leading Australian newspapers.^{17,18} The design was exhibited at two international architecture biennales: Venice (2002)¹⁹ and Beijing (2004).²⁰



World Trade Centre (2002)

4.201 // Image of the WTC complex and location within urban context.



World Trade Centre (2002)

4.202 // Bird's eye view of the WTC formal study proposal within the urban context.



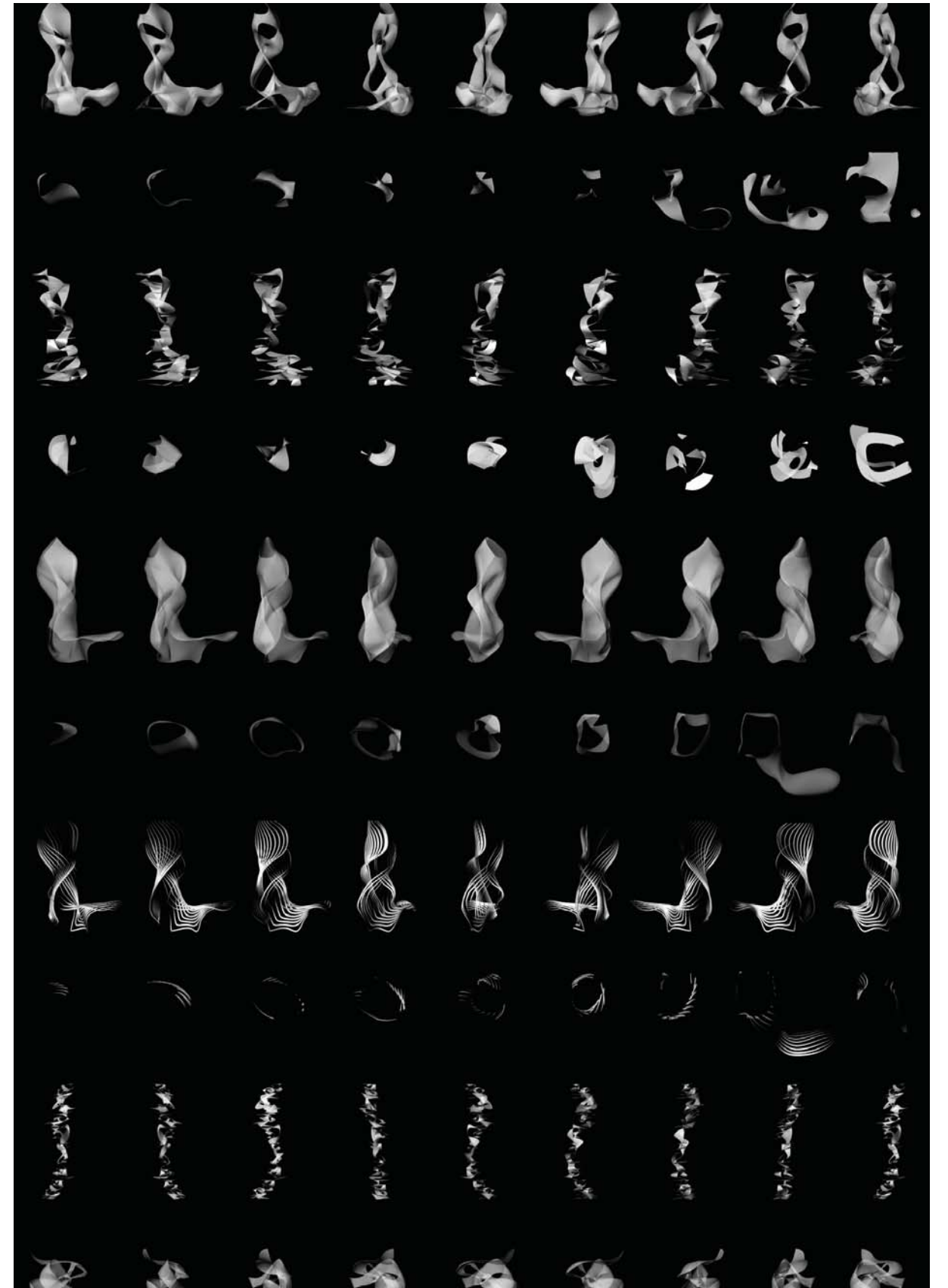
World Trade Centre (2002)

4.203 // Front elevation study, displaying the curvilinear nature of the proposal.



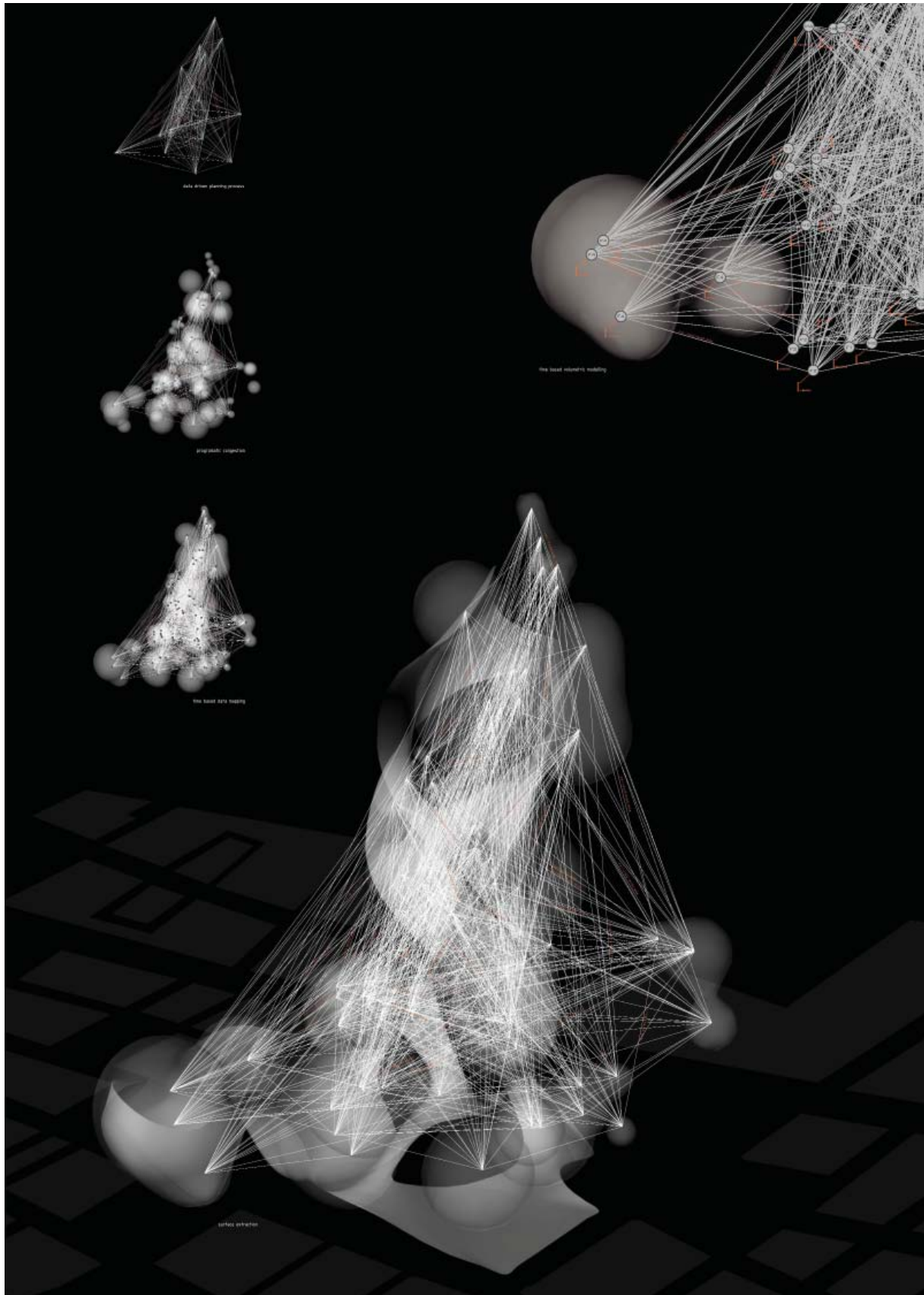
World Trade Centre (2002)

4.204 // View from the base with study of the overall shape and interior spaces of the proposed structure.



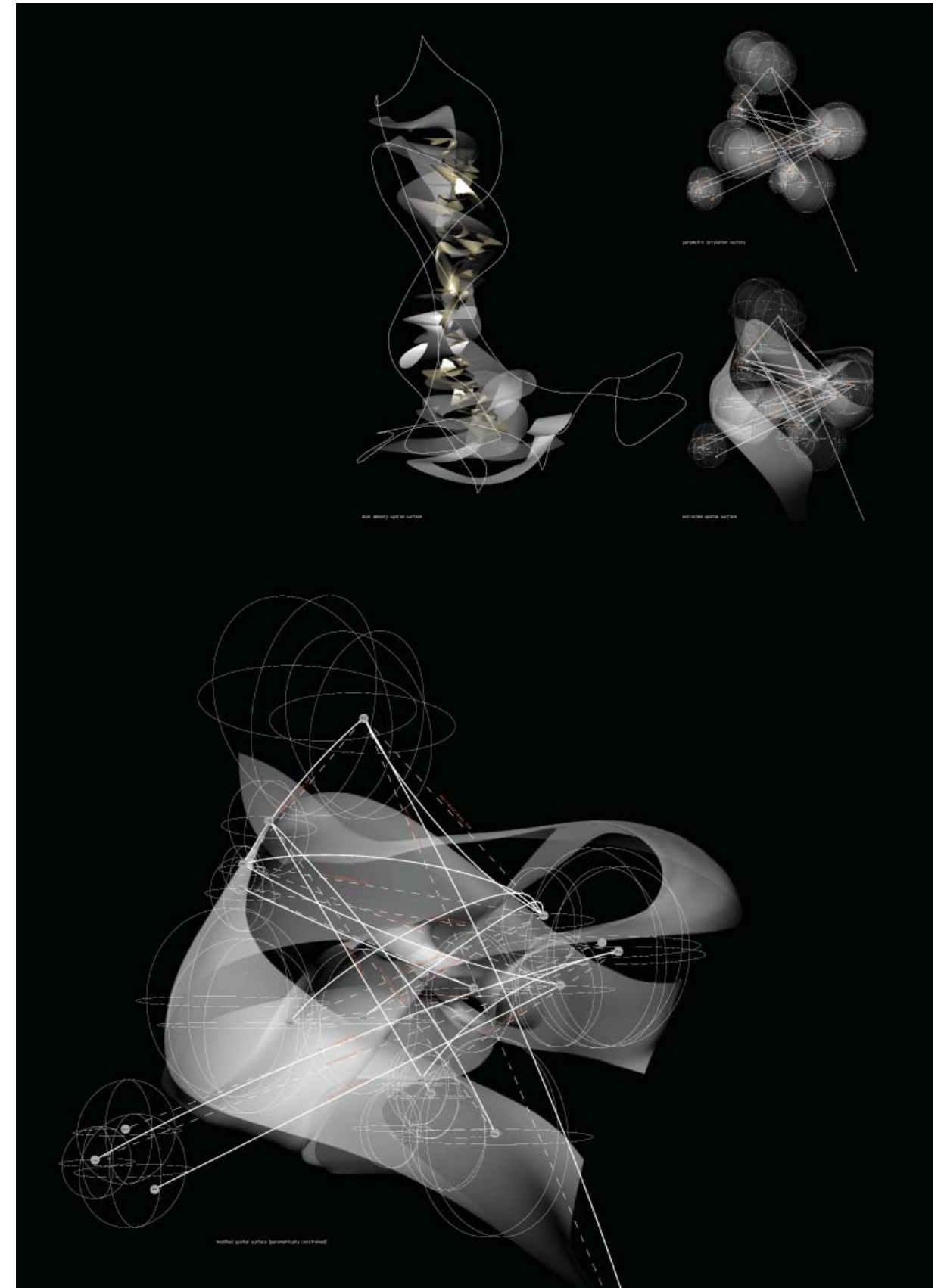
World Trade Centre (2002)

4.205 // A series of the skin studies with internal spaces and overall development of the project.



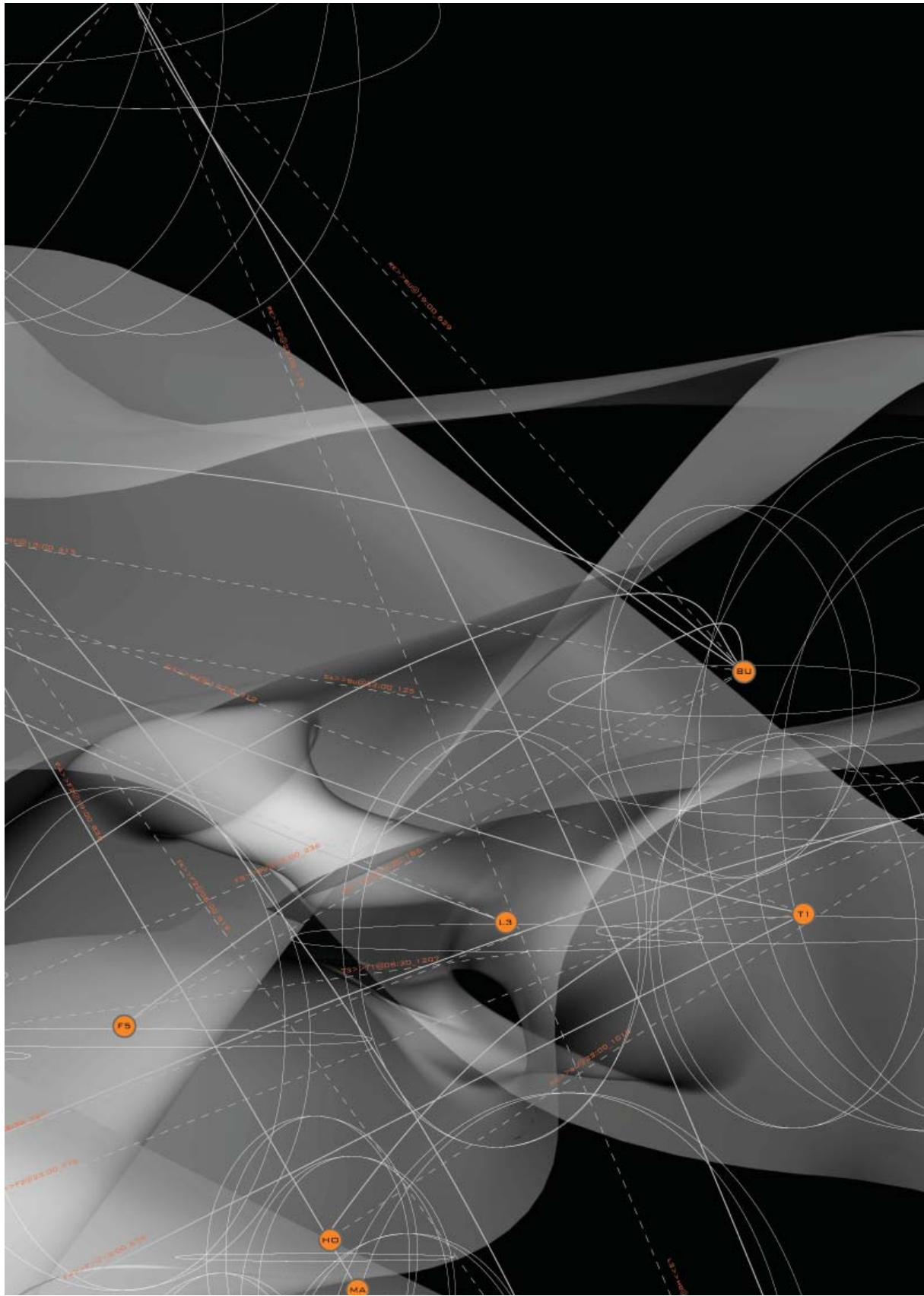
World Trade Centre (2002)

4.206 // A time duration analysis with related zones to study spatial relationships.



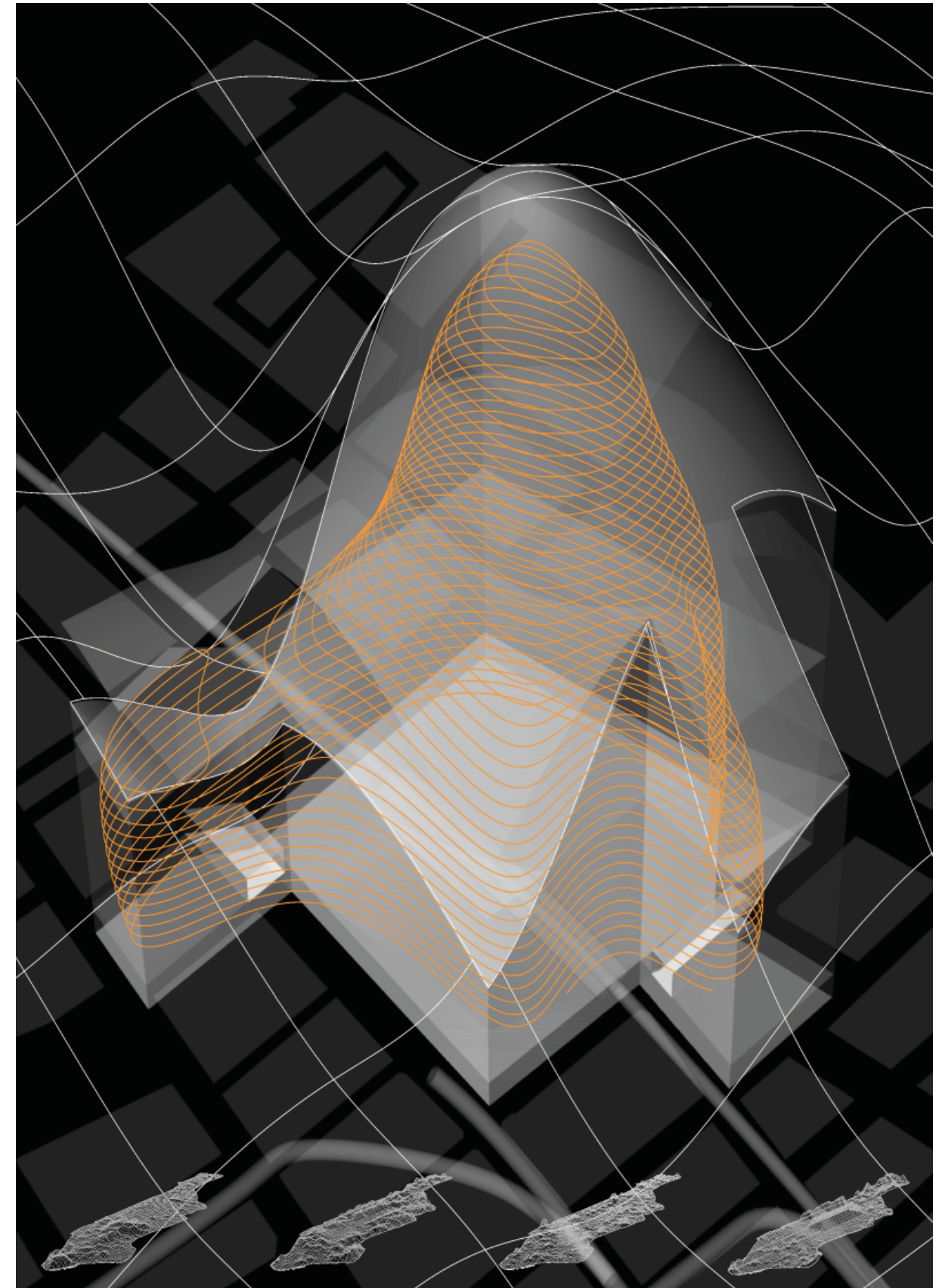
World Trade Centre (2002)

4.207 // Series of diagrams, displaying density study of spatiality and extracted spaces.



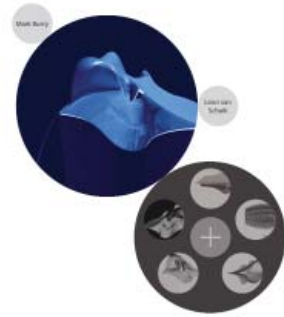
World Trade Centre (2002)

4.208 // Diagram of modified spatial surfaces.



World Trade Centre (2002)

4.209 // Diagram showing scale study.

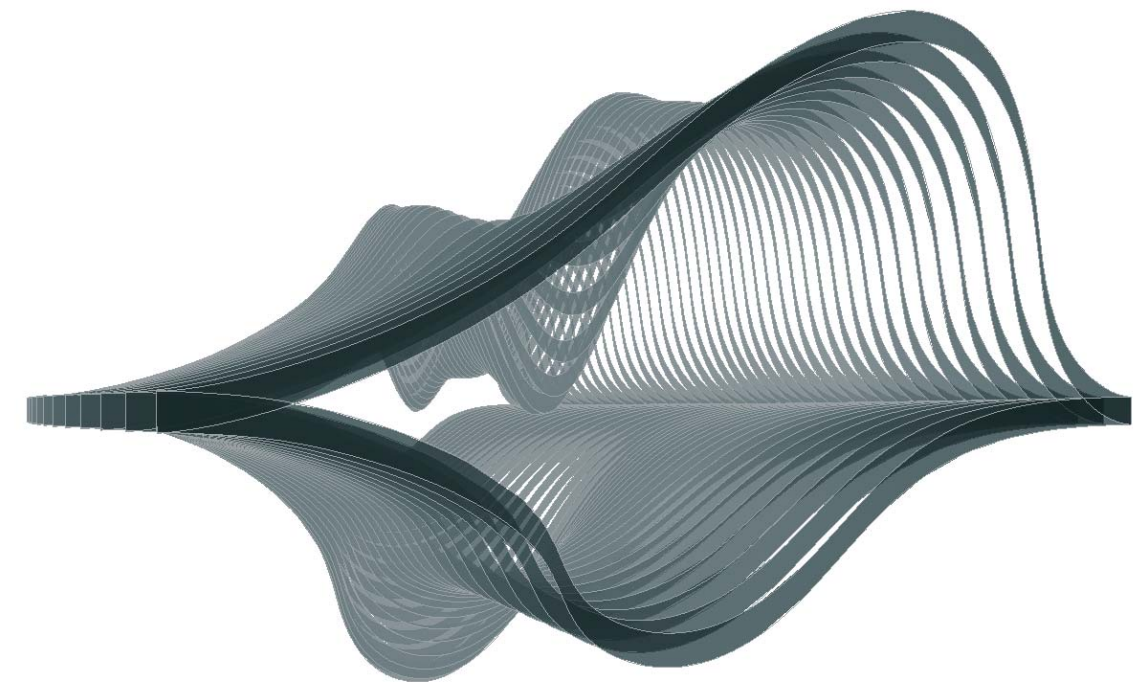


Amatruda Penthouse

The Amatruda residence is an addition to a penthouse apartment tower located on St Kilda Junction and Nepean Highway, St Kilda. The project was undertaken as a double height adjunct to an existing twelve storey tower penthouse that required the addition of two new floors incorporating an entertainment environment, exercise space, gymnasium and pool. The new structure also addressed the necessity of being supported by the existing external column tower structure, which articulated both structural and aesthetic requirements as set by the building's body corporate. The realisation of the two storey project aimed at creating a single large habitable environment by cutting away fifty percent of the existing roof surface and inserting a new, larger volume with layered floors of varying heights with the aim of appearing as one single volume externally. The surface sought to satisfy both pragmatic as well as artistic ambitions that comprised producing a skin and a varying structural lattice frame covered with a sensor-embedded glass membrane that reflect changes in colour and aesthetic appearance. The exterior penthouse surface sensors also respond to environmental factors that track vehicular traffic movement, noise, and weather conditions. The project offers an innovative, dynamic response to internal and external forces offering possibilities of future technological development, which may integrate structural materials and ephemeral change in architecture.

Amatruda was exhibited as part of the Italian exhibition at the 9th International Architecture Biennale in Venice 2004.²¹ The project was also published in Leon van Schaik's *Melbourne Masters Architecture* exhibition at TWMA (Tarrawarra Museum of Modern Art) in Healesville.²²

The Amatruda project was published in the catalogue accompanying the 9th Venice Architecture Biennale exhibition.²³ It was also published in *10x10_2: 100 Architects, 10 Critics* by Phaidon Press²⁴ and van Schaik's *Mastering Architecture: Becoming a Creative Innovator in Practice*.²⁵



Amatruda Penthouse (2004)

4.301 (Above) // Study and representation of external form structure.

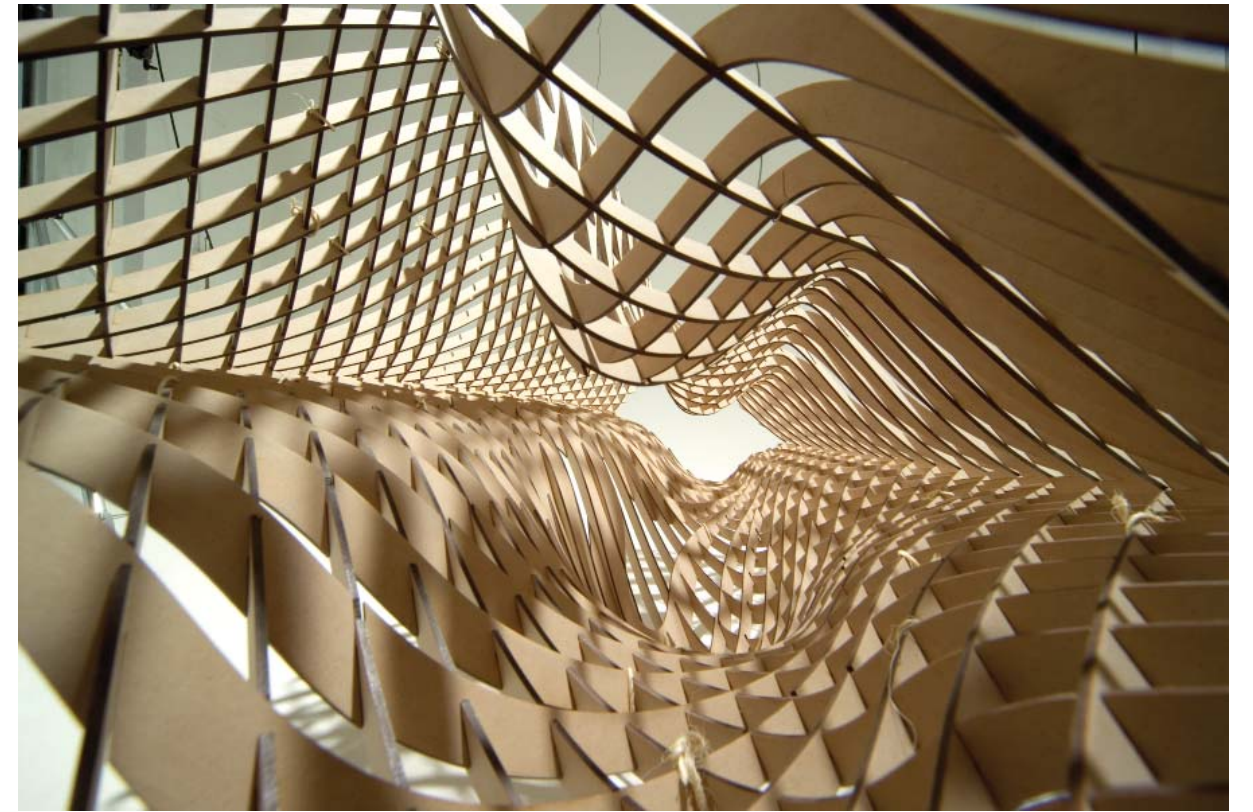
4.302 (Below) // Diagram illustrating the formal characteristics emphasising interior and exterior spaces.



Amatruda Penthouse (2004)

4.303 (Above) // Laser cut ribs assembled into physical model, exhibiting long elevation of the building.

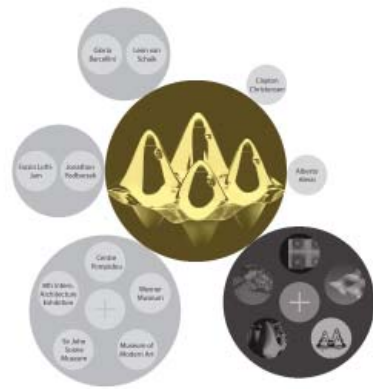
4.304 (Below) // Elevation analysis and study of spatial changes of form.



Amatruda Penthouse (2004)

4.305 (Above) // Interior study of variable surfaces.

4.306 (Below) // An interior narrative and transformation study of form.

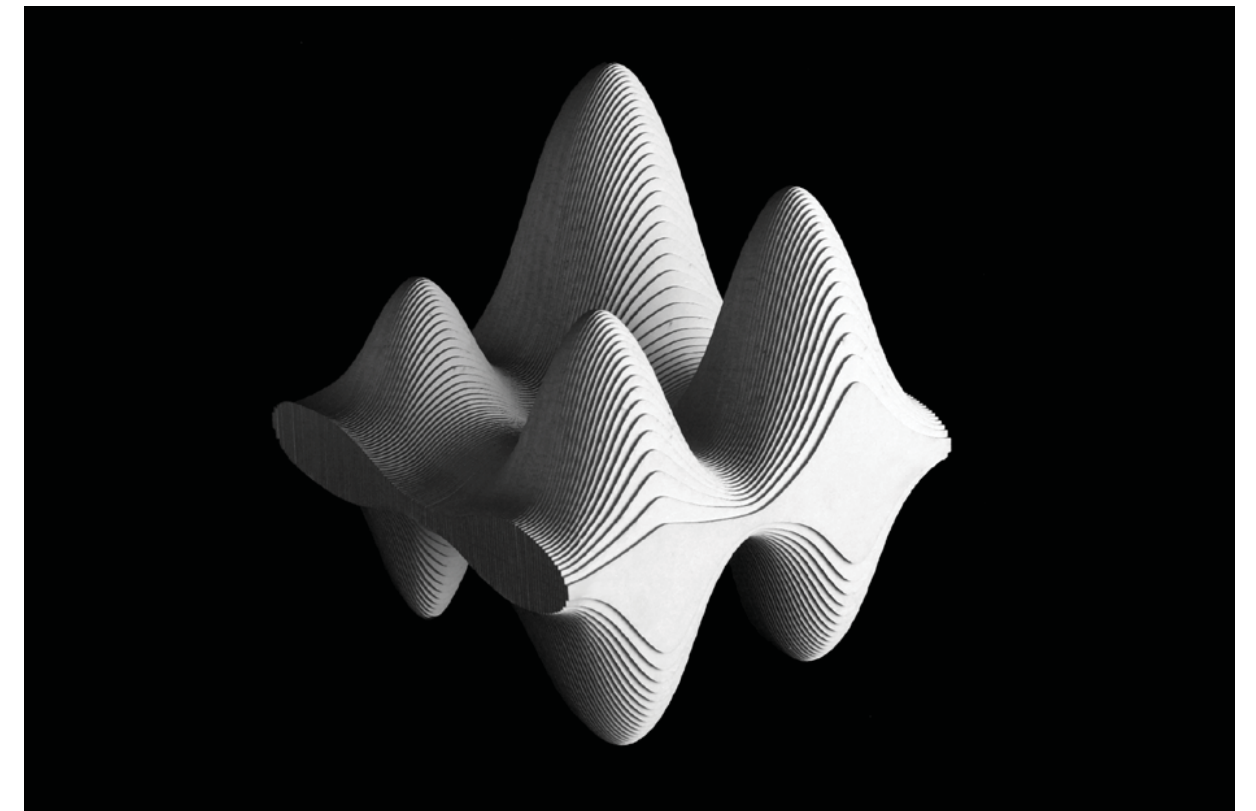


Alessi Tea & Coffee Towers

The Alessi Tea and Coffee Towers project was commissioned by Italian manufacturer Alessi S.p.A. as part of the 2002 venture curated by Alessandro Mendini inviting twenty-two international architects to contribute designs to the second iterations of the seminal Tea & Coffee Piazza project first conceived in 1984.²⁶ The Alessi Tea and Coffee Towers were exhibited at *Architectures Non Standard*, Centre Pompidou, Paris in 2003-04, curated by Frédéric Migayrou and Zeynep Mennan.²⁷ The project explored design possibilities for relationships between architecture and industrial design through experimental methods and forms, researching new design processes, in particular non-standard production techniques for generating and creating new spatial forms and systems for design. It attempted to establish procedures for the design, fabrication and production of scalable objects that could evolve as a family of forms that promoted new production possibilities maximising material and creative fabrication. The Alessi Tea and Coffee Towers offered the potential of generating new geometrical possibilities and innovative technological directions outside the linear traditional practices that encouraged experimentation and design praxis. The Alessi Tea and Coffee Towers were conceived as nested elements that make up a series of scalable connections. The geometry of the scripted tea and coffee set also evolved the possibility of furthering the technique into potentials to develop new families of Alessi forms and design methods for production.

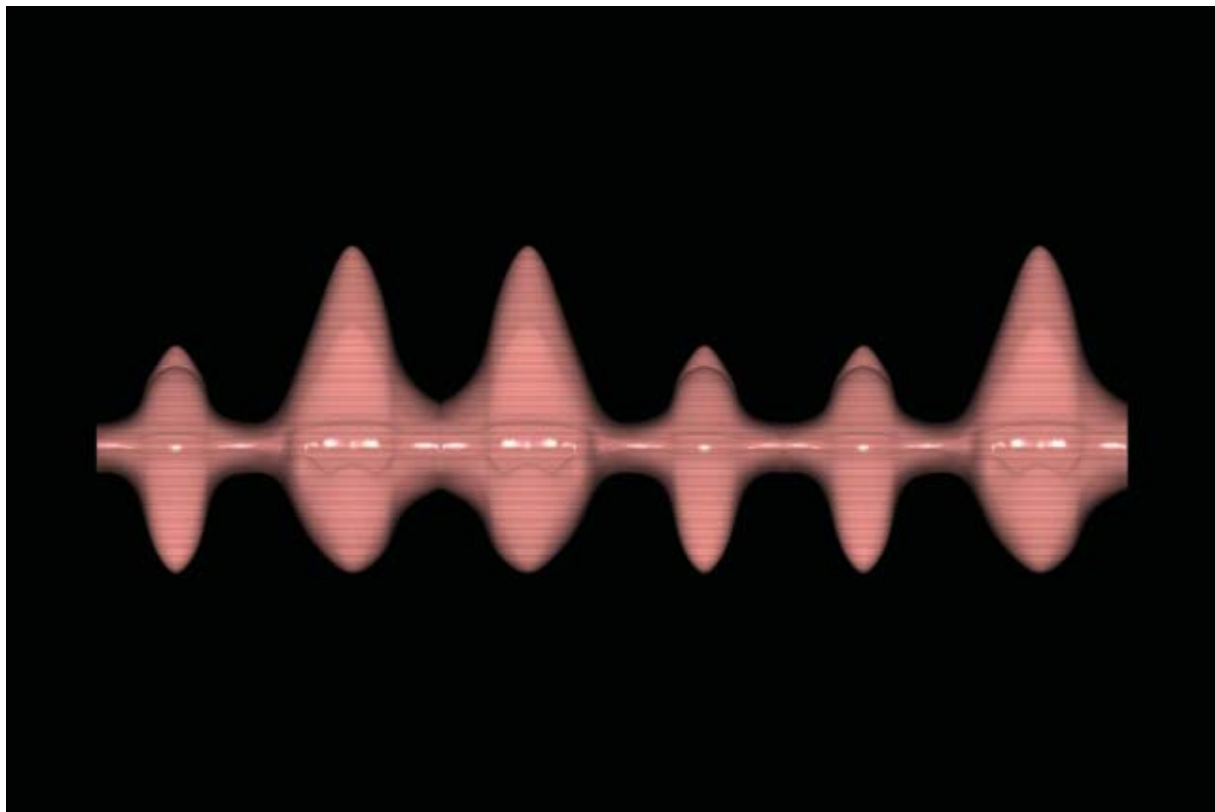
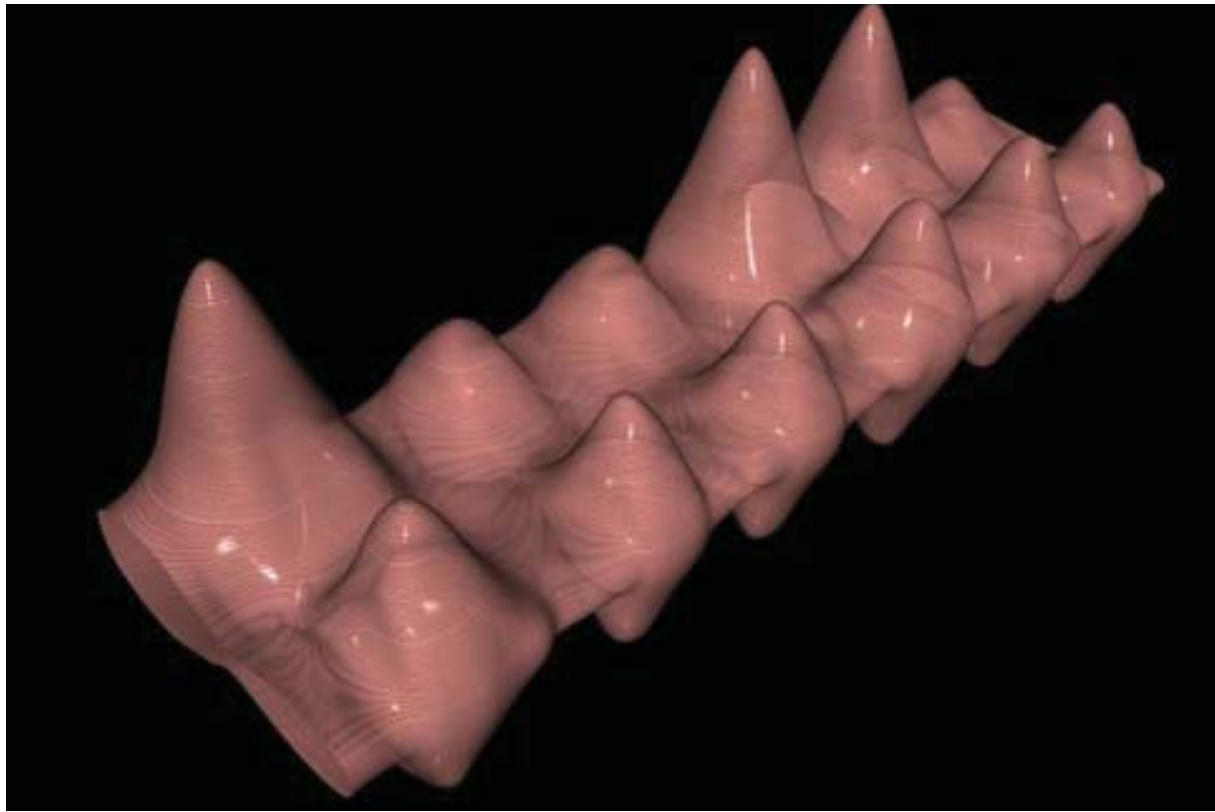
The Alessi Tea and Coffee Towers design projects have been exhibited widely and have toured internationally, most notably exhibited in the 7th Venice Architecture Biennale²⁸ and in *Architectures Non Standard* at the Centre Georges Pompidou in Paris.²⁹ Alessi produced the Alessi Tea and Coffee Towers in a limited edition series of ninety-nine units in sterling silver. Alessi Tea and Coffee Towers is in the permanent collection at the Alessi Museum. The project has been exhibited and published extensively, primarily in the book *10x10_2* published by Phaidon Press,³⁰ in addition to *POL Oxygen* magazine.³¹ The work was reviewed in numerous journals including *I.D.* magazine³² and *Domus*.³³ It features in the publication showcasing Alessi's collection edited by Alessandro Mendini,³⁴ and was further mentioned in Leon van Schaik's book *Design City Melbourne*.³⁵

"Tom Kovac has gradually selected from an endless continuous system of virtual curved shapes arising obsessively from each other, a figure-object theoretical and abstract where a surface, a horizontal cut separates the peaks and troughs, or the various pieces of service (peaks) that are located in their respective grooves, corresponding to the tray."³⁶
Alessandro Mendini, April 2003.



Alessi Tea & Coffee Towers (2001)

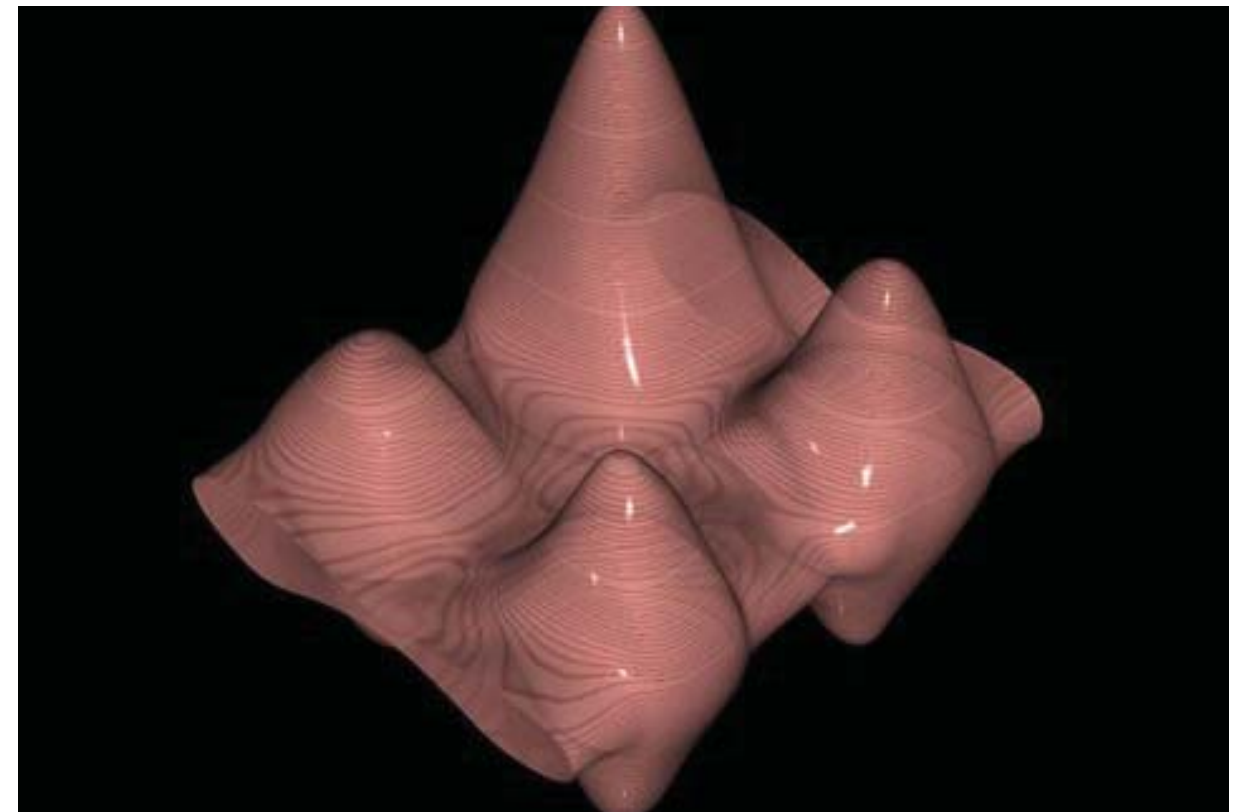
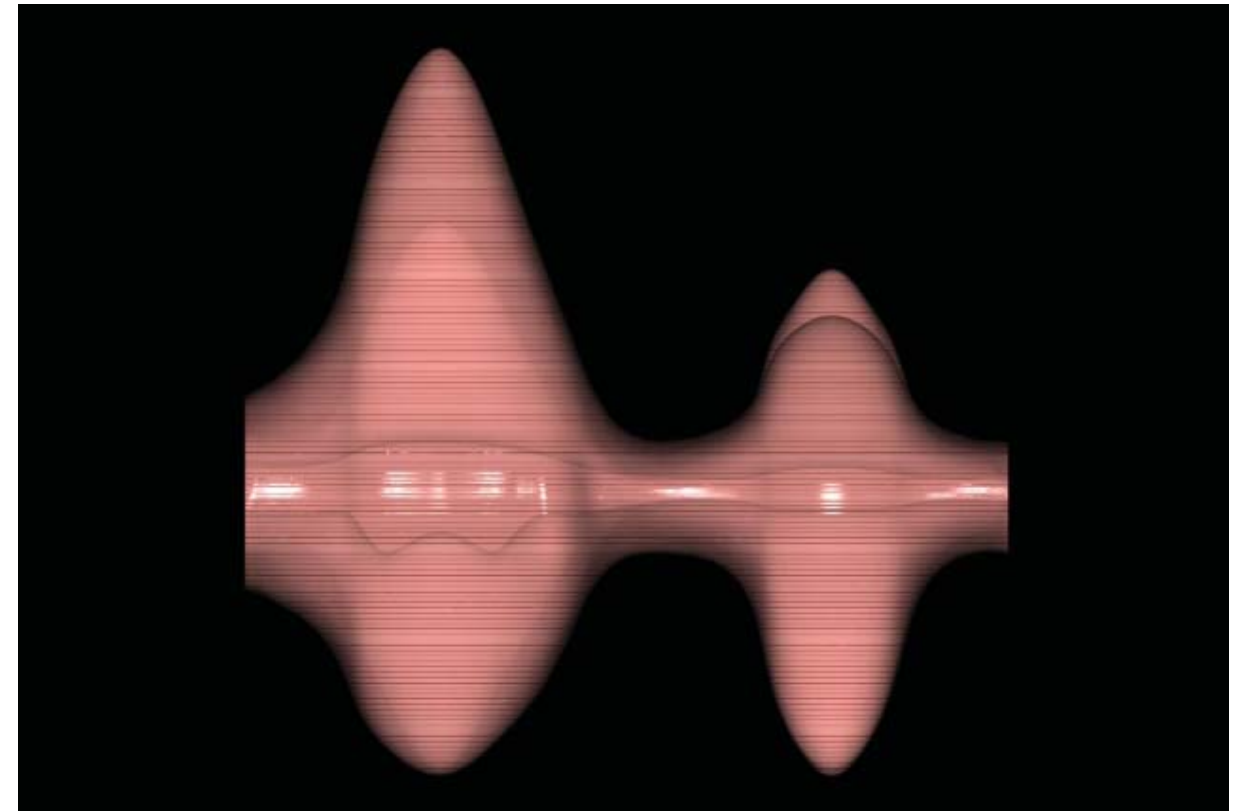
4.401 // Early laser cut topological study model.



Alessi Tea & Coffee Towers (2001)

4.402 (Above) // Digital models study of scale changes in form.

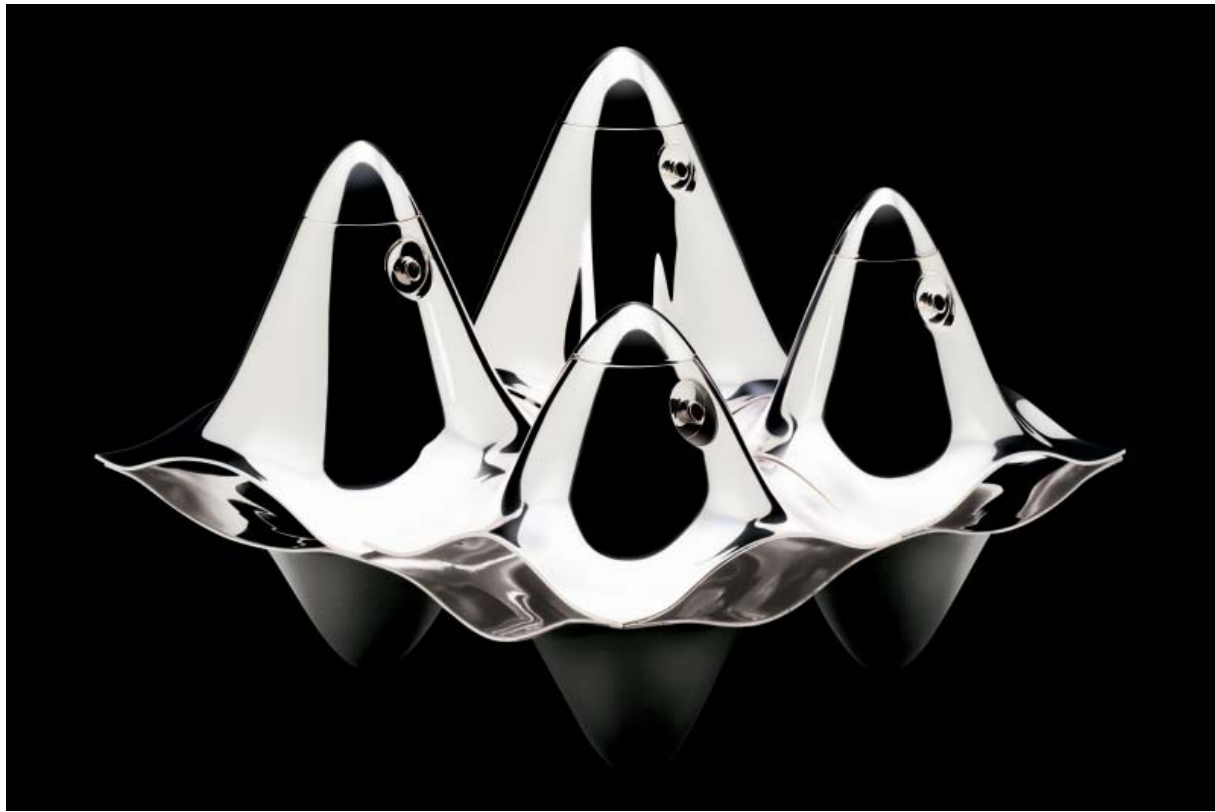
4.403 (Below) // Composition model study researching scale comparisons.



Alessi Tea & Coffee Towers (2001)

4.404 (Above) // A selected part of the scale research, from elevation view.

4.405 (Below) // Study of element as detail.



Alessi Tea & Coffee Towers (2001)

4.406 (Above) // Early stainless steel prototype study model of the tea and coffee towers.

4.407 (Below) // Size and scale study of characteristics and individual objects.



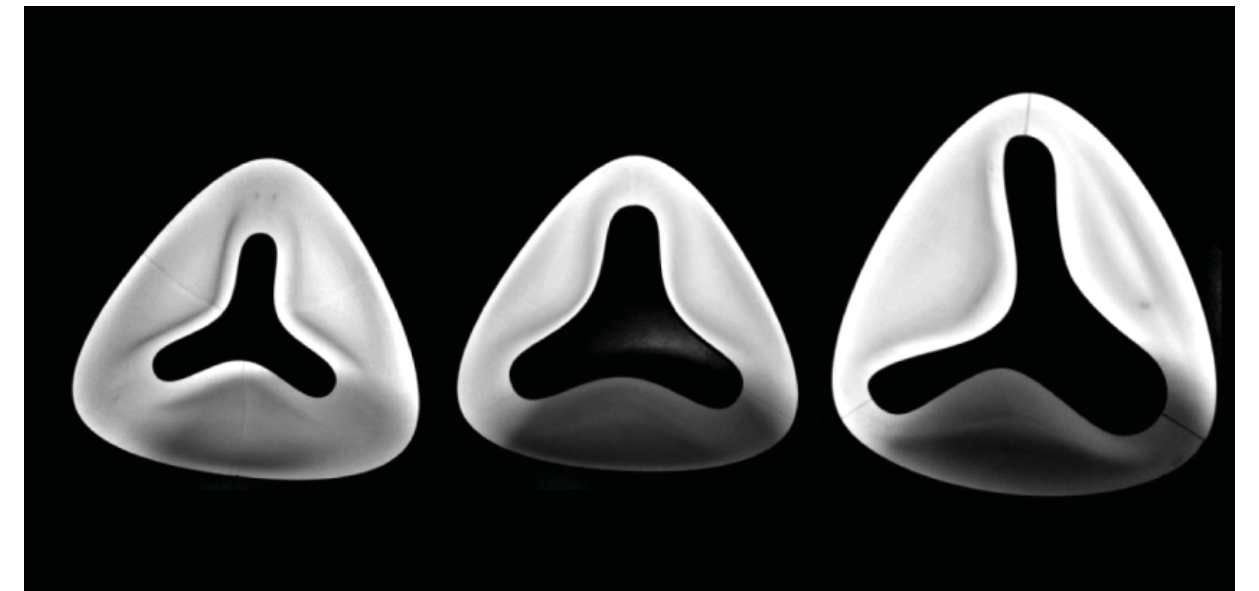
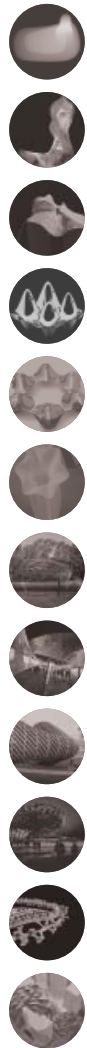
Alessi Tea & Coffee Towers (2001)

4.408 // Formal study demonstrating the topological nature of the object composition.



Alessi Serpentine

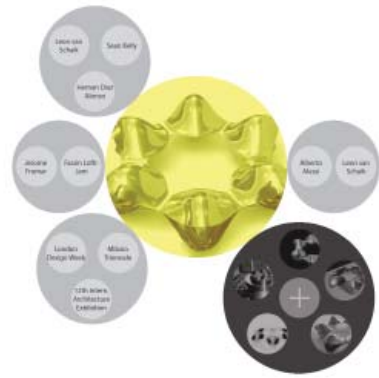
The Serpentine can be considered as a form generated with architectural intent and one which is also created for industrial scale production. Designed as part of the 2006 London Architecture Biennale,³⁷ the curvaceous three sided form is a variable spatial environment proposition for the Serpentine Gallery, in London's Hyde Park. Created as a virtual conception, it demonstrates the possibilities of scalability in digital forms as both spatial real-time environments for digital navigation and forms which can be reduced in scale and be experienced as miniature handheld objects.



Alessi Serpentine (2006)

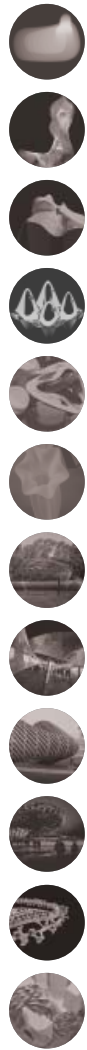
4.501 (Above) // Digital development and study of the production model.

4.502 (Below) // Material study and analysis for final production.



Alessi Superstar

The 2006 design for Alessi was conceived as a series of curves with the potential to generate a complex family of receptacles. Objects of different shapes and sizes can be placed inside this sculpted form, while the gently curved hollows for holding different objects or foods form an unbroken line. The combination of the six hollows in the bowl allow for personalisation of the display each time, with simple gestures designed to provide a unique, multi-sensory experience, creating an endless array of shapes, patterns, colours and positions. This “enhanced functionality” develops the aesthetic, tactile and visual relationship with the object, heightening the enjoyment of the bowl’s shape and enhancing the way its contents are viewed.



Alessi Superstar (2006)

4.601 // Final manufactured Superstar, limited edition.



Alessi Superstar (2006)

4.602-603 // Images show the use of machine-pressing to flatten sheets of steel to create Alessi Superstar.

Alessi Superstar (2006)

4.604 (Above) // Polishing of the final objects.
4.605 (Below) // Excess material from manufacturing process.



Alessi Fauna

The Alessi Fauna was generated as a complex family of objects as an extension to the Superstar geometry. Created as a collection of varied arrangements in combinations ranging from one to four vases, they merge together into a single stem. In this way, the object enables a personalisation of displayed items. Designed to provide a series of four unique experiences, Fauna enables an endless array of displays and positions.



Alessi Fauna (2011)

4.701 (Above) // Form and scale study models analysing variations of formal solutions.
4.702 (Below) // Geometry and scale study models for double example of Alessi Fauna.



Venice Digital Biennale

This virtual pavilion exhibition was held in the absence of a funded physical exhibition for Australia's pavilion at the 2004 Venice Architecture Biennale (September 12–November 7).³⁸ It displayed a virtual exhibition curated by Andrew Benjamin, featuring projects by leading Australian architects.

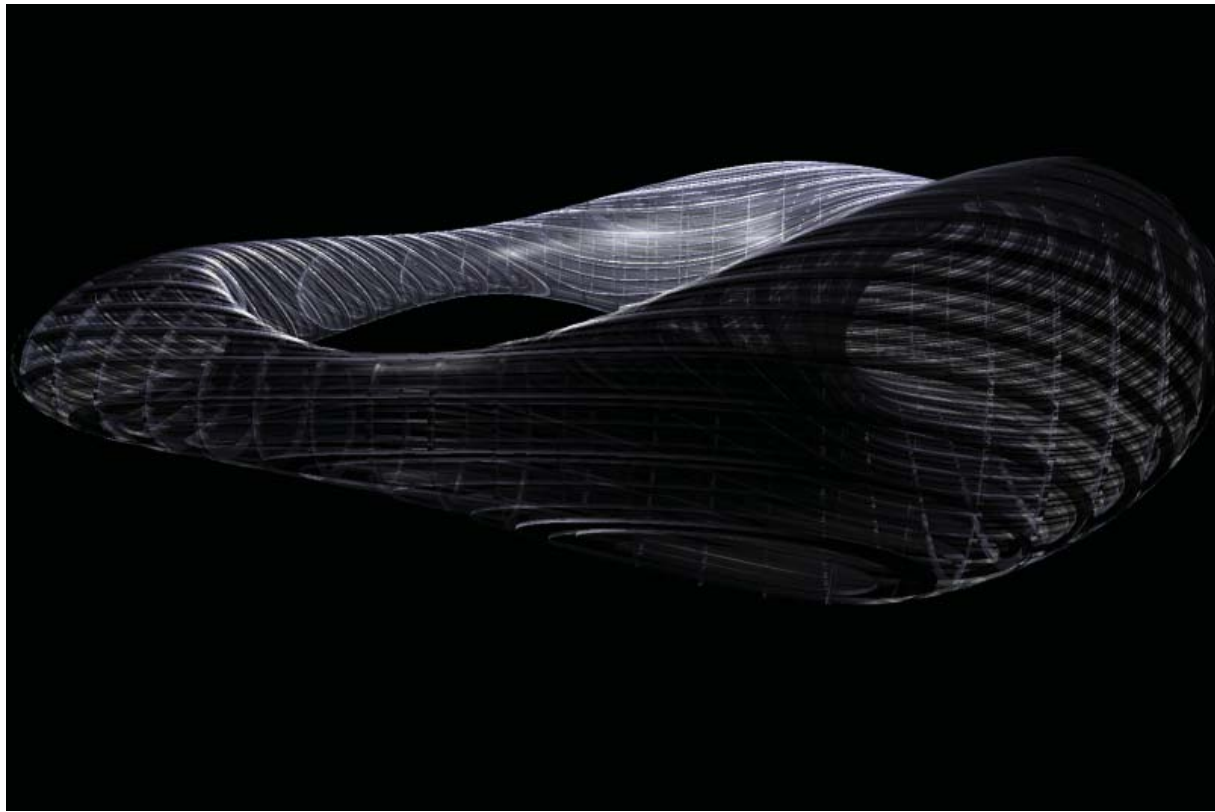
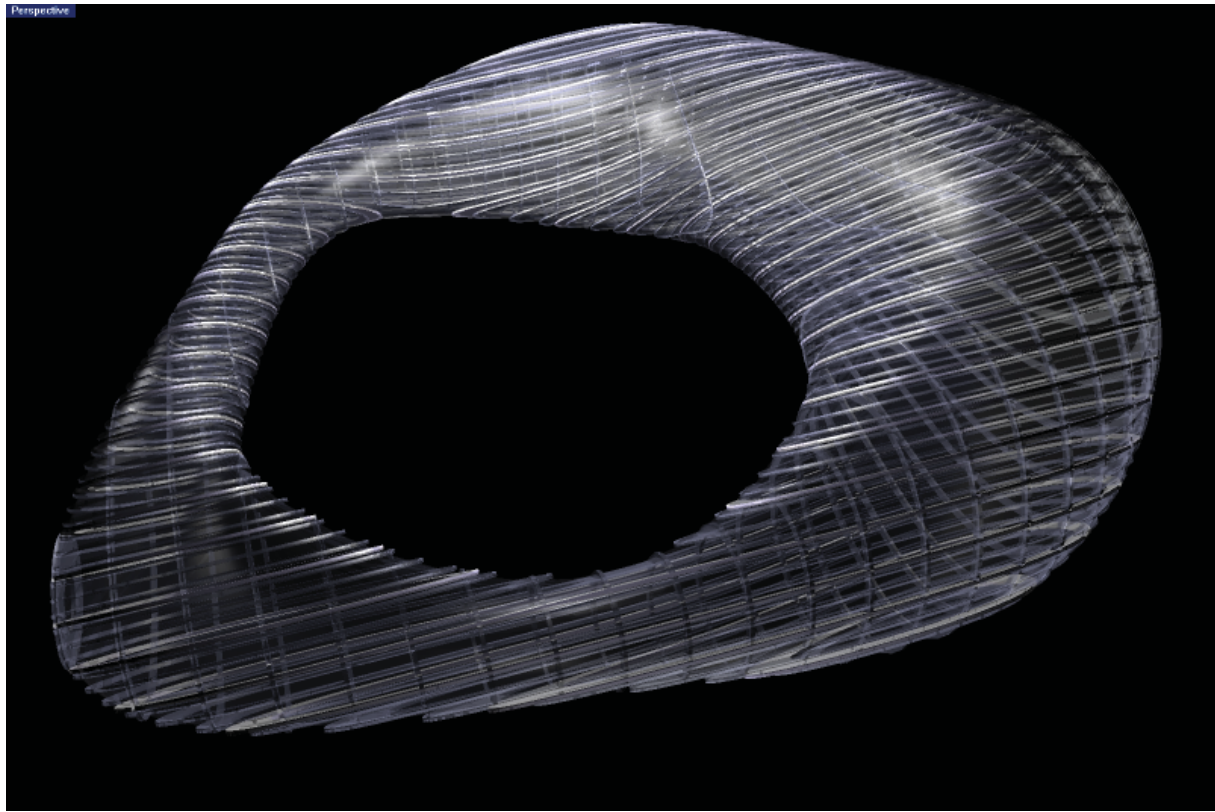
The project forges a strategic position for architectures of uncertainty, mediating between actual and virtual forms. The exhibition illuminates architecture as a creative cultural form that is not necessarily reduced to physical components or expected programmatic requirements. This is evident in the provocative guerrilla tactics by which the pavilion commandeers the site - itself a place of experimentation - and literally, pushes the parameters of the built form, as well as in the content of its virtual exhibition. The pavilion robustly advocates architecture's re-engagement with a greater dimension of public meaning.



Venice Digital Biennale (2004)

4.801 (Above) // Pavilion scale and context elevational study.

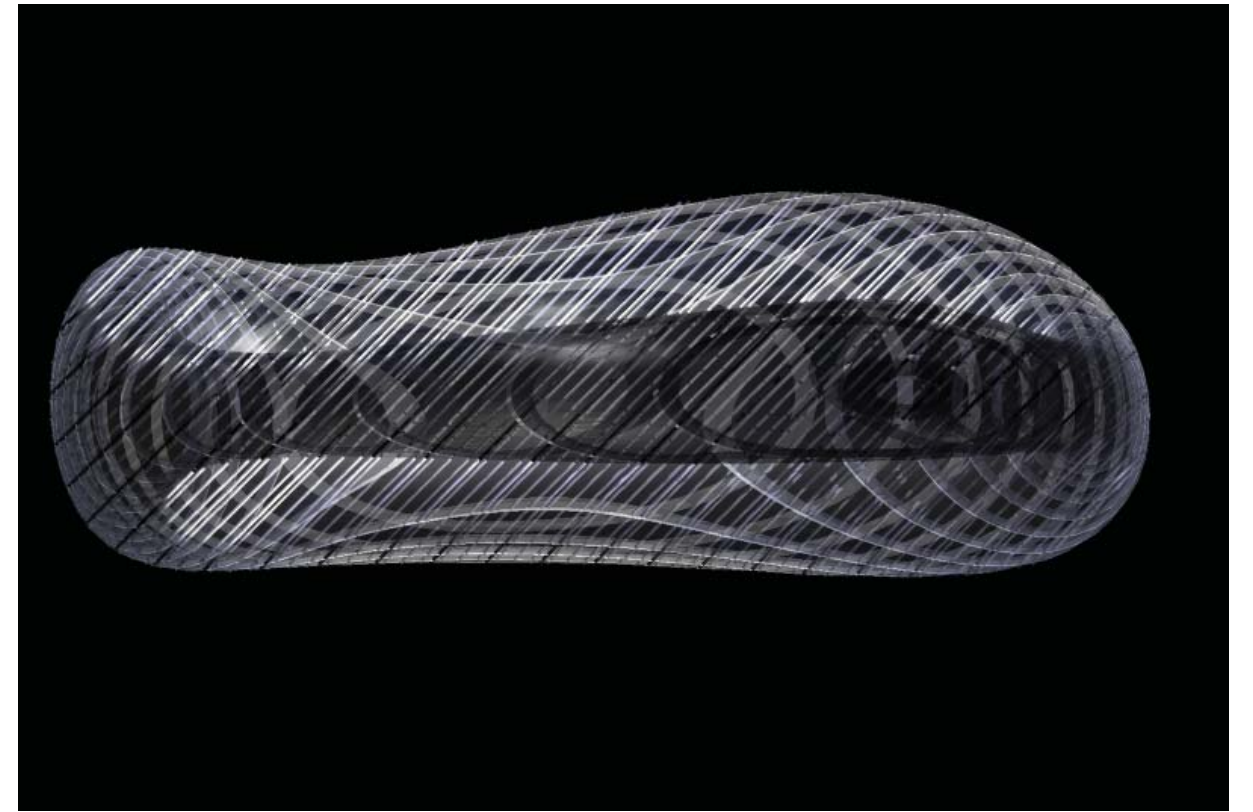
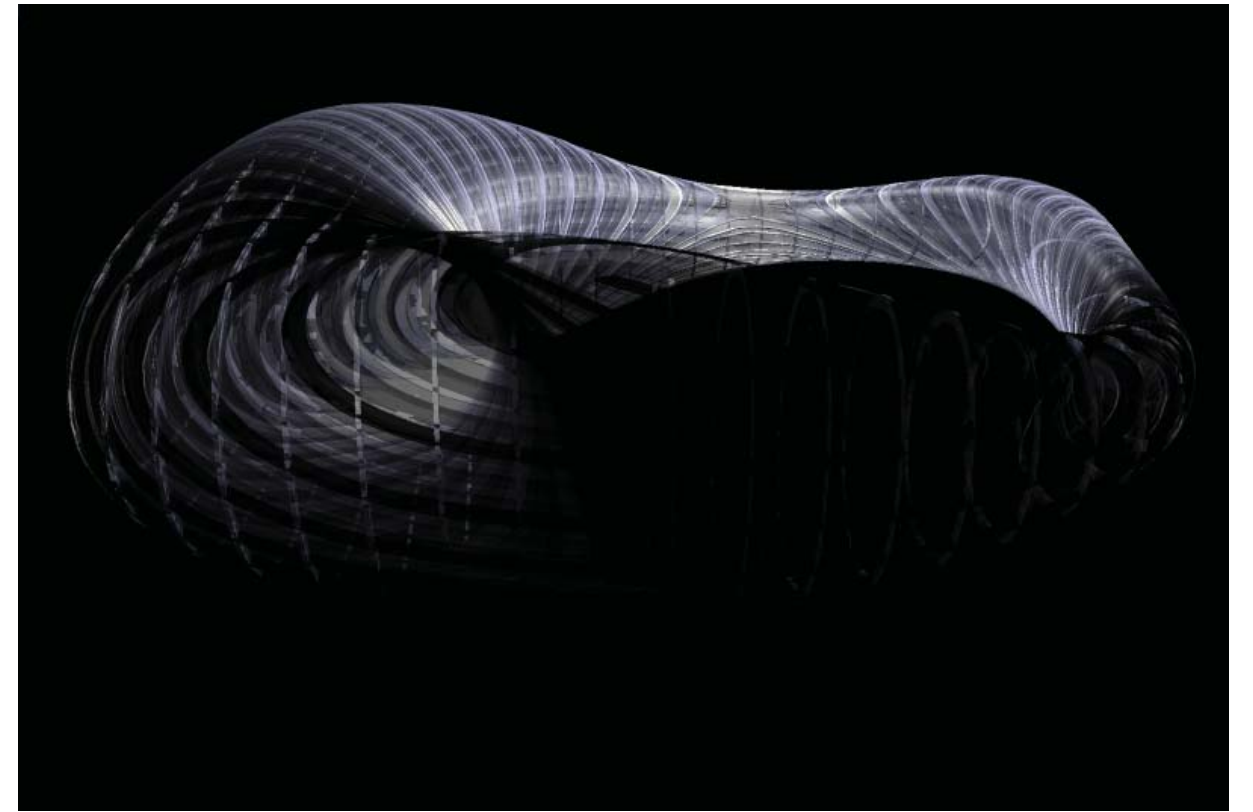
4.802 (Below) // Study of pavilion's formal characteristics and landscape integration.



Venice Digital Biennale (2004)

4.803 (Above) // Pavilion model study.

4.804 (Below) // Elevation study of spatial composition and interior volumes.



Venice Digital Biennale (2004)

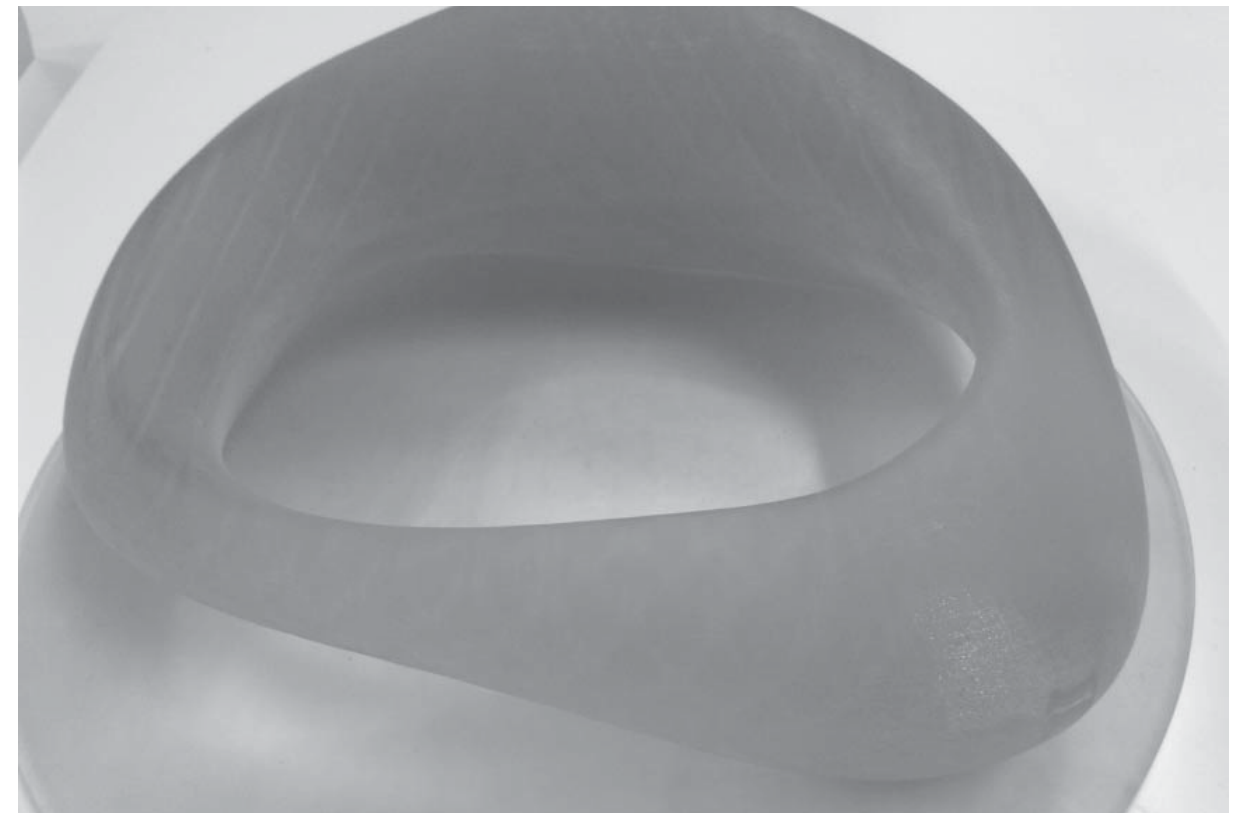
4.805 (Above) // Internal volume analysis illustrating the shifting characteristics of form.

4.806 (Below) // Elevation scale study.



Venice Digital Biennale (2004)

4.807 (Above) // Study of spatial diversity and internal exhibition zones.
 4.808 (Below) // Formal study of interior volumes and exhibition spaces.



Venice Digital Biennale (2004)

4.809 (Above) // Pavilion prototype 3D printed model produced for the 2008 Venice Architecture Biennale exhibition.
 4.810 (Below) // 3D printed model study.



“The design of the exhibition for lab.3000 is a model of an ideal community of practice in digital design. Displayed at the Melbourne Museum, it brings together the basic elements of such a community. Holding the space cupped are two curved banks of information about the platforms of mastery that support the community. These platforms of mastery are provided by the tertiary institutions, TAFEs and Universities that deliver the educational underpinning to the mastery of the new domain of knowledge that is digital design. They are cemented by our growing industrial and practitioner capabilities. Overhead, there is a ribbon in the form of an infinity symbol, and on this are displayed the works of internationally acknowledged innovators in digital design. These are the mentors who guide our aspirations to transcend mastery and become creative innovators. And between these are twenty glass blades in which the emerging innovations of students and practitioners are displayed. As a visitor, one moves between these elements and can imagine oneself positioned in the community of practice.

“lab.3000 was itself a community of practice builders. An enabler of the processes that build vibrant cultures of intellectual change in digital design. So why did lab inaugurate a Biennale? Exhibitions that showcase excellence in a domain proliferate around the globe. But Biennales are truly effective when they facilitate the public behaviours of a community of practice. Then they are engines of clarification in the discourse of the fields within a domain. They help the players to define the two or three different positions that are vital to the development of knowledge in a domain. So this Biennale was not just a showcase of designs, it is about developing the community of practice growing up around digital design.

“Can digital design be described as a domain? It has some of the characteristics of a discipline- in the sense that it may be seen as a way of doing things, just as mathematics is a discipline. But currently digital design is a set of tools impacting on many different fields of design. We know that the use of digital technologies is causing category shifts between fields in the domain of design. Game engines are being used to design built environments; aircraft design software is implemented

to extend the possibility of parametric design into the field of information storage and retrieval. Landscapes of knowledge are being transformed by processes of erosion, avalanche and flood. For example, where conservative scholars have bewailed the disappearance of history, a generation of children is growing up more viscerally linked into the ancient myths of our civilisations than any generation before. For this new generation, continuities are pervasive, time is collapsing, and every individual faces tasks of self-curating that in previous generations were governed by traditional structures of family, school and work. As digital design breaks down old barriers, a new community of learning emerges, and with it, new learning environments, self-paced and self-curated. We know that when this environment is entered alone and without the support of a community of learning or practice, people lose both purpose and heart.

“How can we guide ourselves through this rapidly shifting and immensely information-rich environment? We need to understand the natural histories of creative individuals, and the history of the informal support structures that enable them to engage in intellectual change. Rather than being thwarted by the sheer weight of prior knowledge, the end less opportunities for diversion into technical refinements, and the collapse of cultural capital as old ways of disseminating knowledge fade, we need to understand the new ways in which creativity is encouraged. Learning to manage one’s self in the digital environment surfaces wisdoms that are ancient, and pervasive. The digital technologies offer us a new learning environment, one that combines both virtual space and the places where we live and work. For anyone seeking to assist in the development of a vital community of practice in a field of a domain, the first task is to build a tangible model of a supportive community- and this was one of lab.3000’s aims with the Digital Design Biennale.

“The first task for lab.3000 was to identify and link the institutions and capabilities that support creative individuals in their first steps towards mastering digital design. So, in this exhibition, there is a base of contours on which are mapped the institutions that provide research, education and training in the digital technologies. In this exhibition there is a facing set of contours,



Digital Design Biennale

which map enabling industrial capabilities that support digital design innovation. Also present are well-established practices that are allies in the venture. Here, you will find VPAC, the Virtual Reality Centre with its expertise in immersive environments at 1-Cubed, a series of web-site, animation and interactive design practices.³⁹

"The initial design, this substratum of supports to digital investigations is shown as a bowl, almost as two cupped hands. These are the foundations of the venture; they hold it gently, and they encourage it through cohort after cohort of students, and through cluster after cluster of emerging entrepreneurs.

"Above this supportive base there flies a flamboyant ribbon in the shape of the infinity symbol. On this ribbon, lab.3000 located presentations by internationally renowned innovators in digital design. Communities of practice form around innovators who are open and generous explorers of new domains. They discover new ways of seeing and doing, and they turn to the world and say: 'Look at this! Is it not wonderful! Where might it take us?' Students commencing their studies focus on these questions.

"lab.3000 identified the two poles of any learning community in the Exhibition: those aspiring to mastery, and those who are acknowledged to be creative innovators. Between these poles we commence our journeys from mastery to creative innovation. In a community of practice, this is a journey that we undertake in the company of our peers, inspired by our mentors and reaching out to the next generation of students.

"Below the ribbon a series of twenty glass blades is located, ten under each lobe of the ribbon. These are the locus of our peers, our colleagues and competitors. From our engagement with them as students and later as practitioners, we forge our support groups, people who share an interest in similar areas of experimentation as ours, whose efforts challenge us to better our own, who are our companions in risk-taking.

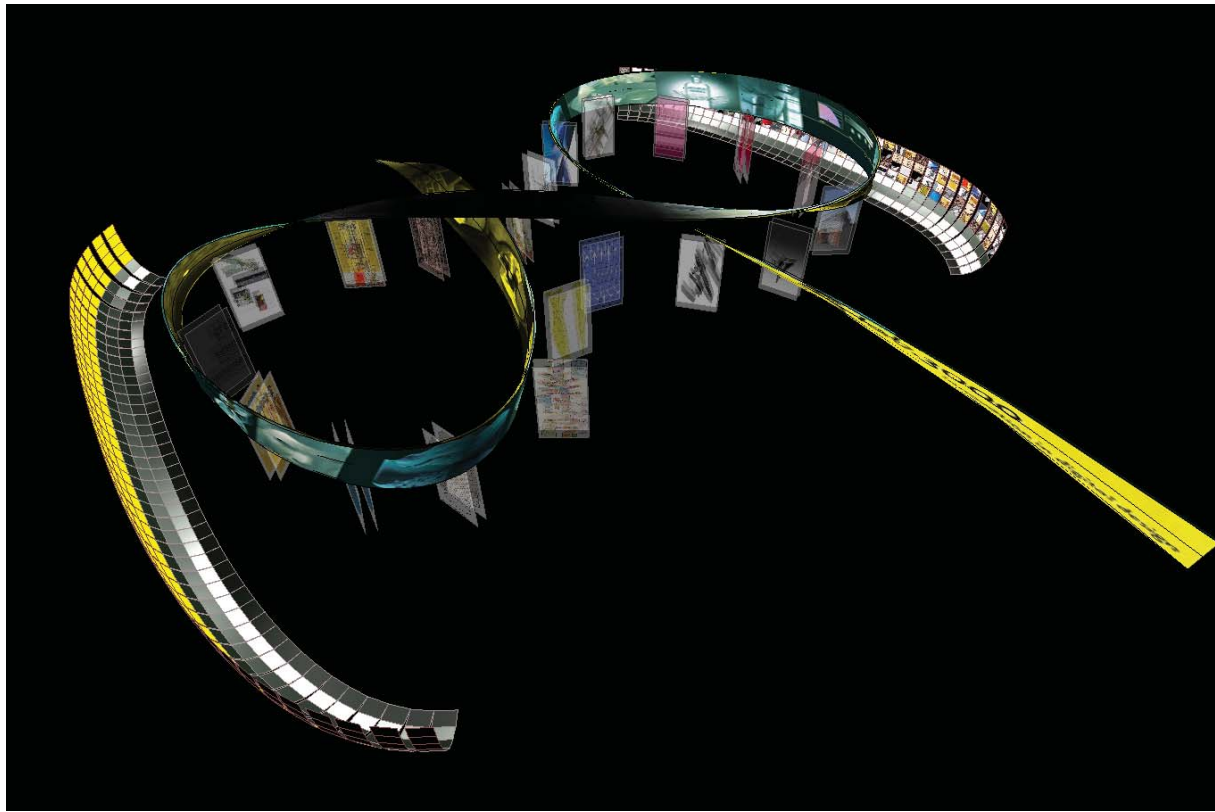
"As you move counterclockwise after entering this space you will see on each of the ten faces of the blades, the work of students who

have entered their projects as potential innovations and whose work has been judged to be innovative by our multi-disciplinary local advisory committee. If you reverse your trajectory, on the back of these blades you will see outstanding work by groups of students from the educational institutions.

"If, on the other hand, you enter the Exhibition and move clockwise, you will encounter the work often practitioners, judged to be innovative by our local Advisory Committee. And reversing your trajectory around this set of blades, you will encounter innovative projects by practitioners including the Advisory Committee and Industry. These blades show work that deepens, widens, and creates a category shift in design.

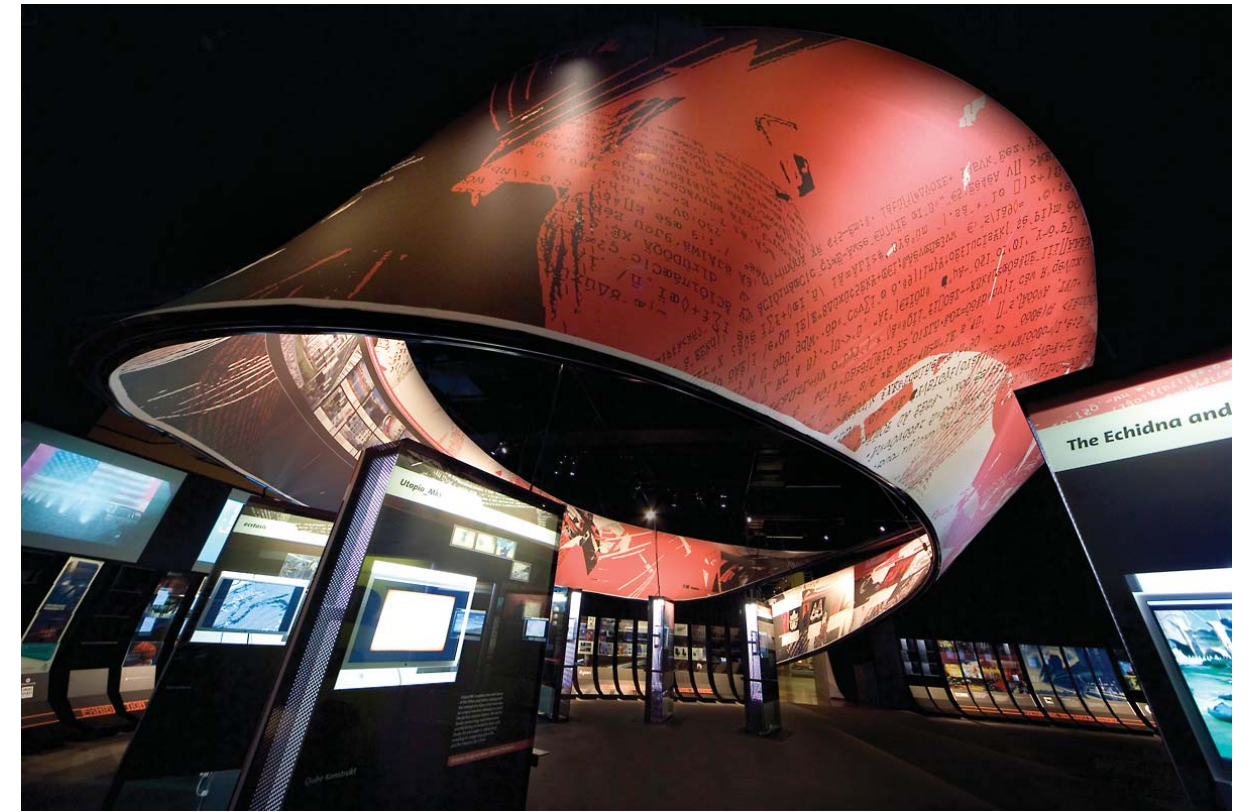
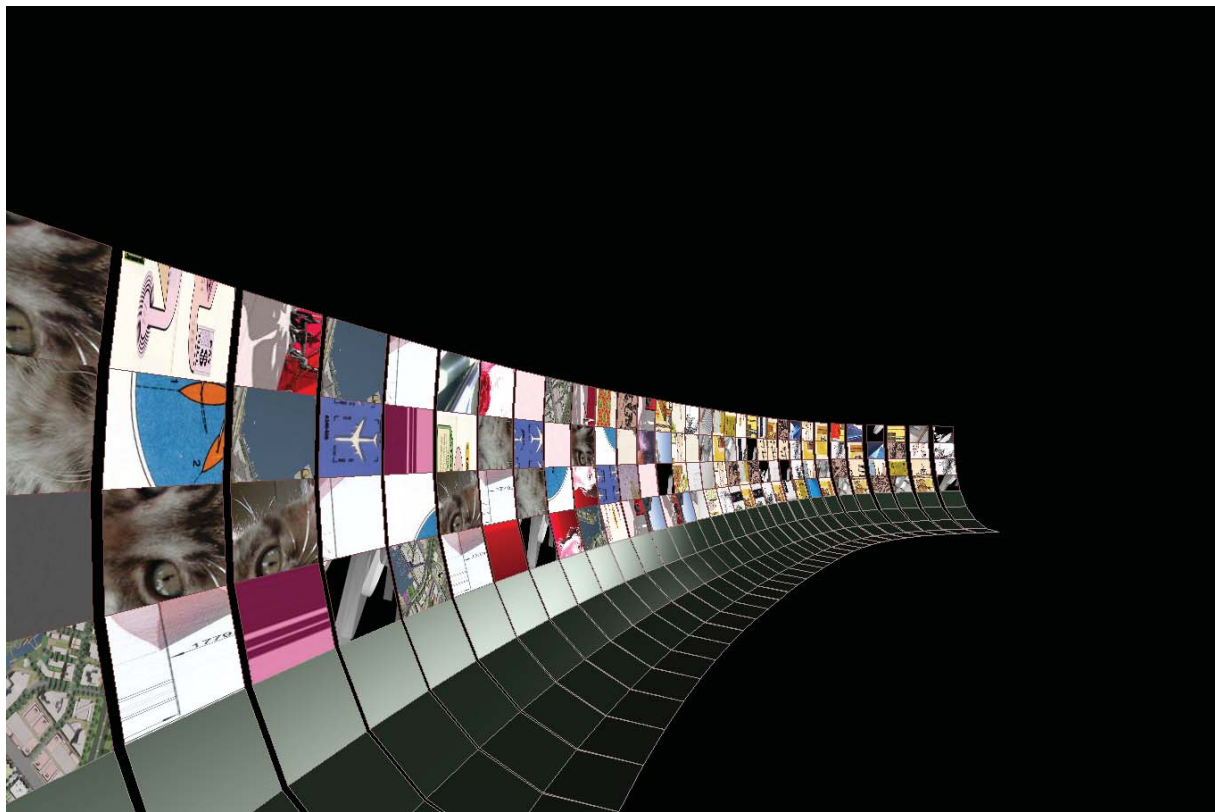
"At the exit, a lab.3000 presentation describes a strategy to meet the other basic needs of a digital design community of practice - knowledge capture in a peer-reviewed environment, and event management. Through both of these, lab.3000 strove to connect as many players as possible to an ongoing discourse between the different propositions that are emerging about the domain; differences that help everyone to define their own propositions and thus stimulate innovation.

"Visitors to the Exhibition symbolise in the model, the flow of people into the influence of this sphere of activity. It is our hope that in experiencing the dynamics of the community of practice we have modelled, you will find your own way to becoming a self-curator in this digital design environment."⁴⁰



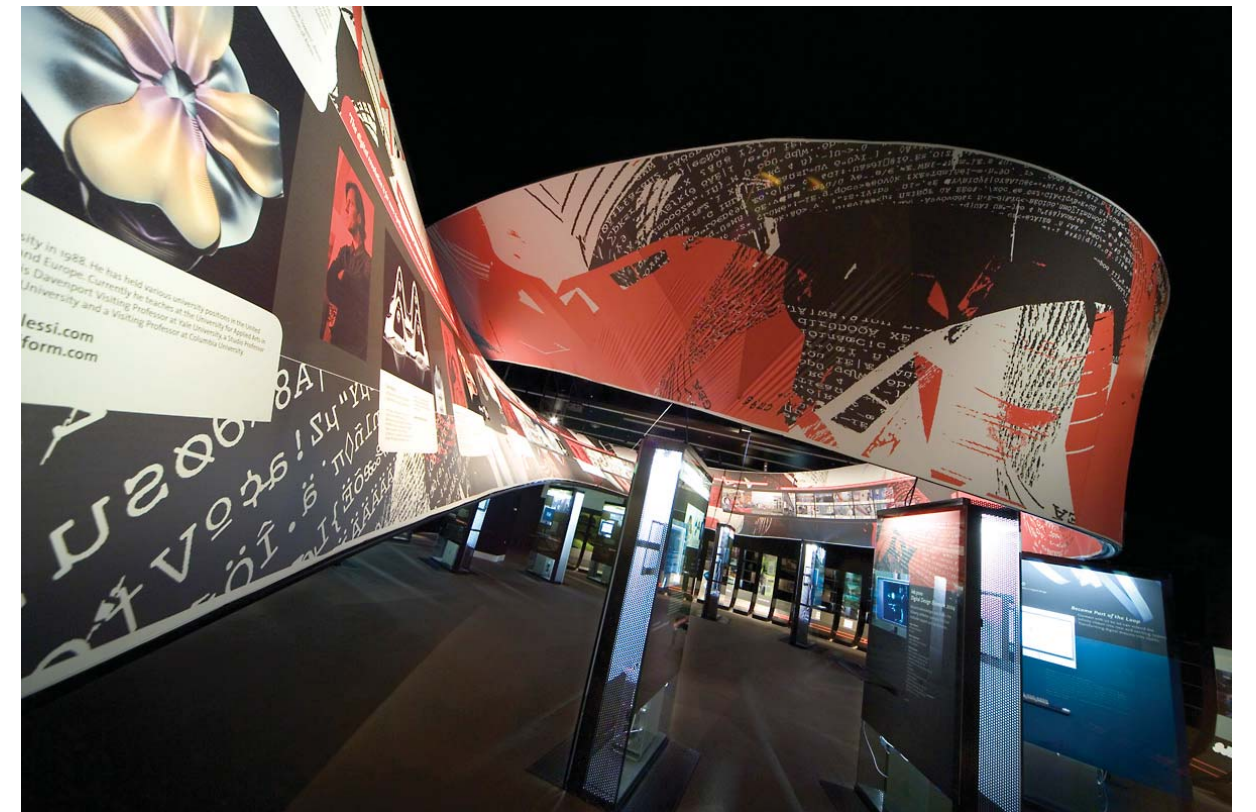
Digital Design Biennale (2004)

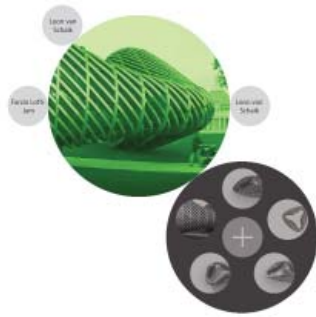
4.901 (Above) // Ribbon design for the school section proposals.
 4.902 (Below) // Detail of school section proposals on printed glass.



Digital Design Biennale (2004)

4.903 (Above) // International practitioner's ribbon outlining digital practice.
 4.904 (Below) // Detail of practitioner's ribbon.





London Biennale

Serpentine Virtual Pavilion⁴¹

Curator: Matteo Cainer

Exhibition Title: Di Stasio Pavilion

Exhibitor: Tom Kovac (Adjunct Professor of Architecture RMIT),
gollings+pidgeon

Location: Serpentine Gallery, Kensington Gardens London UK

"The world is changing. We know this. It has always changed, and yet we do not embrace change. Why? Perhaps, we think, because we are prone to seek meaning in one dimension at a time. So we propose a pavilion that is both real - of a place and in a place, and virtual - reachable at any time from wherever we are in the world. We know that everything that we value comes from what we do in a place, but we also know that for it to have value it has to be tested against the best that comes from all other places. So this pavilion is The Di Stasio pavilion, real because it arises out of our city and its region, virtual in its relating to any and every other city and region.

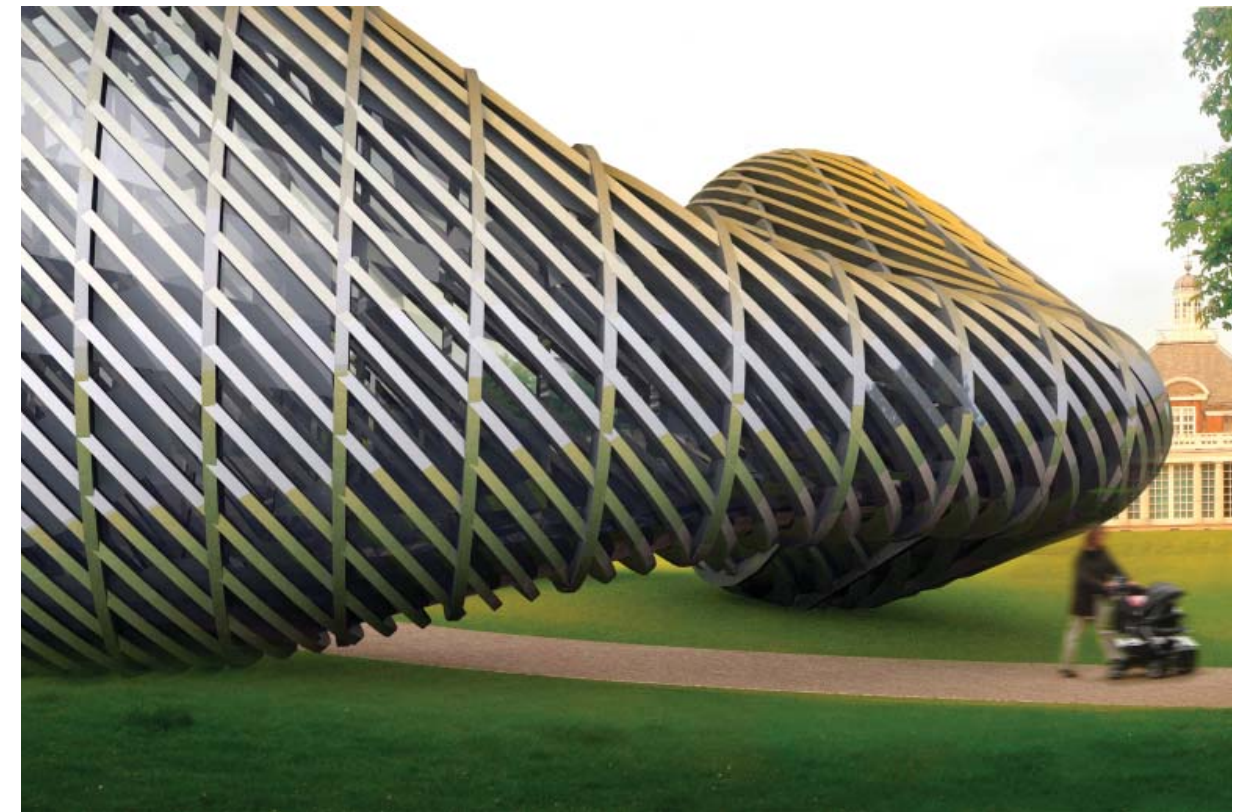
"The pavilion is a work of architecture. Architecture is a slow, place-related phenomenon. See it, and the world slows. Enter, and you slow down.

"Consider the pavilion in relation to the world, however, and your mind speeds up. Makes hypotheses. Seeks facts, wants evidence. Now! The pavilion is also in virtual space, a real-time environment that can be entered and explored from anywhere at anytime. But what does this virtual Pavilion do?

"Before it is a thing, it is an idea. To have ideas, there are people. To grow ideas there are more people. Not just in the street or on the beach, but linked together by the daily rituals of meeting, eating, talking, and scheming.

"The Di Stasio pavilion is at the cutting edge of the ambitions of today, as we put it: 'how to make a place that is so slow that your emotions are engaged and deepened, and so fast that your intelligence can have access to exactly what it needs to understand the breaking waves of the new.'⁴²

Leon van Schaik (September, 2006)



London Biennale (2006)

4.1001 (Above) // Image illustrating the position of the pavilion on the site, and people's interaction with the pavilion.

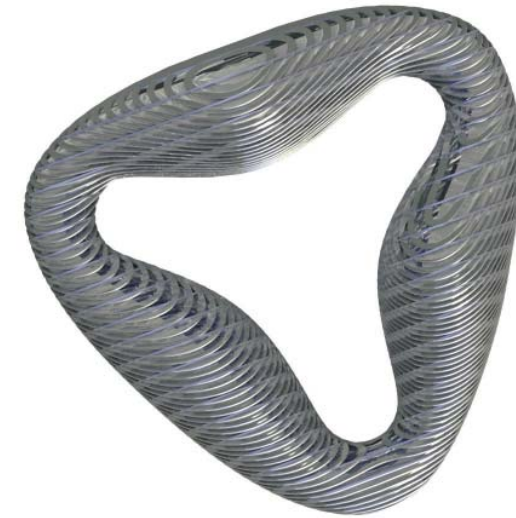
4.1002 (Below) // An axonometric view of the digital image.



London Biennale (2006)

4.1003 (Above) // Axonometric view of the pavilion, emphasising changes of the scale within the pavilion.

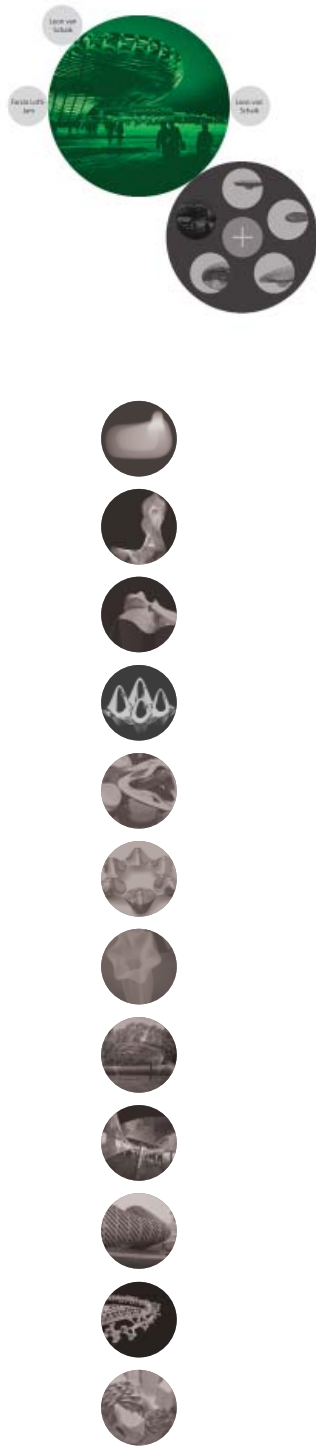
4.1004 (Below) // An elevational study of the pavilion.



London Biennale (2006)

4.1005 (Above) // Top view of the pavilion.

4.1006 (Below) // Axonometric study of the pavilion.



Beijing Digital Biennale

2nd International Architecture Biennale, Beijing, 2006⁴³

Emerging Talent, Emerging Technologies

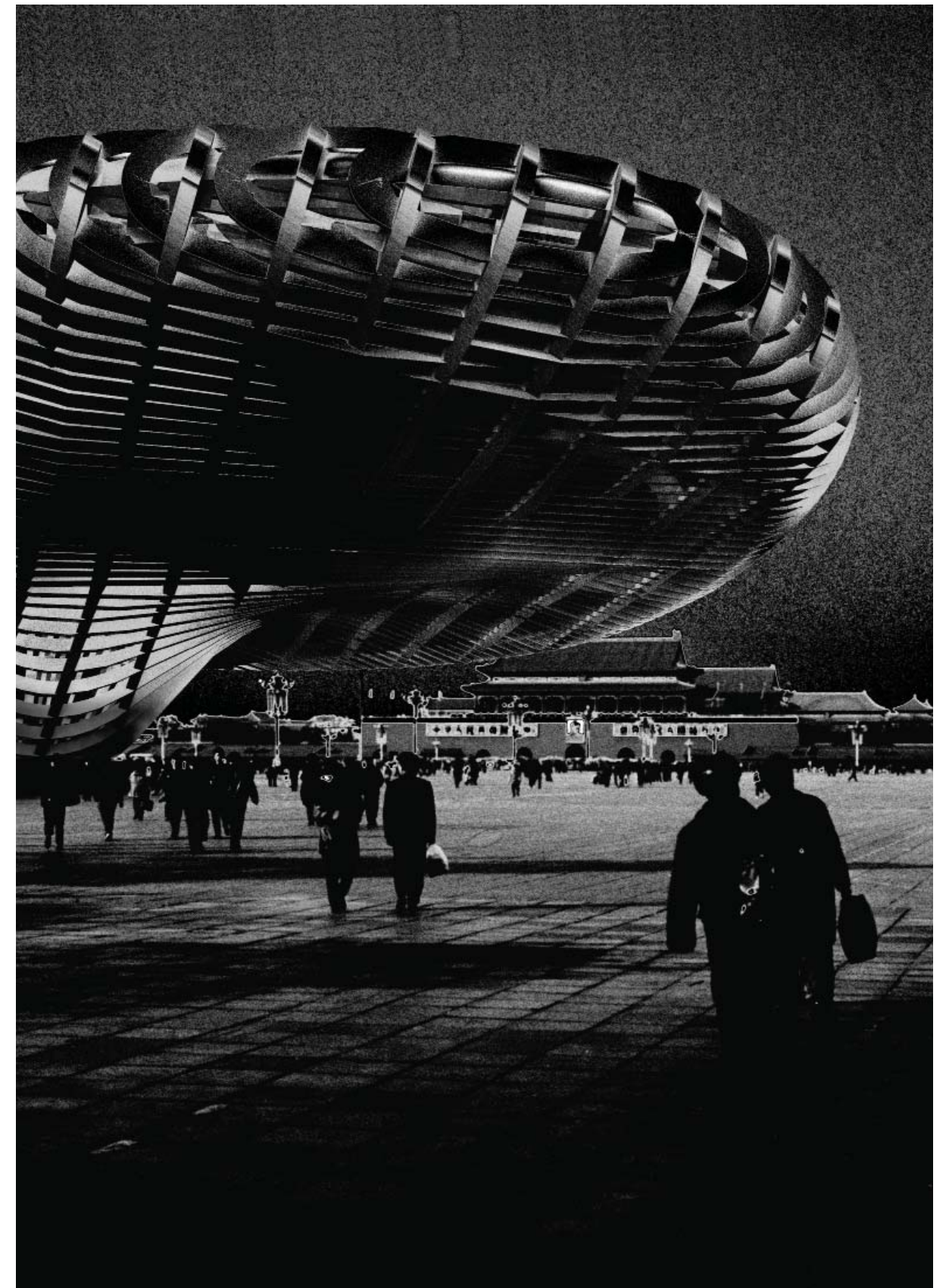
Curator: Neil Leach

Exhibition Title: Di Stasio Pavillion

Exhibitor: Tom Kovac (Adjunct Professor of Architecture, RMIT),
gollings+pidgeon

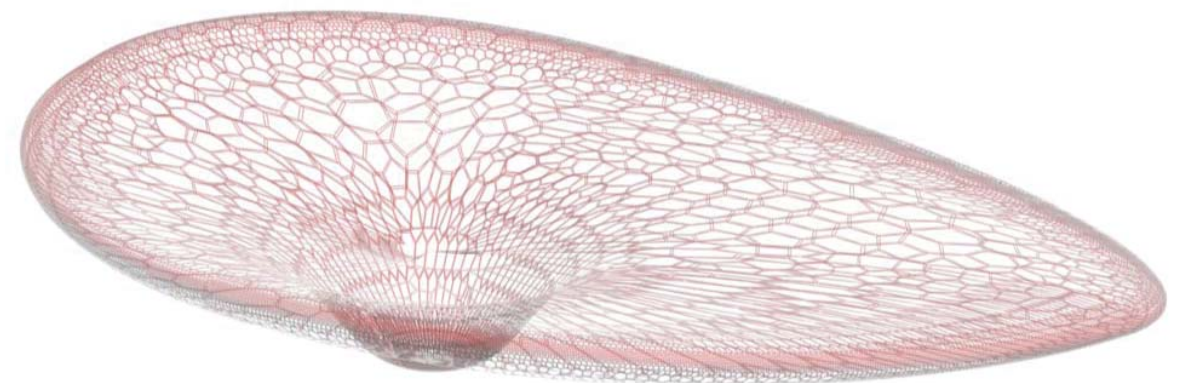
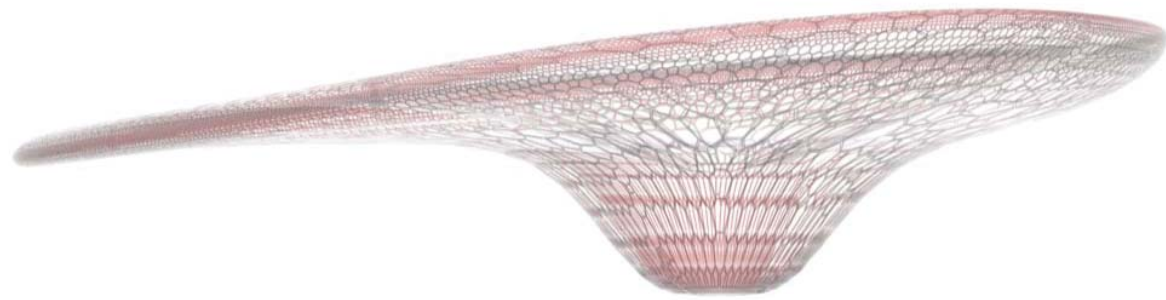
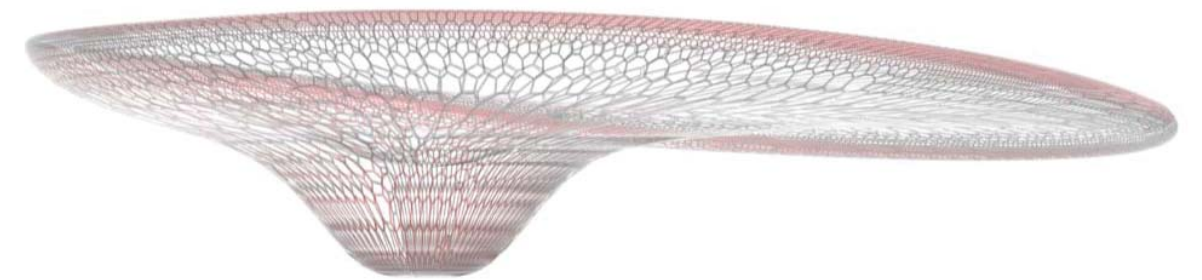
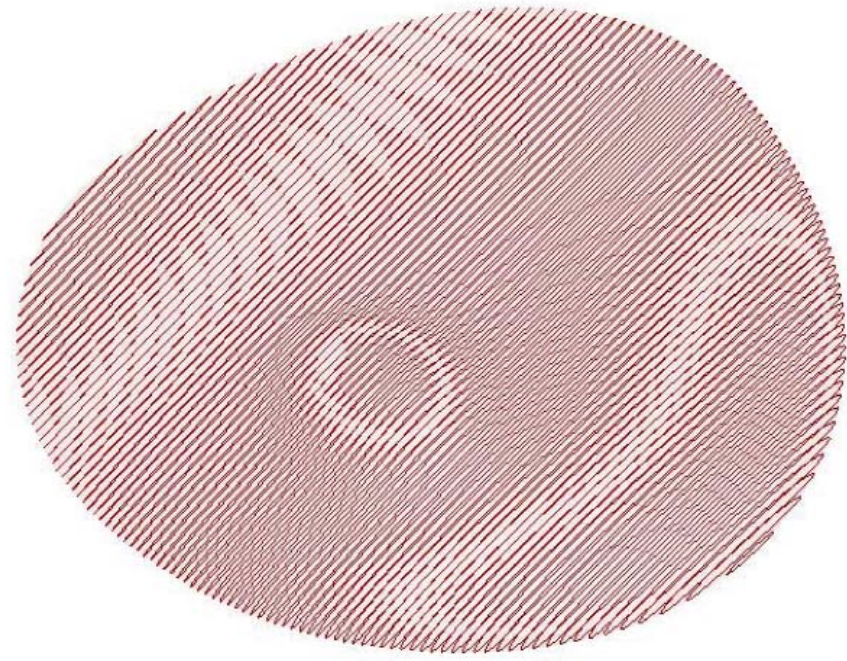
Location: World Art Museum in Beijing

The Di Stasio Virtual Pavilion project was located in the grounds of the World Art Museum in Beijing and was one of six international pavilions commissioned by the Beijing Biennale organisers for the prestigious premier Asian event.



Beijing Digital Biennale (2006)

4.1101 // Image illustrating the position of the pavilion on the landscape and interaction of people with the pavilion and exterior space.



Beijing Digital Biennale (2006)

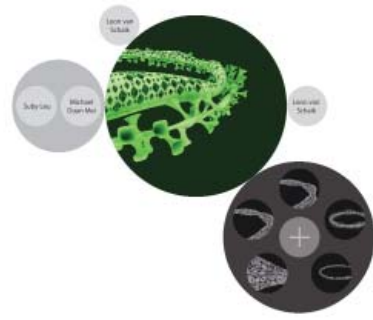
4.1102 (Above) // Top view of the digital model, showing its expansion on the site.

4.1103 (Below) // An elevational study of the pavilion, illustrating the connection point of the pavilion with the ground.

Beijing Digital Biennale (2006)

4.1104 (Above) // An elevational study.

4.1105 (Below) // Axonometric view of the pavilion, illustrating the roof detail.



Seville Pavilion

BIACS3: International Contemporary Art Biennale, Seville⁴⁴

Curator and Artistic Director: Peter Weibel

Oct 2, 2008 - Jan 11, 2009

Visualising the Virtual Concourse Installation

Exhibitor: Tom Kovac, RMIT Professor of Architecture

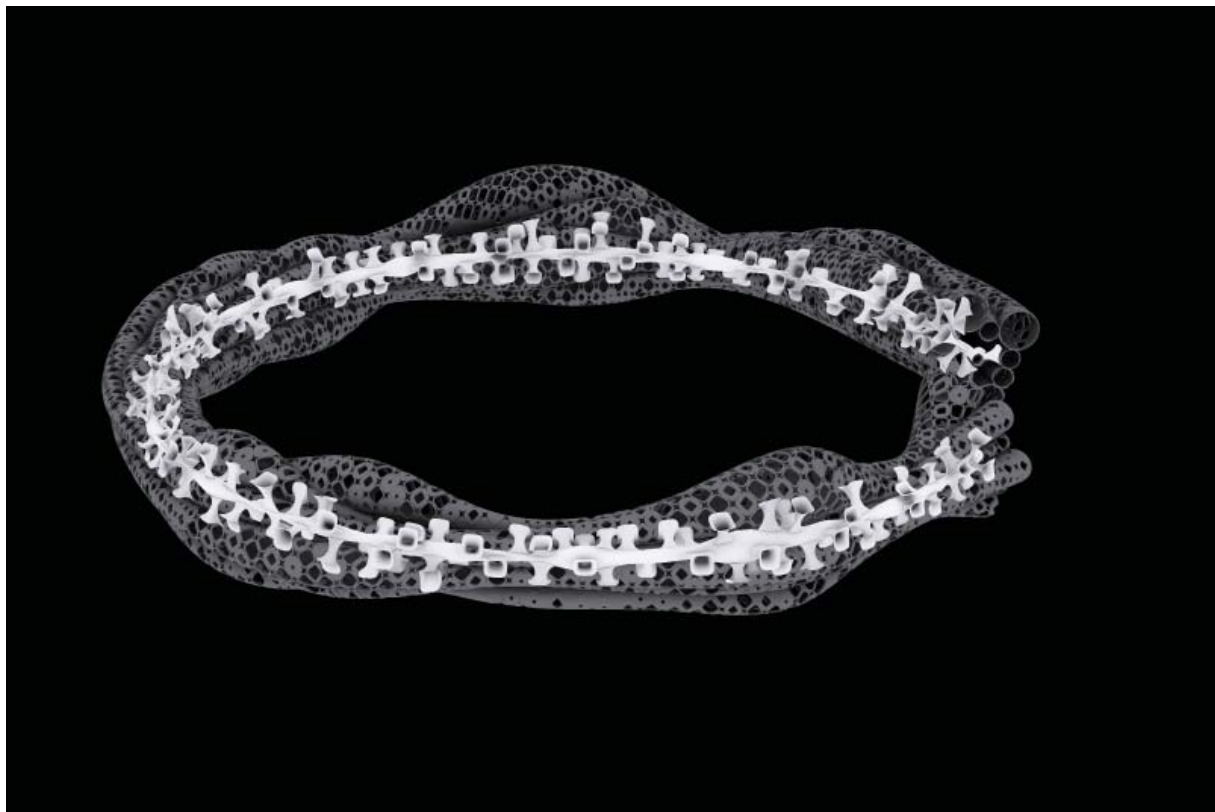
Visualising the Virtual Concourse focuses on public behaviours that sustain creative communities. It promotes the creation of digital environments in which virtual communities can participate in a spatial paradigm shift of formal and spatial production. Virtual environments, when supported by a spatially unifying concept, offer the inclusion of learning communities that are both more dispersed and more intensely interrelated. While sites such as Facebook allow viral clustering of individuals with like interests, this project examines what kind of relationships between real and virtual environments might be offered in support of learning communities.

The project explores relationships between real environments that are rich in sensory and spatial information, and virtual environments that are developed around emerging communication software applications such as information rich quick-links. The project proposes the creation of user's information-generated pavilions, web 3.0 visual models for engagement and self-monitoring. Gathered data of user interactions and information exchanges sourced from collaborative software systems are transformed into a dynamic spatial environment that offers an emerging tool to transform information into qualitative 3D spatial intelligence. Here, digital technology is placed in the service of new techniques for spatialisation and new dynamic surfaces are developed to integrate architecture and surroundings.

Visualising the Virtual Concourse defends a new phenomenological use of digital tools. The approach seeks to create a new materiality shaped by processes that transgress the inert state of architecture. The exploration of the surface's plasticity and the investigation of light and fluidity were also inspired by visual arts (Richard Serra and Donald Judd) and even by Frederick Kiesler.

Effects generated by urban factors are formally represented as surfaces proposing variable internal topography that define spatial characteristics of form. The Seville Biennale Pavilion focuses on the possibilities of real time virtual communities to be formed within a visually and a spatially unified world.

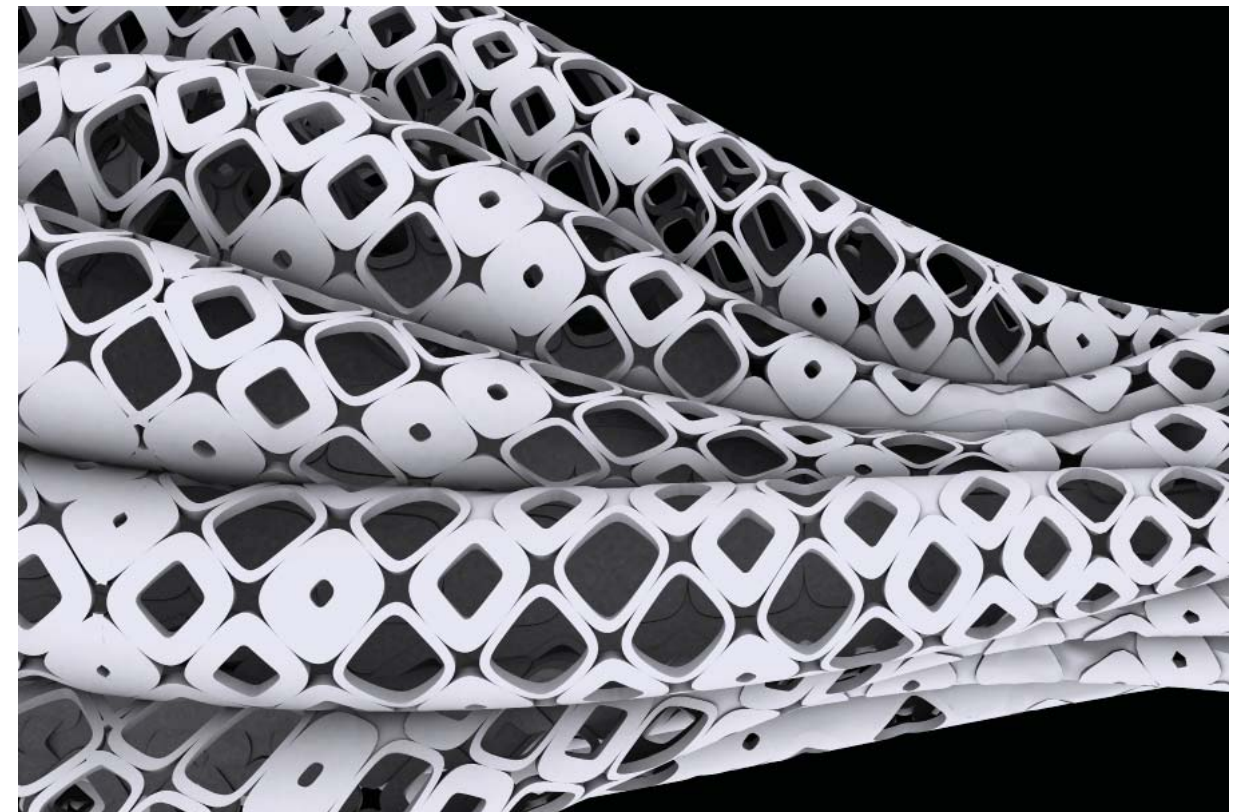
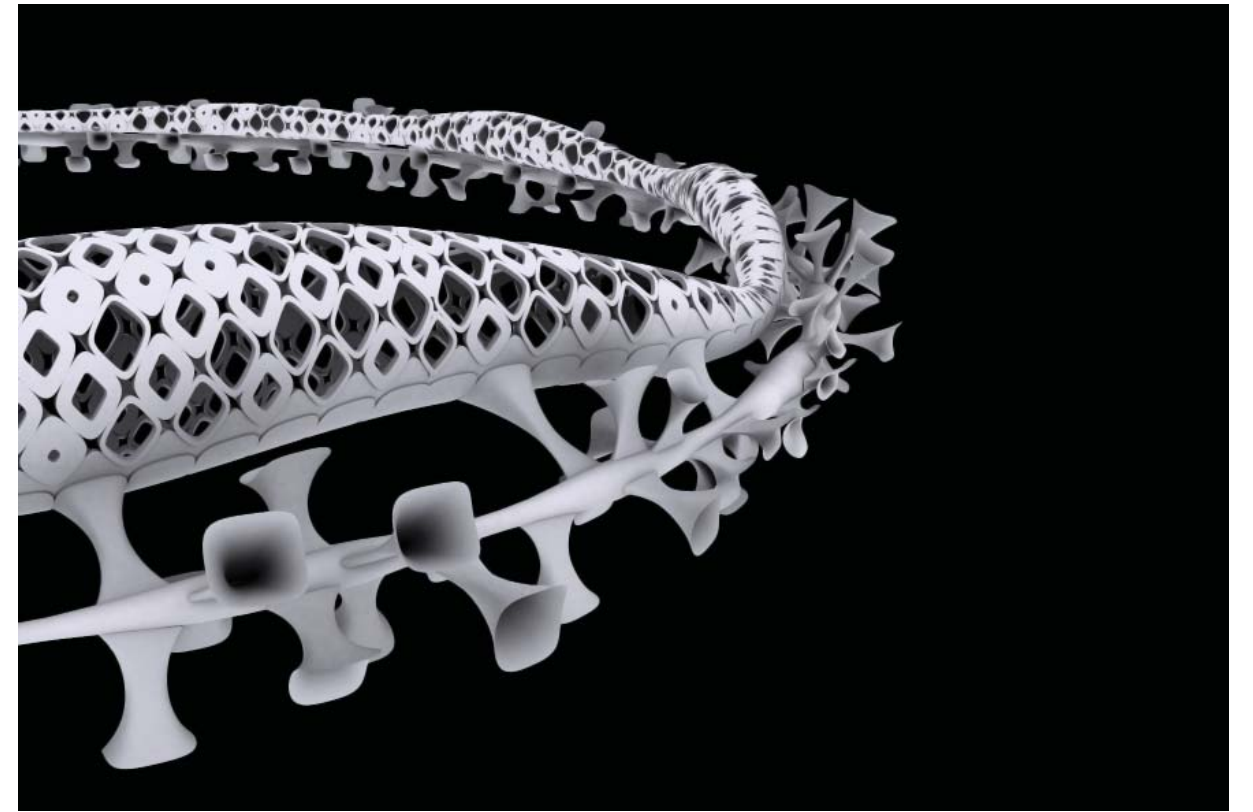




Seville Pavilion (2008)

4.1201 (Above) // Image of the synaptic circulation core.

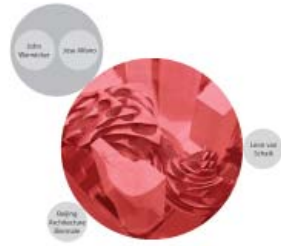
4.1202 (Below) // A ghosted image of the synaptic core within the external frame.



Seville Pavilion (2008)

4.1203 (Above) // Detail of synaptic information spine with data tube demonstrating variable scales of openings and formal change.

4.1204 (Below) // Study of exterior detail demonstrating various layers of communication.



Fab_Hab

Studio Title: Fab_Hab

Year: 2007-2008

Studio: Tom Kovac

Studio Assistant: Jerome Frumar

Studio type: Advanced Architecture Studio / SIAL

Fab_Hab Prototypes, Manufacturing and Architecture

The Fab_Hab Studio sought deeper resonances within the digital and aimed to formulate trajectories for solutions and extreme outcomes. Potentials in this area are already visible in the fields of engineering, innovative hybrid materials, digital manufacturing and non-standard customisation, as well as pioneering strategies for sustainable, environmentally responsive and intelligent buildings.

Fab_Hab was conceived as a Three Phase Studio:

Phase 01

- Identifying cutting edge industries
- Generation of capabilities and developments for future spatial production techniques.
- Identifying potential impact for deploying new architectural knowledge
- Development of technical competencies stemming from findings in the research stage
- Potential of digital tools and an adherence to an agenda for architecture

Phase 02

- Prototype directives for customised architecture

Phase 03

- Create laboratory for prototype manufacturing and production.

This new stage of producing still embraces the desire for the speculative and the unpredictable while emphasising greater control over the symbiotic relationship between process and outcome. The prototype Fab_Hab was created to operate at a scale between industrial object, furniture and building.



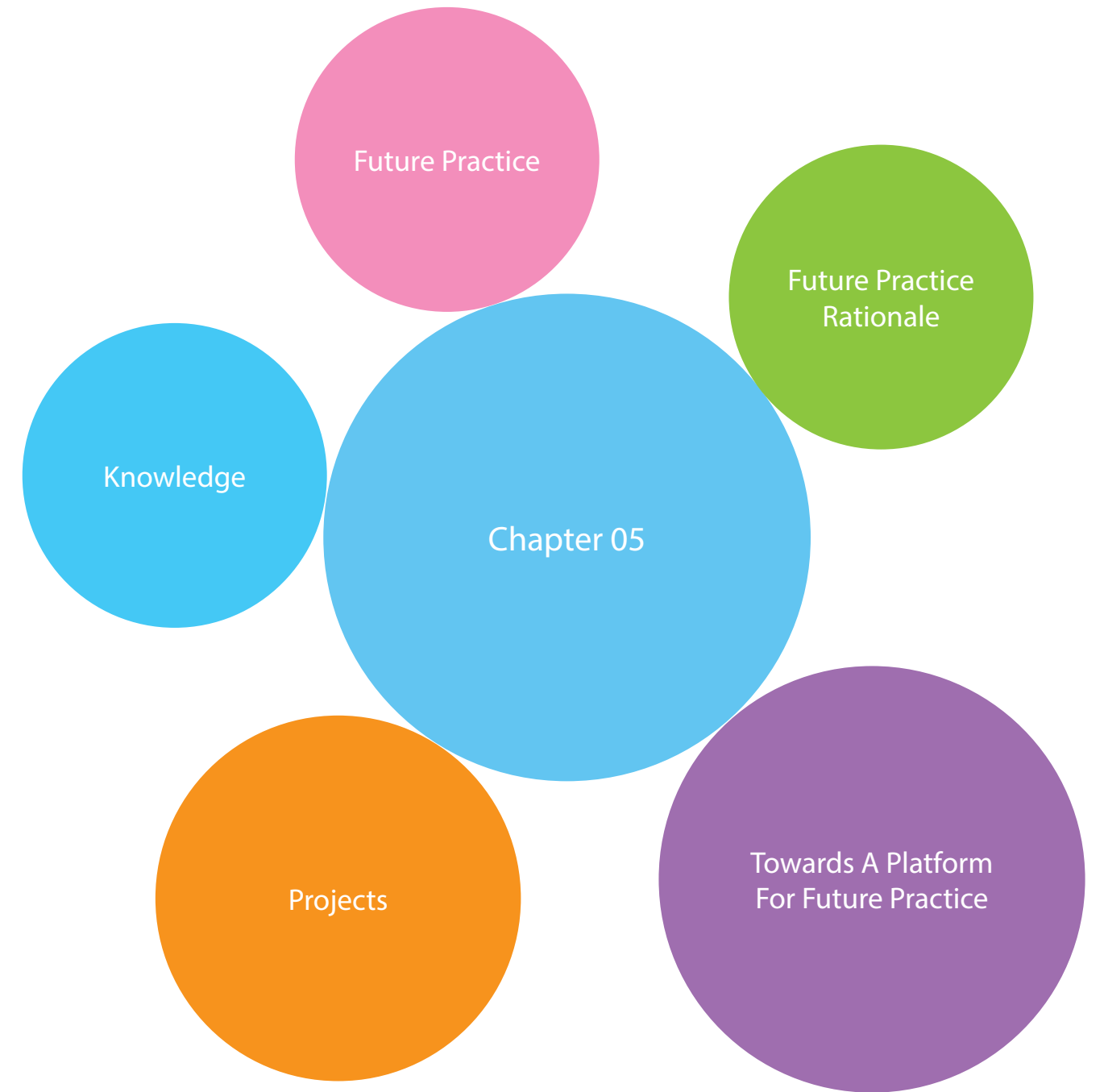
Prototypes were developed as vehicles to evolve outmoded preconceptions as well as conduct research and experimentation measured with a balance of rigor and speculation.

Image withheld for copyright reasons.

Fab_Hab (2007-2008)

4.1301 // (RMIT Student project) N Towers Will Hosikian, Stuby Liu, Tat Cheer Tung
A cutting edge urban development promoting emerging technological production capabilities and material developments exploring potential for future architectural and urbanism.⁴⁵

- 1 Leyton, M. (1992). *Symmetry, Causality, Mind*. Cambridge, MA: MIT Press. pp. 24-26.
- 2 Ibid. p.29.
- 3 NEXT. 8th International Architecture Biennale. Venice Italy. (2002).
- 4 *Fast Forward: Exhibition of International Avant-Garde Architects and Students Work*. 1st Beijing International Architecture Biennale. Beijing, China. (2004).
- 5 Exhibitor: Tom Kovac Architecture. *lab.3000 Digital Design Biennale*. Melbourne Museum, Melbourne Australia. (2004).
- 6 Exhibitor: Tom Kovac Architecture. *Non Standard Architectures Exhibition*. Curators: Frederic Migarou & Zeynep Mennan. Centre Pompidou, Paris. (2003-4).
- 7 *Melbourne Masters Architecture*. Curator: Leon van Schaik. Tarrawarra Museum of Art, Australia. (14 November 2004 - 3 April 2005).
- 8 Exhibitor: Tom Kovac Architecture. *Non Standard Architectures Exhibition*. Curators: Frederic Migarou & Zeynep Mennan. Centre Pompidou, Paris. (2003-4).
- 9 Exhibitor: Tom Kovac Architecture. Max Protetch Gallery. New York, USA. (2003).
- 10 Exhibitor: Tom Kovac Architecture. *Non Standard Architectures Exhibition*. Curators: Frederic Migarou & Zeynep Mennan. Centre Pompidou, Paris. (2003-4).
- 11 *A New World Trade Centre*. American Library of Congress. Washington, United States. (2002).
- 12 Stephens, Suzanne, Ian Luna and Ron Broadhurst (eds.) (2004). *Imagining Ground Zero. The Official and Unofficial Proposals for the World Trade Center Site: (Architectural Record Book)*. New York: Rizzoli.
- 13 Adria, Miquel, Julia Hasting, Alberto Campo Baeza and Kurt W. Forster (eds.) (2005). "Tom Kovac Architecture", in *10x10x2: 100 Architects, 10 Critics*. London: Phaidon.
- 14 van Schaik, L. (2005). *Mastering Architecture: Becoming a Creative Innovator*. Wiley.
- 15 CBS News. New York. *A New World Trade Centre*. Interview, January 2002.
- 16 Tom Kovac Architecture, in "Visionen fur New York," *Der Spiegel*, 2002 Feb, p34-36.
- 17 Carbone, Suzanne. Tom Kovac Architecture. "Architect Provokes Energy and Risk," in *The Age*, January 16, 2002 p. 14.
- 18 Tom Kovac Architecture. "Architects Take on Manhattan Project," in *The Australian*, January 16, 2002, p. 16.
- 19 NEXT. 8th International Architecture Biennale. Venice Italy. (2002).
- 20 *Fast Forward: Exhibition of International Avant-Garde Architects and Students Work*. 1st Beijing International Architecture Biennale. Beijing, China. (2004).
- 21 *Metamorph*. 9th International Architecture Biennale. Venice, Italy. (2004).
- 22 *Melbourne Masters Architecture*. Curator: Leon van Schaik. Tarrawarra Museum of Art, Australia. (14 November 2004 - 3 April 2005).
- 23 *Metamorph*. 9th International Architecture Biennale. Venice, Italy. (2004).
- 24 Adria, Miquel, Julia Hasting, Alberto Campo Baeza and Kurt W. Forster (eds.) (2005). "Tom Kovac Architecture", in *10x10x2: 100 Architects, 10 Critics*. London: Phaidon.
- 25 van Schaik, Leon. (2005). *Mastering Architecture: Becoming a Creative Innovator in Practice*. Chichester, UK: Wiley Academy.
- 26 Weiss, Peter, Francesca Appiani (eds.) (2007) Tom Kovac Architecture in, *Tea & Coffee, Piazza & Tower*. Kettler: Bönen.
- 27 Exhibitor: Tom Kovac Architecture. *Non Standard Architectures Exhibition*. Curators: Frederic Migarou & Zeynep Mennan. Centre Pompidou, Paris. (2003-4).
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- 29 Exhibitor: Tom Kovac Architecture. *Non Standard Architectures Exhibition*. Curators: Frederic Migarou & Zeynep Mennan. Centre Pompidou, Paris. (2003-4).
- 30 Adria, Miquel, Julia Hasting, Alberto Campo Baeza and Kurt W. Forster (eds.) (2005). "Tom Kovac Architecture", in *10x10x2: 100 Architects, 10 Critics*. London: Phaidon.
- 31 Jackson, Davina. Tom Kovac Architecture. "Design Alessi" in *POL Oxygen*. POL Publications. Dec/Mar 2002. p. 48-54.
- 32 Schnetzer-Reising, Jenny. Tom Kovac Architecture. Alessi Piazza Project," in *I.D. Magazine*. March 2003.
- 33 Tom Kovac Architecture in *Domus*, October 2002; Tom Kovac Architecture in *Domus*, September 2002.
- 34 Weiss, Peter, Francesca Appiani (eds.) (2007) Tom Kovac Architecture in, *Tea & Coffee, Piazza & Tower*. Kettler: Bönen.
- 35 van Schaik, Leon. (2006) *Design City Melbourne*. Chichester, UK: Wiley & Sons.
- 36 Weiss, Peter, Francesca Appiani (eds.) (2007) Tom Kovac Architecture in, *Tea & Coffee, Piazza & Tower*. Kettler: Bönen.
- 37 1st London Architecture Biennale. London, England. (2006).
- 38 *Metamorph*. 9th International Architecture Biennale. Venice, Italy. (2004).
- 39 Victorian Partnership of Advanced Computing (VPAC). Available: <http://www.vpac.org/>.
- 40 van Schaik, Leon. (2004). *The Design of the Digital Design Biennale Exhibition*. lab.3000: RMIT University. pp.18-20.
- 41 1st London Architecture Biennale. London, England. (2006).
- 42 *Serpentine Virtual Pavilion* project description by Leon van Schaik. 1st London Architecture Biennale. London, England. (September 2006).
- 43 *Emerging Talent, Emerging Technologies*. 2nd International Architecture Biennale. Beijing, China. (2006).
- 44 *Visualising the Virtual Concourse Installation*. BIACS3: Iinternational Contemporary Art Biennale. Seville, Spain. Curator and artistic director: Peter Weibel. (Oct 2 2008 - Jan 11 2009).
- 45 Exhibited in *RMIT Architecture, Schools Exhibition*. 3rd Beijing Architecture Biennale. Beijing China. (2008)

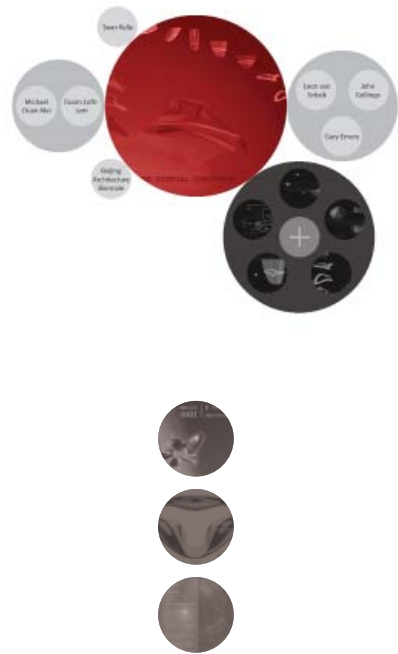


A key part of my PhD has been a reflection on my practice; my contribution within this area of knowledge and the application of a teaching methodology. This has been a unique experience. For the most part, my studio and seminars have been conducted with online collaboration technology for the purposes of teaching and learning. It has been successfully integrated with student groups of varying sizes, testing and operating in the early stages in 2004-2006 with Quick-Links, and then in a second stage from 2008-2013 with the renamed Corus operating system. As RMIT migrated onto the Google platform for email and document collaboration, the collaboration technology and software for teaching and learning has remained unprecedented within the Schools of Architecture.

In the period emphasising the use of the stated technology, the teaching and learning experiences have been analysed, with the results producing an improved student learning experience. We identified that within the functional roles, there were utilities as well as gaps. Principal amongst those gaps are key collaboration tasks and activities that take place in teaching and learning environments.

The project team, in consultation with key stakeholders at RMIT, has identified the need for a dashboard suite of additional functionalities and tools that could be accessed from links within the existing RMIT Blackboard shell. Building upon the technology foundations already in place, the tools aim to enhance educational outcomes by addressing these technology gaps with:

- Real time browser-based whiteboarding, and idea creation and sharing
- Simple and swift large file sharing
- Many-to-many discussion threads integrated into a personalised activity stream with the flexibility of inviting in external partners and non-RMIT University staff members
- Real time video collaboration, bringing groups together synchronously
- Collecting and presenting real time data on Teaching and Learning
- Analytics of user engagement
- Maintaining archives of prior classes and material for reference and reuse
- Ad hoc creation of topics/spaces by students for independent/group study use.



Visualising the Virtual Concourse

RMIT Case Study 01

Synopsis: the emergence of virtual learning environments has revealed shortcomings in the fundamental assumptions made about learning itself, chief amongst which has been the failure to base models on learning as a socially structured activity. The same can be said of the translation of research and enterprise practices into virtual environments. Expert solutions have been proposed that address technical refinements or information delivery models of learning that do not answer the questions being asked by users, and their need to operate in communities of practice. The Virtual Concourse is an innovation concept that unites researchers and product developers in the pursuit of a long term goal, that seeks to enable the development and application of partial solutions to the needs of a wide range of clients who share a similar long term and evolving goal. The concept begins with user perceptions and requirements and embraces, like a Portuguese man-of-war, a colony of agents who work on processing and digesting the information that the concept draws into contention. This model is non-judgmental about participants, but provides a 'platform for change' (Beer, 1975) upon which people can engage at their own pace, and in the company of peers.

Context

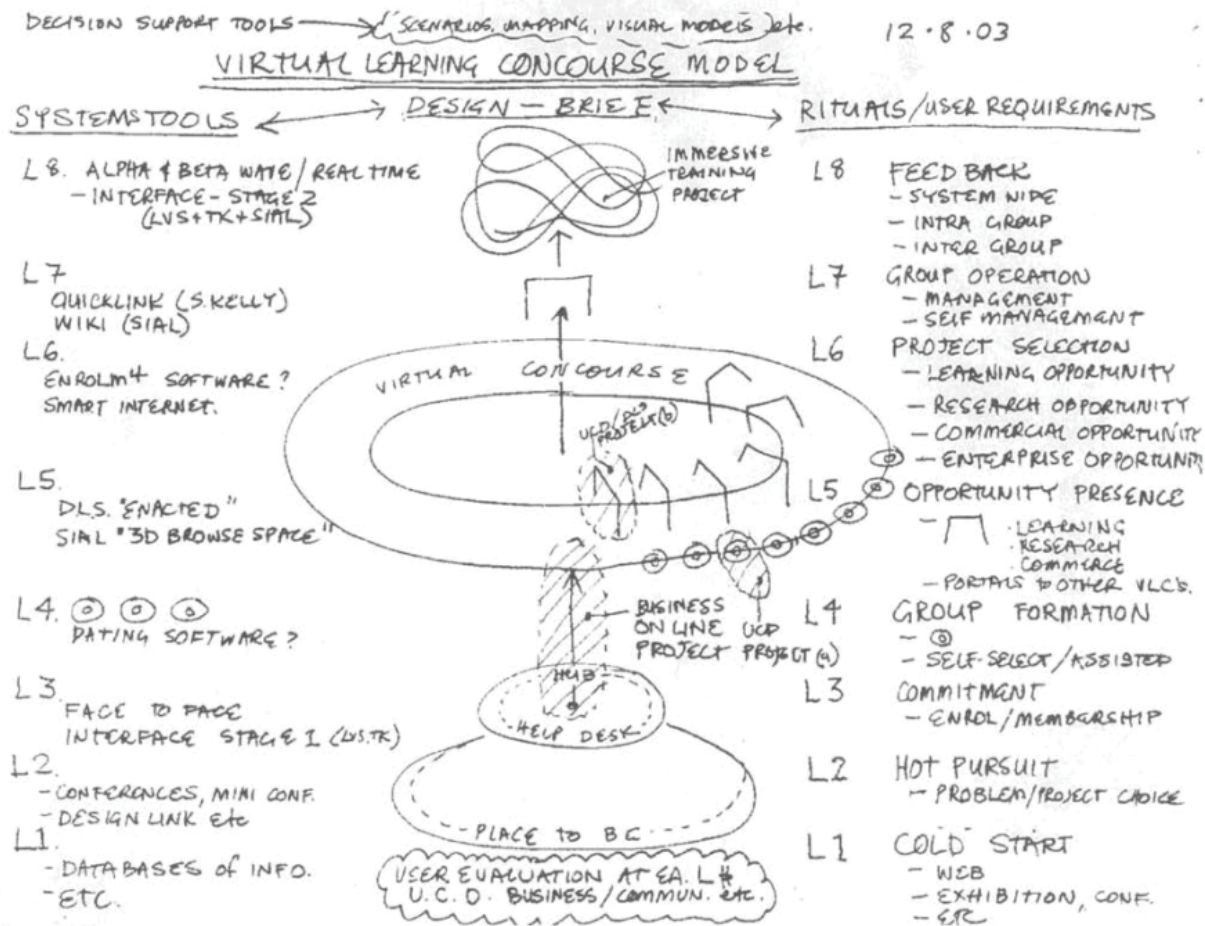
Seen from the outside, the Virtual Concourse resembles a Portuguese man-of-war, a large complex, and colonial hydrozoan having an aerial float or sac-like body and long tentacles. The sac is the overarching idea that brings together the various research of individuals and laboratories. It enables those who join the colony to cooperate and collaborate on the evaluation of user needs, the development of design briefs, the design of rituals and system tools and the synergistic development of the overall design. It is not an enterprise system. It seeks out the 'weak' or unexpected connections between the research and practice of the individuals who find in the idea ways of combining their efforts to evolve improved interactions between participants and would-be participants in well-defined domains of knowledge. It services the needs of real clients (RMIT Business Online) who need to extend tentacles out into the world in order to attract players to their domains.

The Virtual Concourse idea currently encompasses and connects three major streams of thinking about new learning environments:

- Work on user requirements, conscious or embedded in ritualised public behaviours, described in several layers of engagement
- Design briefs that relate those needs to a model that links users and providers at each layer
- Systems and tools that enable self-management, group interaction, and system management at each layer.

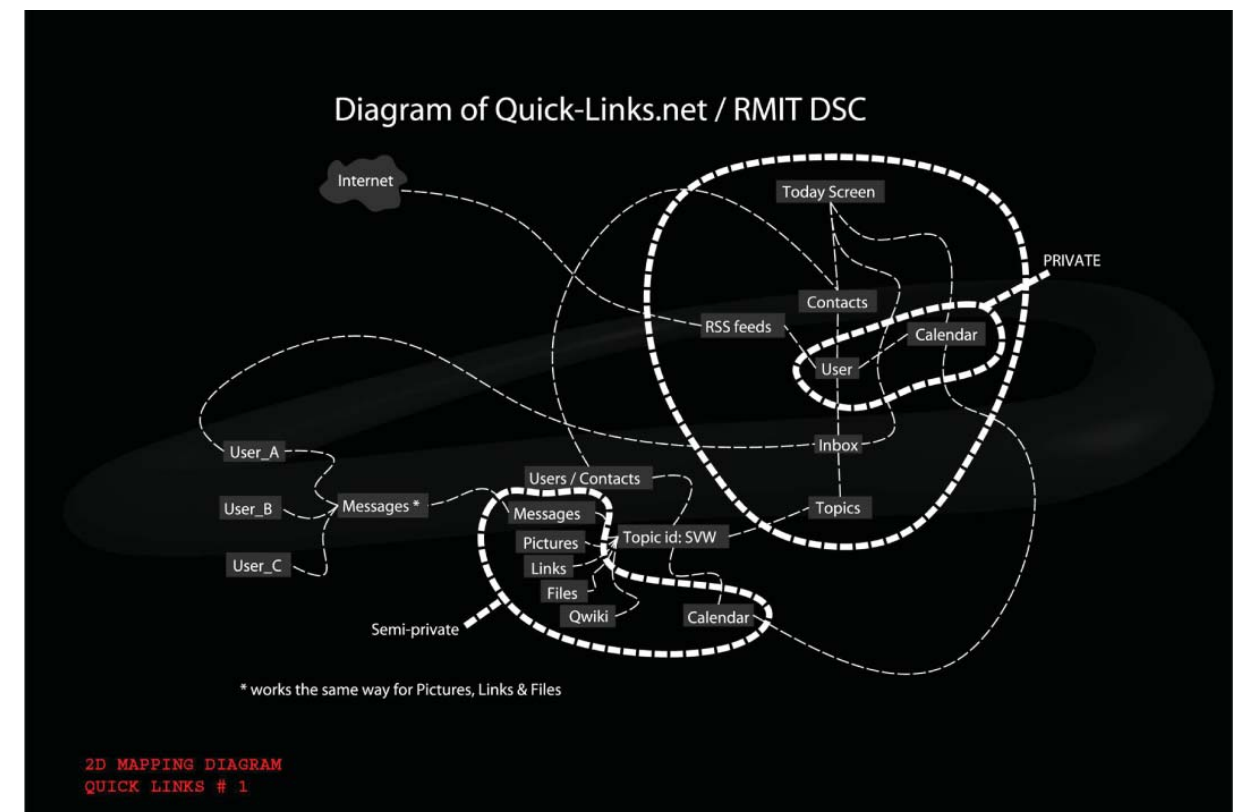
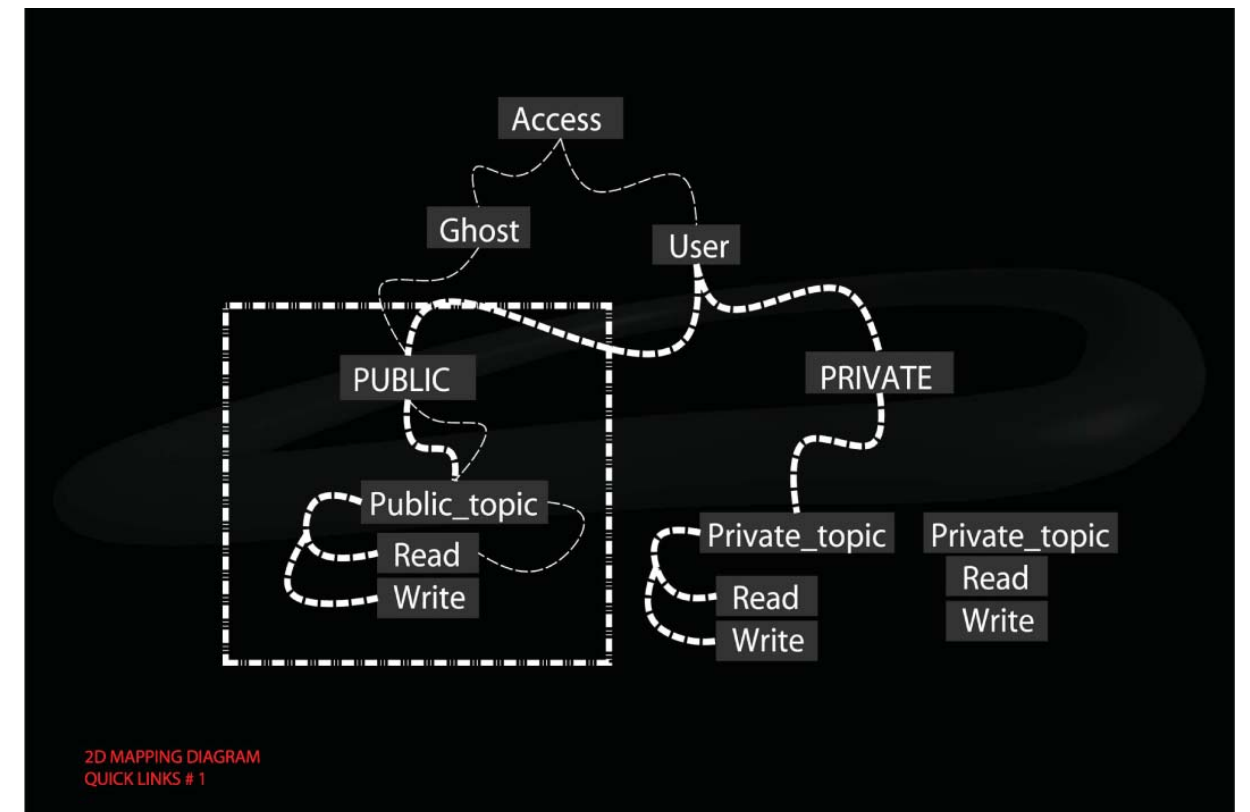
The idea places certain research findings at its core including that:

- Learners seek meaningful interactions with their peers
- The formation of communities of learners within ritual frameworks appropriate to their discipline is the necessary initial service that a provider must offer (Medeserve)
- Information technology makes the pursuit of such goals in virtual environments possible
- Such virtual environments need to be related to a real environment.



Visualising the Virtual Concourse

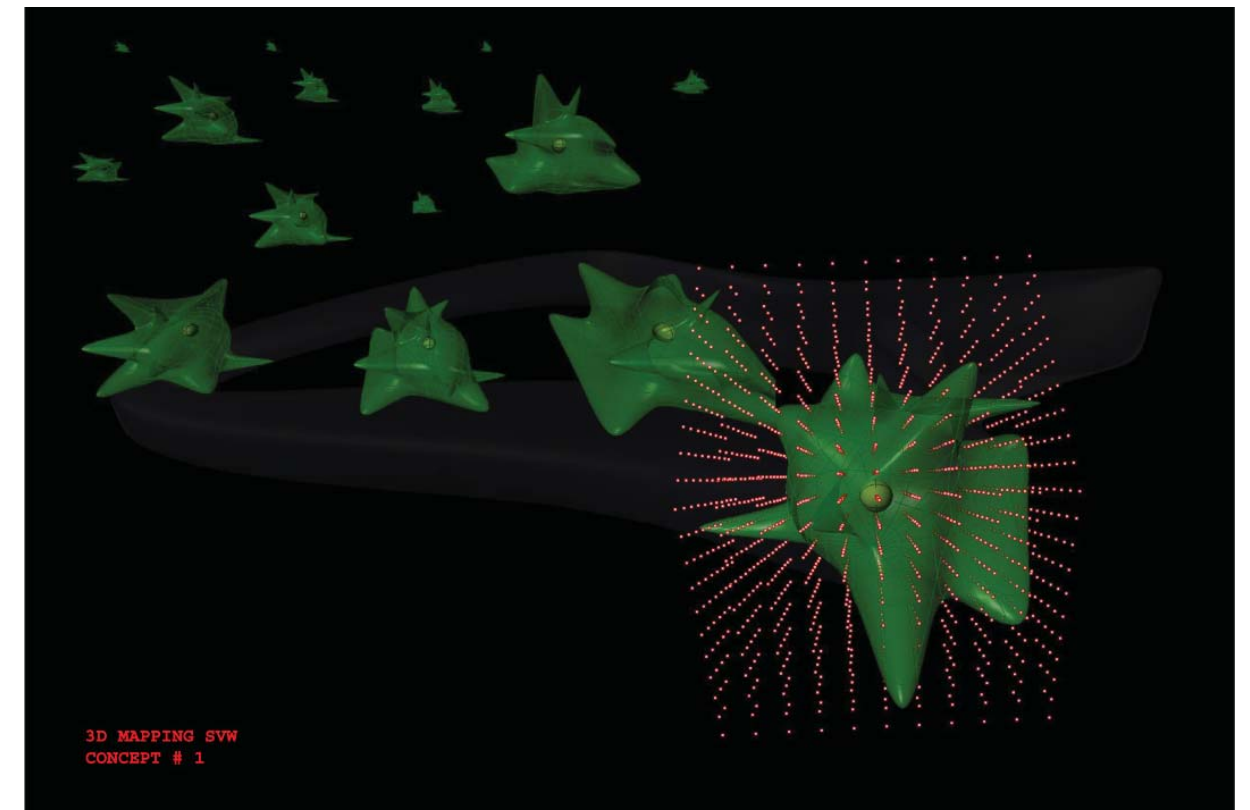
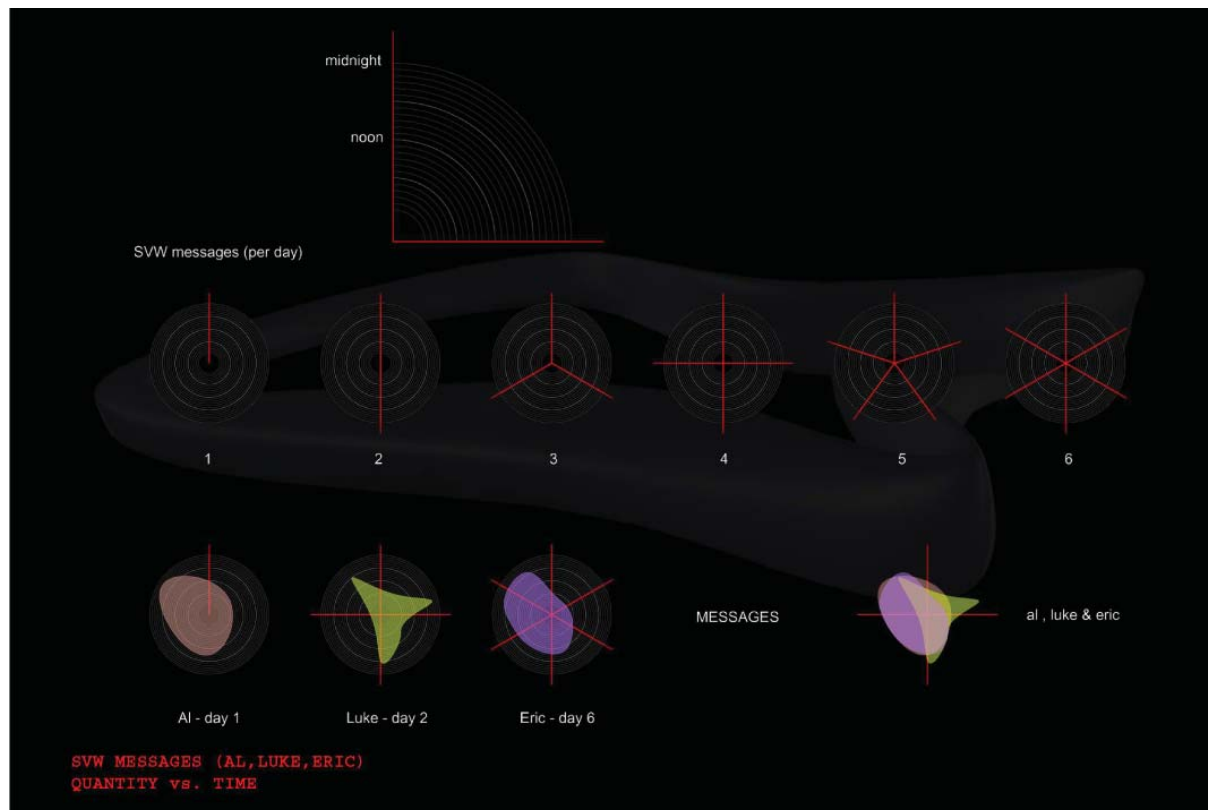
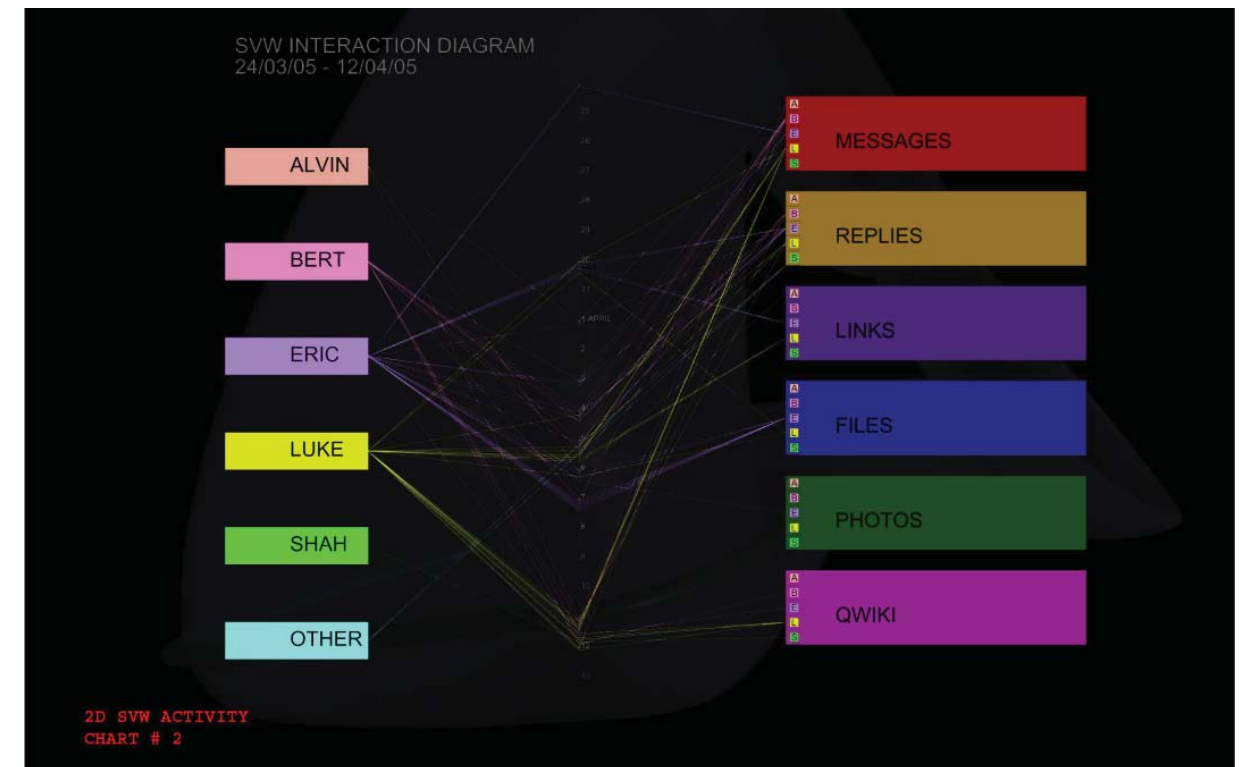
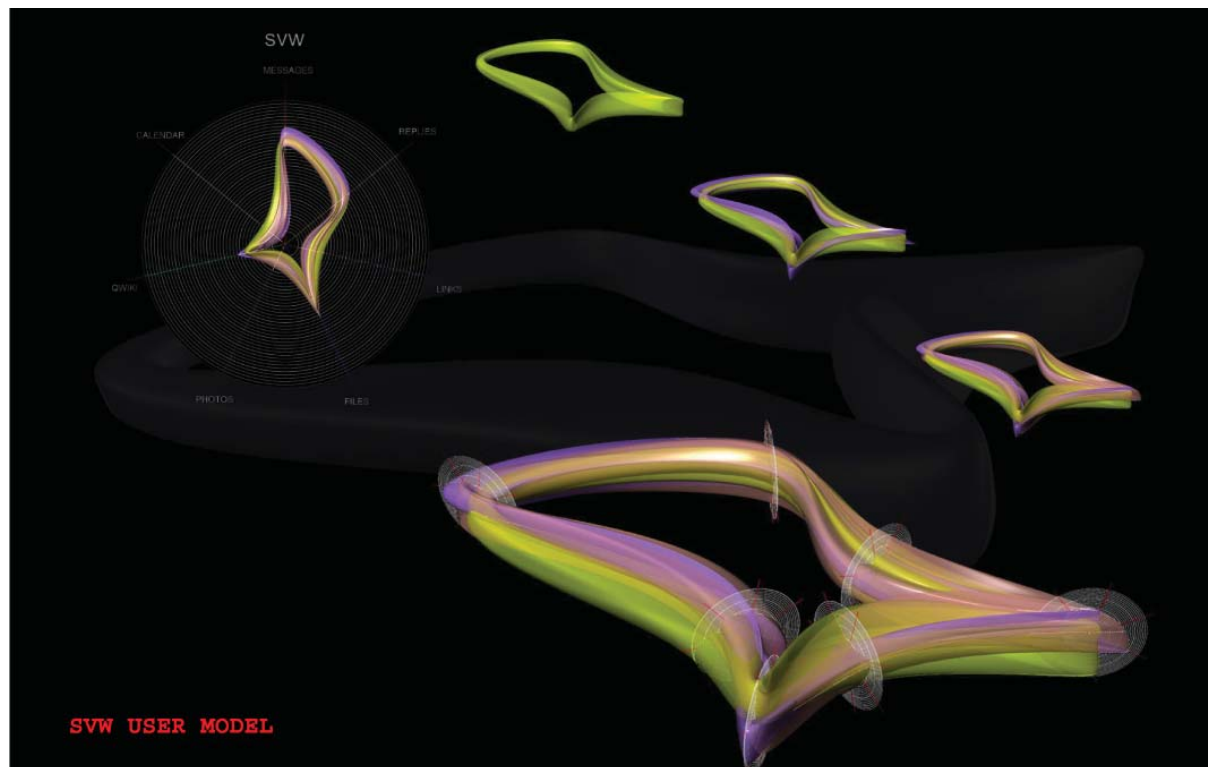
5.201 // Virtual Learning Concourse model outlining the schematic proposal incorporating a conceptual framework for both the Digital Biennale and virtual platform navigation process.



Visualising the Virtual Concourse

5.202 (Above) // Mapping diagram of public and private user spatial organisation navigation process.

5.203 (Below) // Behavioural model analysis of spatial navigation of user groupings and interface.



Visualising the Virtual Concourse

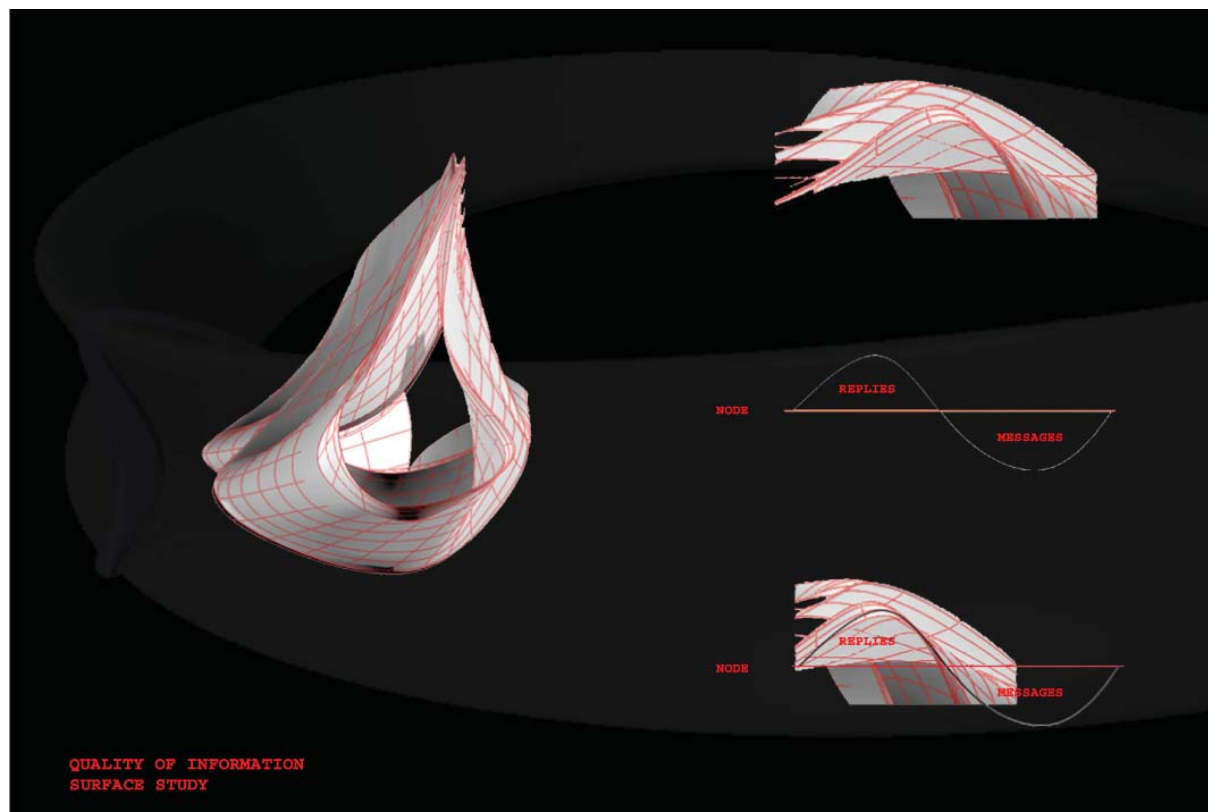
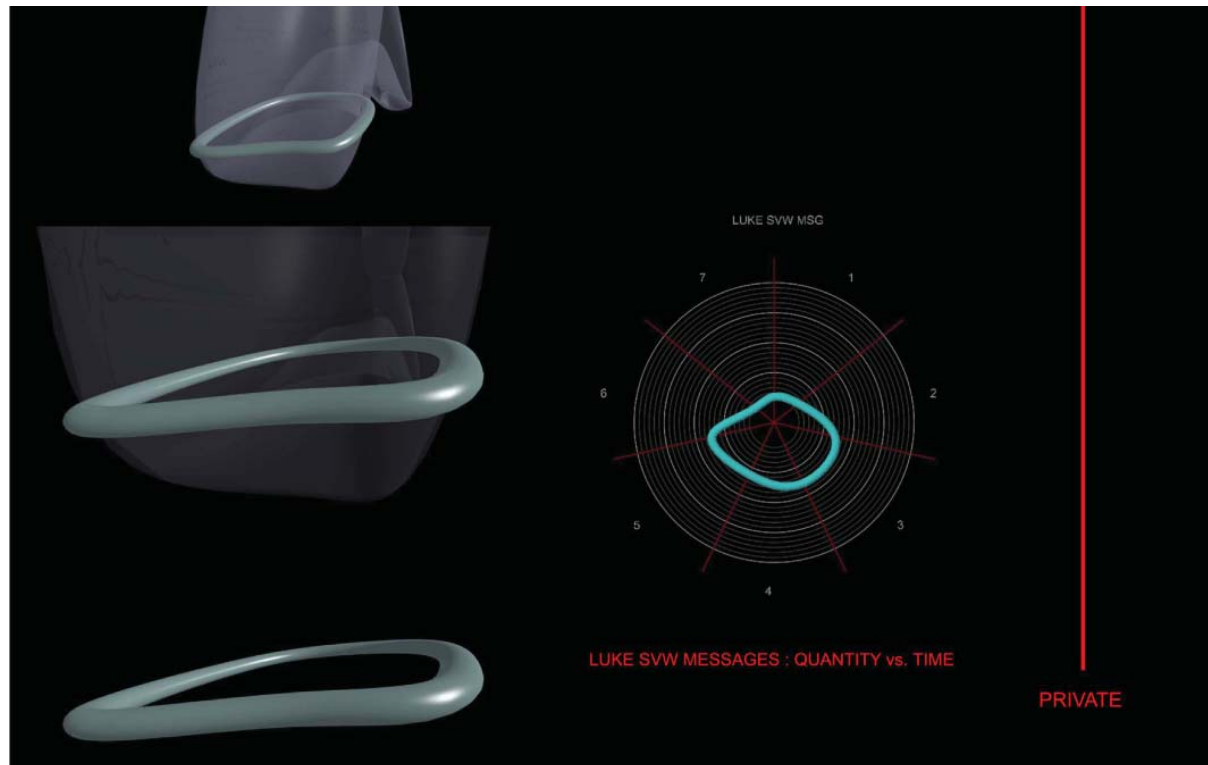
5.204 (Above) // Visual colour analysis diagram of user time-based behavioural adaptation as part of the Torus adaptation study.

5.205 (Below) // Mapping diagram of individual student messaging behaviour as a spatial, time and activity study.

Visualising the Virtual Concourse

5.206 (Above) // Activity diagram analysing student activities and type of interaction study.

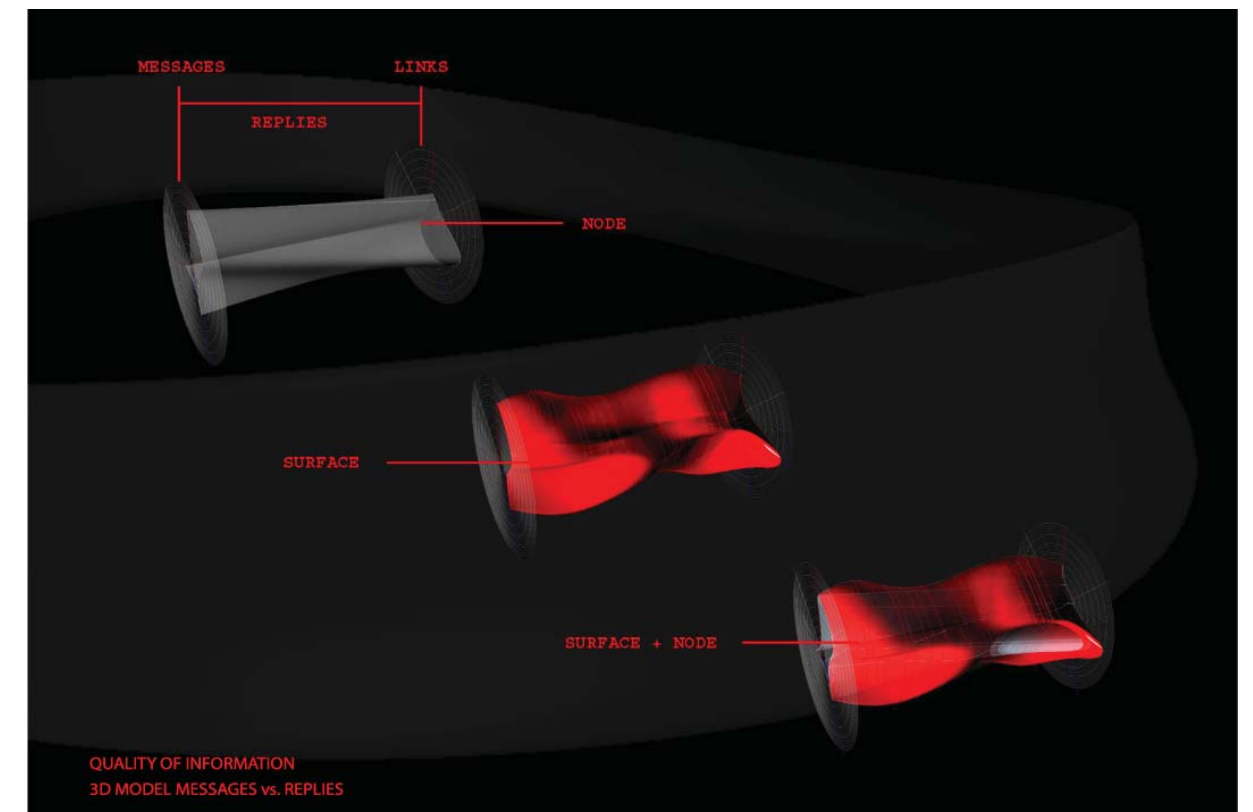
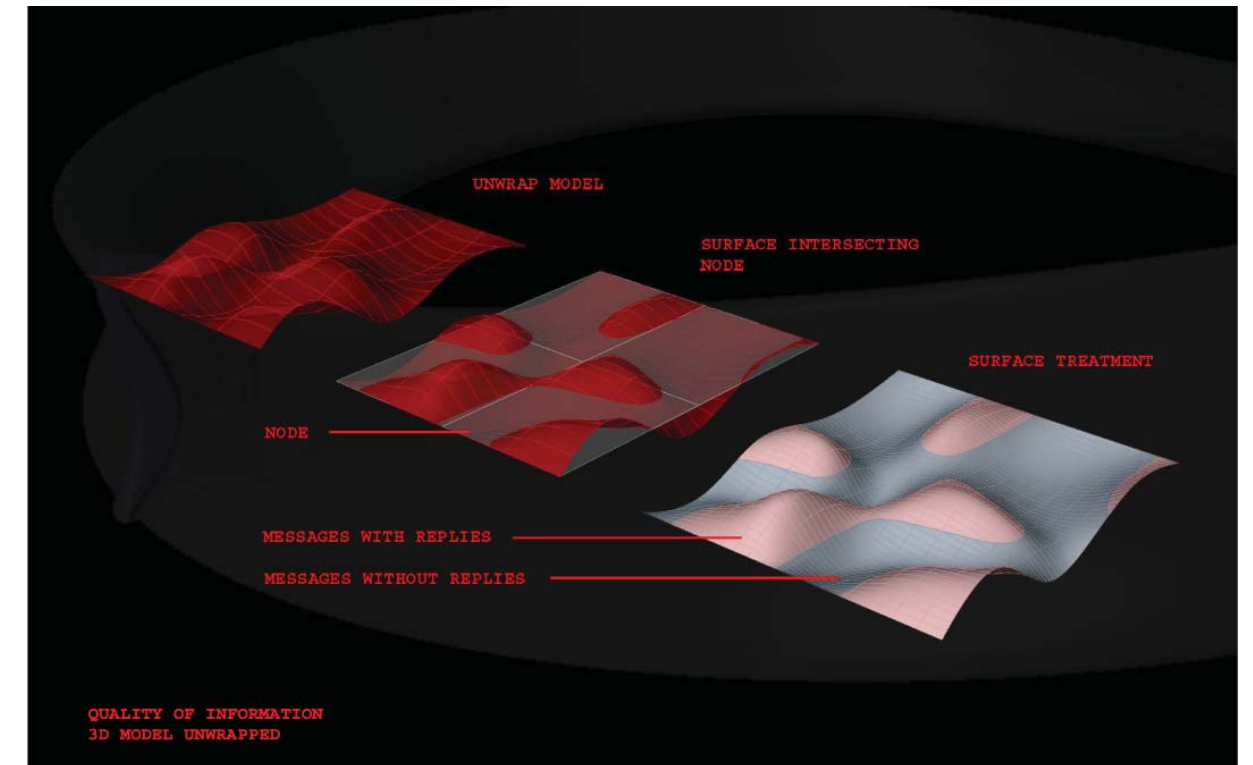
5.207 (Below) // Three-dimensional study representation mapping interaction of user activities.



Visualising the Virtual Concourse

5.208 (Above) // Symmetry distortion study analysing messaging quantities of public private interaction.

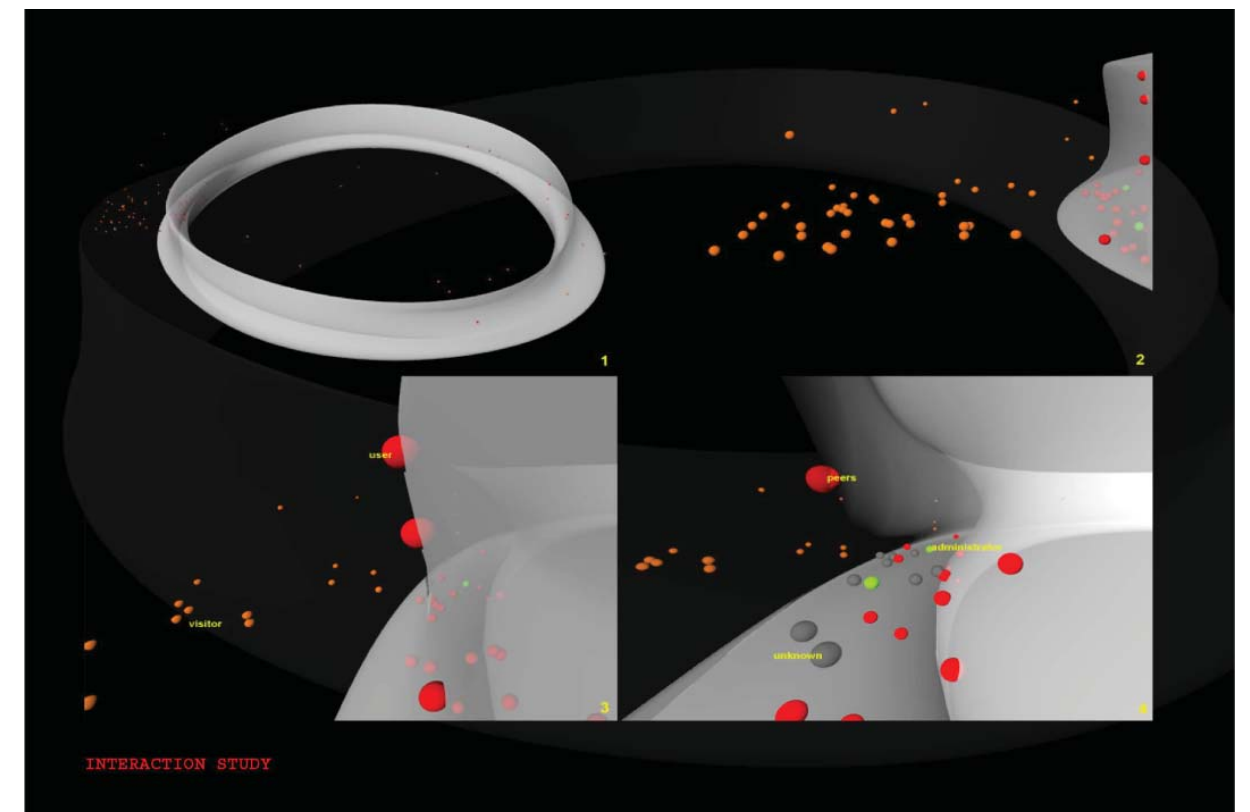
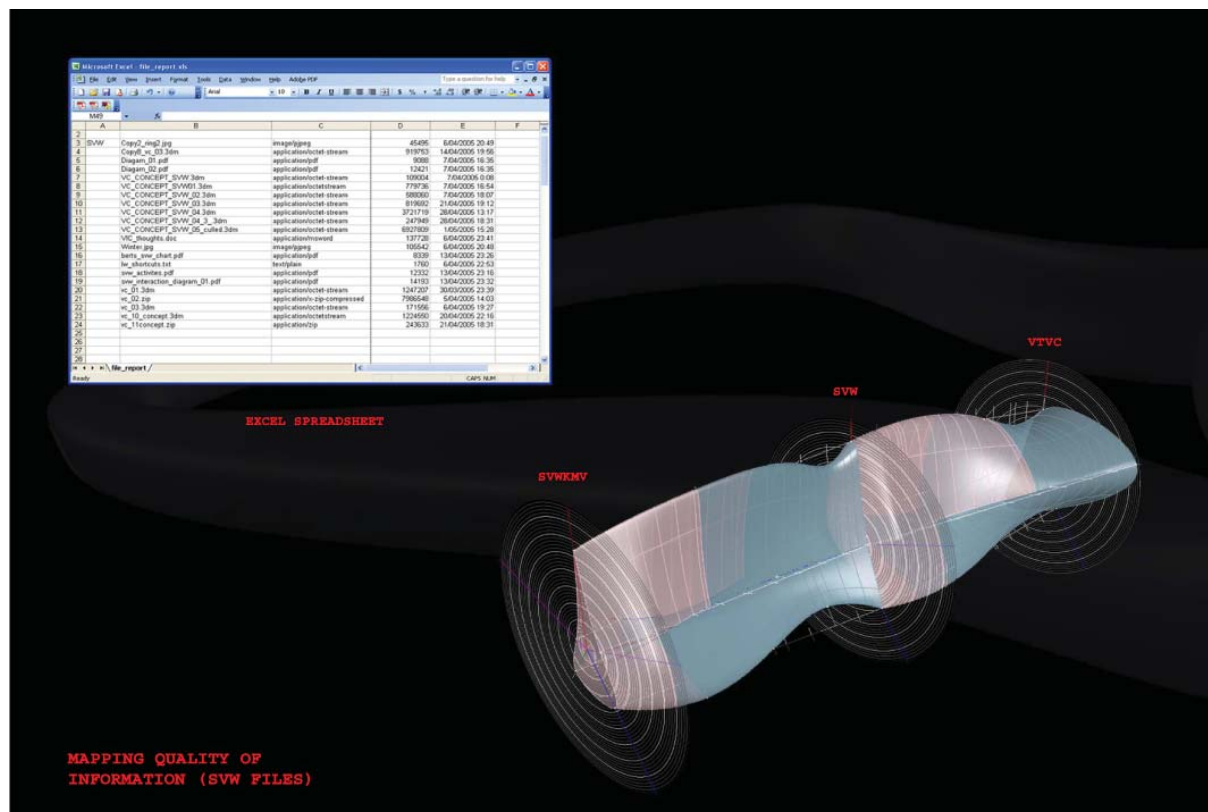
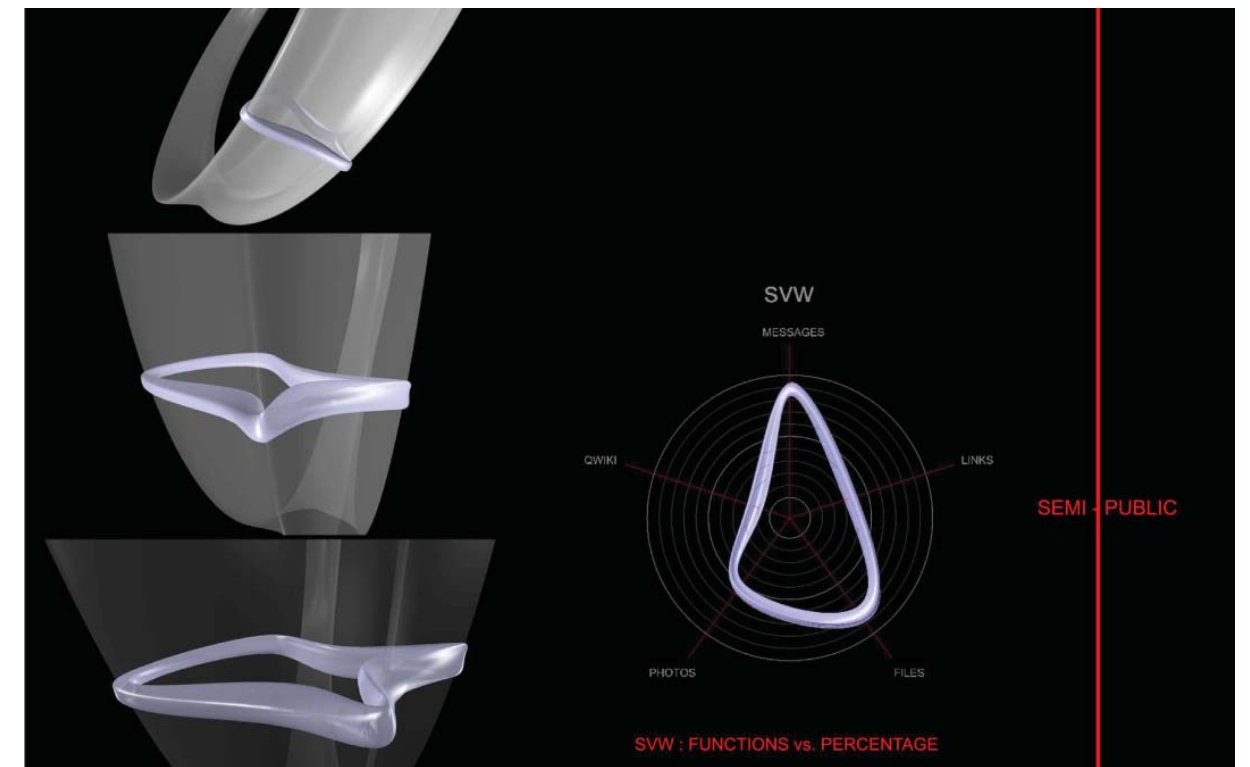
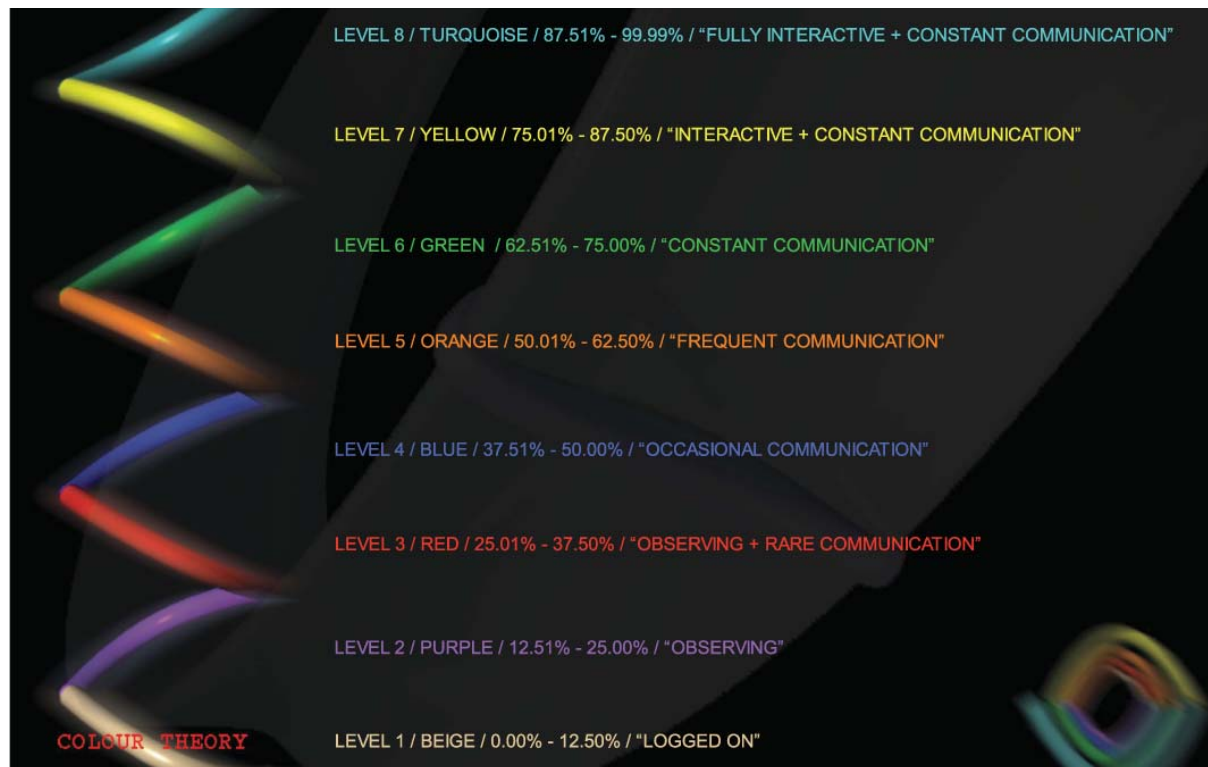
5.209 (Below) // Unfolding surface study demonstrating possibilities for modelling and reading qualitative information.



Visualising the Virtual Concourse

5.210 (Above) // Qualitative model of unwrapped information with negative and positive surface intersections of messaging between learning groups.

5.211 (Below) // Model development studying the capabilities of folding information as a surface transformation.



Visualising the Virtual Concourse

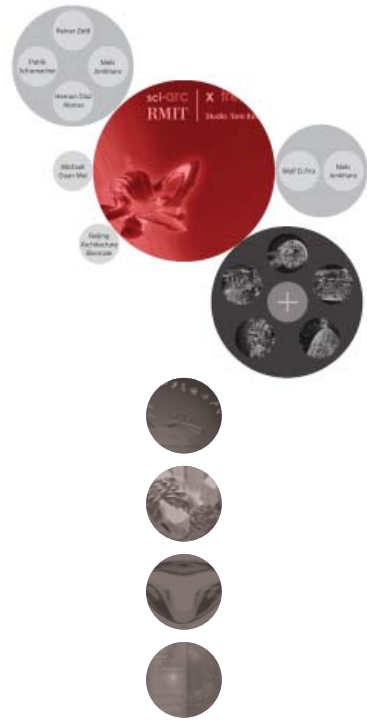
5.212 (Above) // Conceptual colour study 'unfolding, emergent, oscillating, spiraling process marked by progressive subordination of older, lower-order behaviour systems to newer, higher order systems as man's existential problems change.'¹

5.213 (Below) // Detail of folded mapped information of qualitative value-systems.

Visualising the Virtual Concourse

5.214 (Above) // Torus visual language transformation analysis of public and semi-public zones.

5.215 (Below) // User groups dynamic study of interactive environment with zoom option analysis.



xtremes

Sci Arc

Case Study 02

Studio Title: Xtremes Space Lab

Year: 2009-2011

Studio Leader: Tom Kovac

Studio Assistants: Duan Michael Mei, Farzin Lotfi-Jam, Gwyllim Jahn, Ben Buckalew

Studio Type: Masters - Advanced Architecture Studio

The Xtreme Space Lab studio is an investigation of multi-scaler strategies for envisioning space architecture, and habitats and environments. The technological, social, political, economic and cultural shifts present possibilities for rethinking humanity's space futures in the 'xtreme' future. Xtremes Space Lab will develop systems of knowledge supporting and creating projects for these dramatic transformations in thinking about space architecture.

The projects embrace the development of techniques for local energy generation, the incorporation of information technology into production of extreme habitation and constrained physical space and other relevant situations, calling for a new vision of the evolution of knowledge for space architecture. It will enable a range of possibilities and initiatives offering potentials for transforming habitable spaces in keeping with the new requirements of both building scientific knowledge and spatial production for habitable life in space. Xtreme Space Lab will set a multidisciplinary accent with research and education combining science, technology with architecture and form.

Xtreme Space Lab programme considers habitats at exponential scales, three scales of production and design proposals testing space habitats in three scaled environments:

01. Spaceports
02. Low Earth Orbit
03. Deep Space:

The Space Architectural program considers effective organisational systems and designs with specific knowledge to generate varying scales of production creating new physiological and metabolic delimitations of the habitats. The

proposed environments are related to a variety of uses (living, work, commercial, infrastructure, etc) and their users' needs with consideration at both micro and macro scale as well to the specifics of ground and terrestrial contextual space.

The three scales are defined by a set of parameters, which drive the final designs. These parameters are generated by the individual human characteristics both cognitive and physiological to extreme characteristics of the specific location's environmental data.

The three environments scale from a lab-sized space station to a micro-community, to a large space city and can be understood as a complex organism, plugged into a substratum by the managing of the input and output of local data and extreme characteristics of space.

The projects are considered as independent nodes and as parts of an exponential network of worlds. The networks and dynamics are explored with a view to understanding new information affects on the making of the sentient and the physical worlds, and how these elements perform as informational for evolving systems for the future of human space habitation.

Image withheld for copyright reasons.

Image withheld for copyright reasons.

xtremes

5.301 (*Above*) // Energy production core and public zones of space station world.

5.302 (*Below*) // Detail of inner sphere's artificial gravity with infrastructure and proposed urban environment.

Image withheld for copyright reasons.

Image withheld for copyright reasons.

xtremes

5.303 (*Above*) // Longitudinal section study of inner gravitational space and transportation cylindrical core.

5.304 (*Below*) // Section through pressurised gravitational core and transportation cylinder with urban growth in inner surface walls.



Alessi Mutants

Die Angewandte

Case Study 03

Studio Title: Alessi Mutants

Year: 2010-2113

Studio Leaders: Tom Kovac, Reiner Zettl

Studio Assistants: Duan Michael Mei, Giana Aleah Zulkafli, Don Nazrian

Studio Type: Masters - Advanced Architecture Studio

Objectives

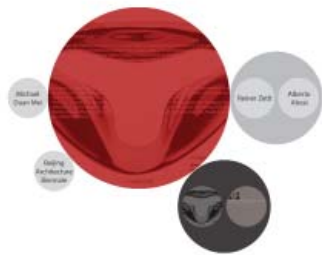
"In the period between 1979 and 1983, in collaboration with Alessandro Mendini's metaproject team, Italian manufacturer Alessi created one of the most important design operations in its history.² Entitled "Tea & Coffee Piazza," its intent was to discover new avenues of development for design during a time when the Italian "bel design" was prevalent. Since, in Italy, design is historically considered to be a child of architecture, Alessi decided to explore this world by inviting 11 international architects with no former exposure to industrial design: Robert Venturi, Michael Graves, Richard Meier, Stanley Tigerman, Hans Hollein, Charles Jencks, Kazumasa Yamashita, Oscar Tusquets, Paolo Portoghesi, Aldo Rossi and Mendini himself.³ The objective was to offer these architects a place where they could experiment with the typological environment of an Italian design manufacturing firm in the hope of producing favourable conditions that would sponsor the creation of a new panorama for future designs. The results of the "Tea & Coffee Piazza" design operation were of extraordinary interest from both a political (it marked the opening of the world of Italian design to foreign designers) as well as a practical perspective:

Principle Material and Methods of Reference

"By 'principle' we (Alessi) mean the material in which the tea and coffee set main parts will be realised, in other words the body. As for handles, knobs, base etc. the rules apply as stated, in silver. The choice of material(s) is left to the designer: today, Alessi works with practically all-available materials. From our perspective, since metals pertain to our origins and continue to be the most important material, we suggest the use of metals, which we consider the ideal historic metal for a Tea & Coffee set.

"Moreover, for this type of operation, it becomes the symbolic metal that absorbs and represents all other metals, particularly stainless steel, brass, nickel and silver. Elements can naturally be made in other materials, precious or non-precious such as wood, plastics, glass or hard rock. After metals, the second material for consideration we suggest are plastics, which may appear less coherent with the exceptional nature of such an operation. However, as we all know, today plastics come in a great variety with qualities, characteristics and values that differ from one type of plastic to the next. This characteristic may spark some interest to some designers. Porcelain and ceramics are materials used by us on a regular basis. Glass and crystal are of least interest to Alessi since they do not work very much with this material. The aforementioned materials can be used alone or in combination. Given the above premises, the production methods used are prevalently digital and aim at production techniques with 3D printing technology. By digital, we intend to inform materiality and generative processes and the relationship with the traditional handmade methods (for example, if we consider silversmiths, we mean either by lathe or by hammer) and new methods made possible by the evolution of digital techniques and reproduction techniques such as electroforming (where one starts off with a wax model on which the chosen metal is galvanised) and vacuum melting (one starts off with a synthetic material mould into which cast metal is poured)."⁴

"Alessi Mutants 4, commencing in 2013 changed the brief from the original Tea & Coffee Piazza project, which explored and reinvented the relationship between architecture and industrial object, focusing instead on a series of small-scale furniture-object studies. Participants were asked to design small furniture objects with the intention of creating a set of objects that are extraordinary both in their expressive language as well as in the production methods used to create them. These served as the conceptual origin for the unfolding of shapes and surfaces creating a small environment that by hybridisation is removed from any initial typology or utilitarian determination of the works. Though these projects began as an architectural investigation of Alessi typology, they were informed by the contemporary discourse on digital generative processes and



advanced techniques of manufacture. The project's intention was to redefine the notion of physical space by warping, pulling and pushing the boundaries of the small objects until they arrive at and constitute new and unfamiliar interior landscapes.

Principle Material and Methods of Reference

The choice of materials was left to the participant: Alessi works with practically all available materials but from its origins and ensuing traditions has a preference for metal. The elements for the Small Furniture Object however, could consider other materials, precious or non-precious such as wood, plastics, polymers, resin glass etc. Plastics, which come in a great variety of qualities, might be investigated in 3D prints. Software tools including: Maya (Mel), Rhino(Grasshopper), 3Dmax could be incorporated as required.

ALESSI MUTANTS IV

ALESSI MUTANTS 4 explores and reinvents the relationship between architecture and industrial object, focusing on a series of small-scale furniture object studies. These serve as conceptual origin for the unfolding of shapes and surfaces creating a small environment that by hybridization is removed from any initial typology or utilitarian determination. Though these projects begin as investigation of Alessi typology, they will be informed by the contemporary discourse on generative processes and manufacture. The projects will redefine the notion of physical space by warping, pulling and pushing the boundaries of the small objects until they arrive at and constitute new and unfamiliar interior landscapes. In one instance, a series of table objects is transformed into a life size relief from which flows, as if in motion, an elegant desk that mutates into

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Tom Kovac, Rainer Zettl
 June 21st to July 19th 2013
 detailed info: www.urbanstrategies.at/summer-schools/
 please contact: urban.strategies@uni-ak.ac.at
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urban.strategies@uni-ak.ac.at
<http://www.facebook.com/urbanstrategies>
 di: angewandte

Alessi Mutants IV

5.401 // Alessi Mutants studio poster outlining objectives and studio profile.



2112Ai 100YC

RMIT

Case Study 05

Studio Title: 2112Ai 100YC

Year: 2012-2113

Studio Leaders: Tom Kovac, Jose Alfano, Karl Fender

Studio Assistant: Duan Michael Mei

Studio Type: Masters - Advanced Architecture Studio

100YC [100 Year City] is a global studio that provides a compelling provocation for innovative thinking around the future of cities:

100YC promotes manifold models and approaches in innovation as appropriate models of design research practice. The project identifies research in multi-disciplinary thinking and collaboration as core competency conditions necessary for future innovation.

The project invites future visions from the world's leading design schools with the ambition to present and showcase creative culture and technology. It is anticipated that 100YC will become an ongoing research lab destination for the discourse and evolution of 'architectural intelligence.'

All school teams register by the official registration date utilising the (online) downloadable form which is provided within the CORUS collaborative software platform.

100YC Case Study

The City of Maribor and the 100YC [100 Year City] project is representing Slovenia at the biggest architectural event in the world. 100YC has engaged over 1000 people (students, studio leaders, architects, advisors, mentors, key stakeholders) with the 100YC project. All were envisaging their ideal of a city of the future, based on their respective concepts of Maribor in 100 years, presented and discussed about in numerous lectures, meetings, panels, symposiums and conferences.

To date, the 100YC project has produced over 100 projects by 23 participating institutions with 37 studio leaders and 400 students from 11 participating countries.

Alessio Erioli – Bologna University; Matias del Campo and Sandra Manninger, Liss C. Werner – Dessau Institute of Architecture; Veronika Valk – Estonian Academy of Arts; Marisol Vidal – Graz University of Technology; Ulrika Karlsson – KTH Royal Institute of Technology; Peter Gabrijelcic – Faculty of Architecture at the University of Ljubljana; Julia Koerner – Lund University, Nigel Bertram, Tim Schork – Monash University; Karl Chu – Pratt Institute; Wendy Fok – Princeton University; Jose Alfano, Tom Kovac, Karl Fender Charles Anderson, Jane Burry, Paul Minifie, Vivian Mitsogianni, Francois Roche, Roland Snooks, Aleksandar Subic, Nicholas Williams – RMIT University; Hernan Diaz Alonso, Elena Manferdini, Florencia Pita, Marcelo Spina, Tom Wiscombe, Peter Zellner – SCI Arc; Martine De Maesneer – Sint Lucas; Marjan Colletti and CJ Lim – The Bartlett School of Architecture; Hadrian Predock – UCLA; Bart Lootsma, Patrik Schumacher, Peter Trummer – University of Innsbruck; Rene Van Meeuwen – University of Western Australia; Chris Bosse, Dale Jones-Evans – University Technology Sydney; Reiner Zettl – IoA die Angewandte.

Studio Abstract:

What is our vision of cities one hundred years from now? Is it possible for us to speculate about the functions, requirements and operations of cities a century in advance as proposed by the 100YC project, and design future matching urban infrastructures? Architecture has served as a viable trajectory for the needs and complex social behaviour of citizens in the past. While architecture may also be a tracking device for urban development in 100 years' time, urbanism can be seen as an ongoing attempt to rationalise over such developments, to inject direction, order, logic and judgement into structures that have emerged, and to provide a rationale, an understanding and an evaluation of their historical dynamics.

The rationalisation process through the urbanism lens, which all cities undergo, has been hitherto dominated by discussions of external influences – including historic factors, wartime occupation and destruction scenarios, changes of governance and cultural rulings, etc. – and internal systemic implementations, including technological developments in transport, energy and water supply, communication facilities, etc. What has been



neglected when looking through the conventional urbanism lens is a closer consideration of the very living conditions in the city. But because the actual 'living' in the city has stood in the shadow of the orthodox topics of city planners, cities find themselves on the verge of collapse – almost suffocated and in agony under the burden of their own very architecture and buried under layers of urbanism theory and built ideology. Within a few decades, the explosion of the urban form of life has forced itself on the agenda of 'city' stakeholders who tended to underestimate or neglect the developments and symptoms of urban 'dis-functionality' and the erosion of quality of urban life around them.

Developments in information and communications technologies do provide the first tangible evidence and indicators of possible 100YC futures in this very dynamic sector – but not so our transport systems.

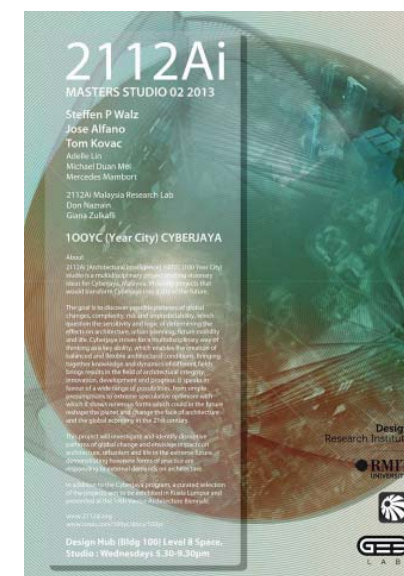
Although at a smaller scale, Maribor is a paradigm case for problems of this kind: its people seek the higher quality of living that suburban and rural environments seem to offer. They take with them their city-spirit and urban form of life, which results in the urbanisation of rural areas. A profound sense of dis-functionality of our cities is thus spreading, although the multi-layered functions of a city are central to our identities and formative in relation to our value systems. While we acknowledge that cities may play a fundamental and constitutive role in relation to the social fabric of modern societies and may be of vital importance to future societies' cultural capital, the city seems to be – paradoxically – under threat. Will the 21st Century witness the emergence of the Megapolis, as city populations expand into the billions, or will at some stage a new diversification and atomisation occur, with new quarters, regions, municipalities, subcultures and urban tribes?

The times in which to launch the 100YC project are challenging times of change, disruption, tension and paradox - filled with possibilities and chances for re-structuring, re-defining, re-inventing the city of the future. This is the most fertile ground for visionary individual architects and urbanists to renew perspectives, rebuild platforms and redefine notions of living in

cities and to venture into new forms of life in extreme urban and trans-urban futures. 100YC places itself at the very centre of this field of discovery, speculation and research, to be conducted by individuals with a sense of responsibility, a sensitivity towards the common, and clear understanding of what is at stake.

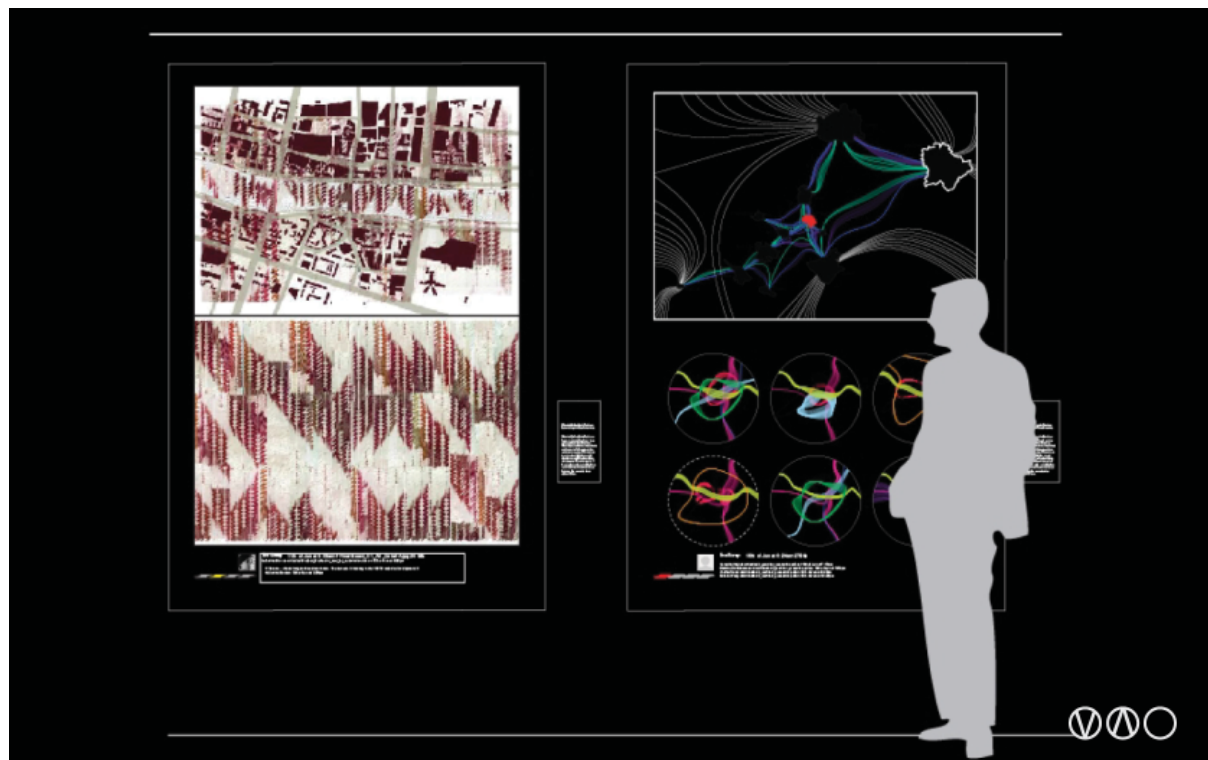
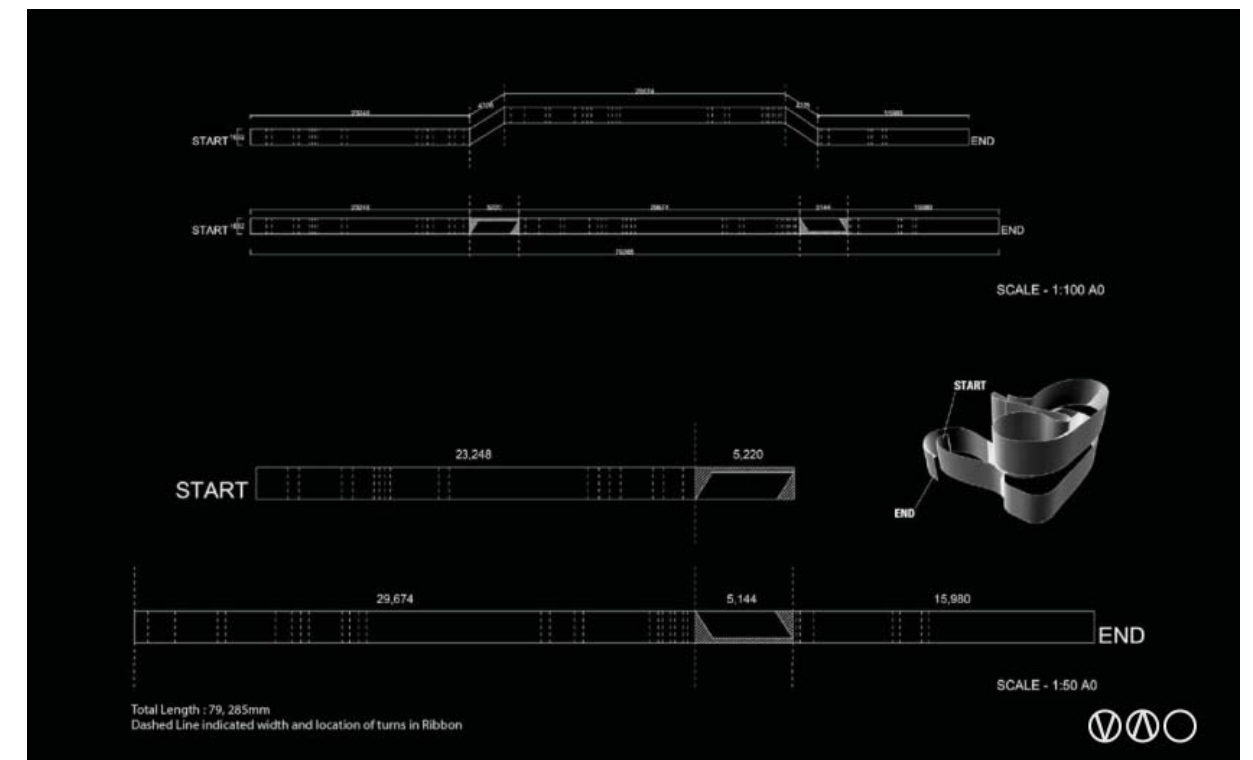
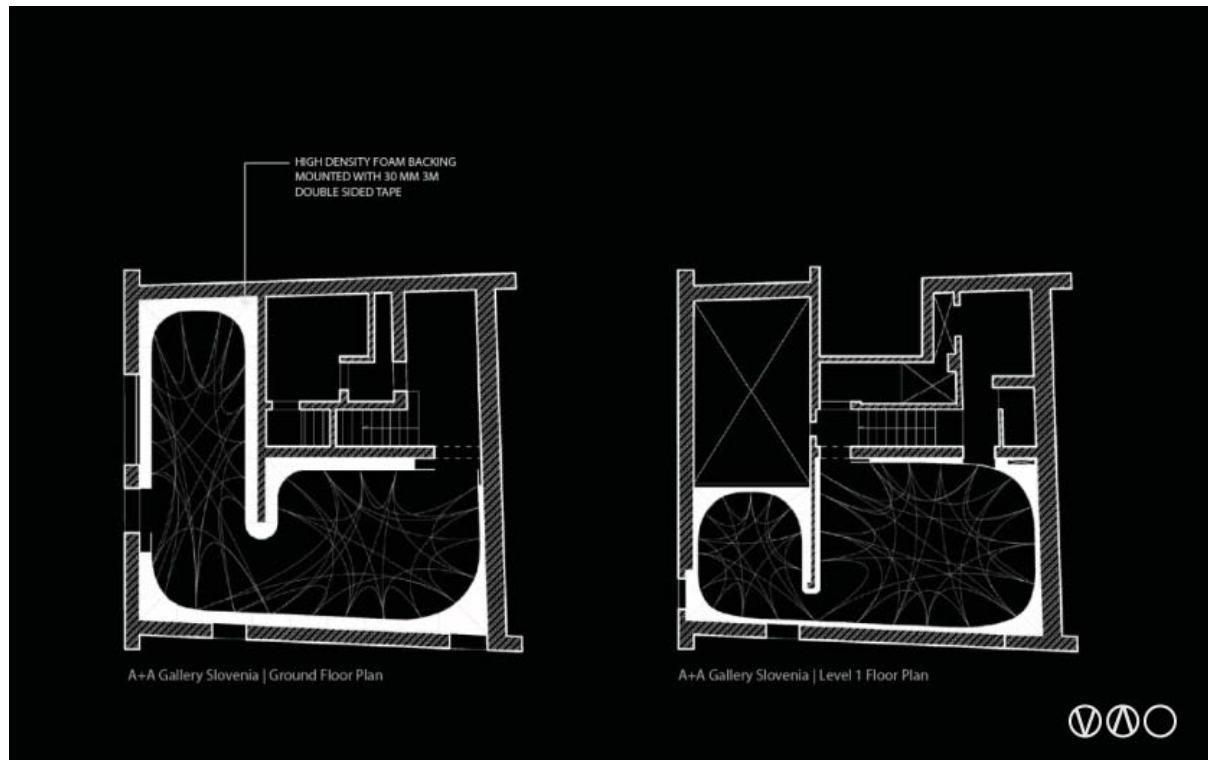
This form of investigation understands trans-disciplinary thinking and transformational collaborative practice as core competencies, quintessential to the capacity to condition future innovation. It recognises the evolution in material science, human-computer interfaces, experience design and engineered systems as approaches that emerge from new dynamics across cognitive and technological domains.

100YC thus highlights the nature of external pressures on architecture and the emerging and evident complexities and paradoxes governing cities. An intended outcome is to establish itself as a permanent research lab destination for future discourse and the evolution of architectural intelligence. It will promote a long view capability to explore such speculative futures and to foster extreme optimism as core conditions in order to reshape the city and transform design and the global economies of the 21st century.



2112Ai 100YC

5.501 // Cyberjaya studio poster with objectives and studio profile.

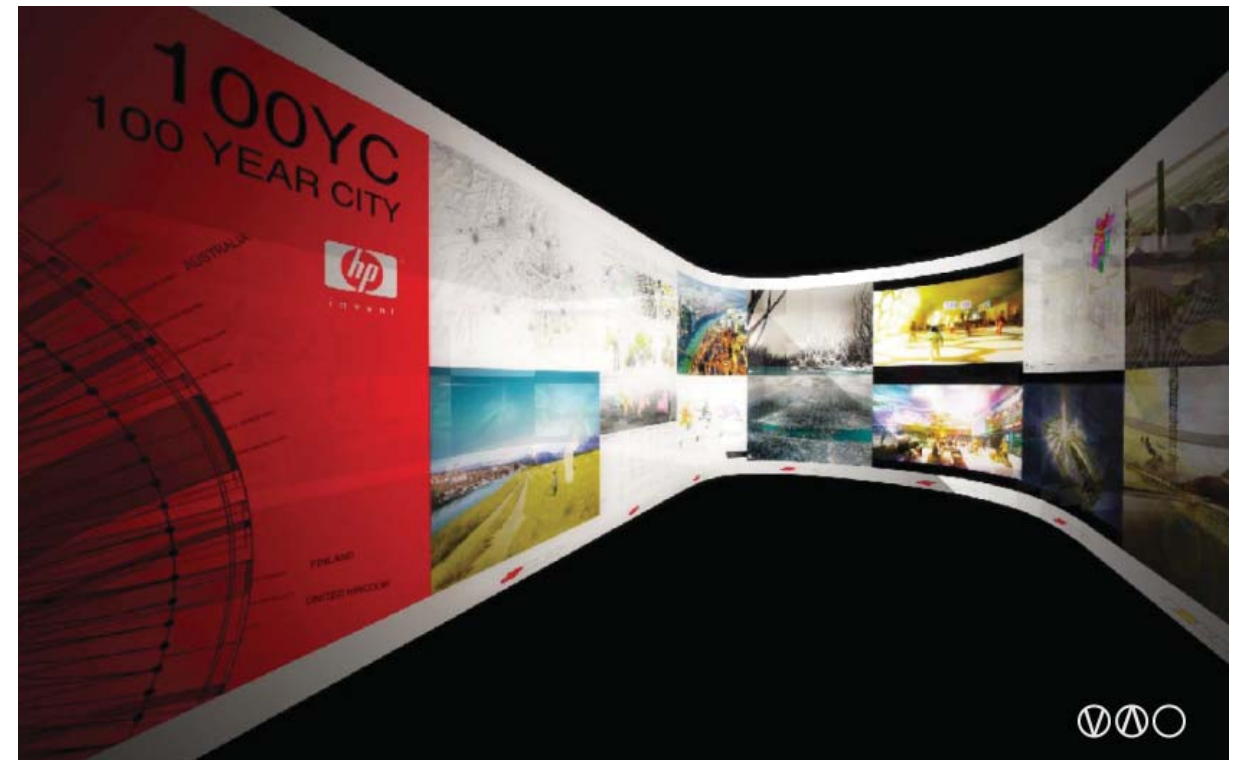


2112Ai 100YC

5.502 (Above) // Interior Ribbon design layout within existing gallery space of the interior of the Slovenian Pavilion.
 5.503 (Below) // Ribbon layout detailing project panel study and visual organisation of the exhibition space.

2112Ai 100YC

5.504 (Above) // Unfolded exhibition ribbon model study for gallery layout.
 5.505 (Below) // Exhibition entry ribbon study and large image format optional schematic.

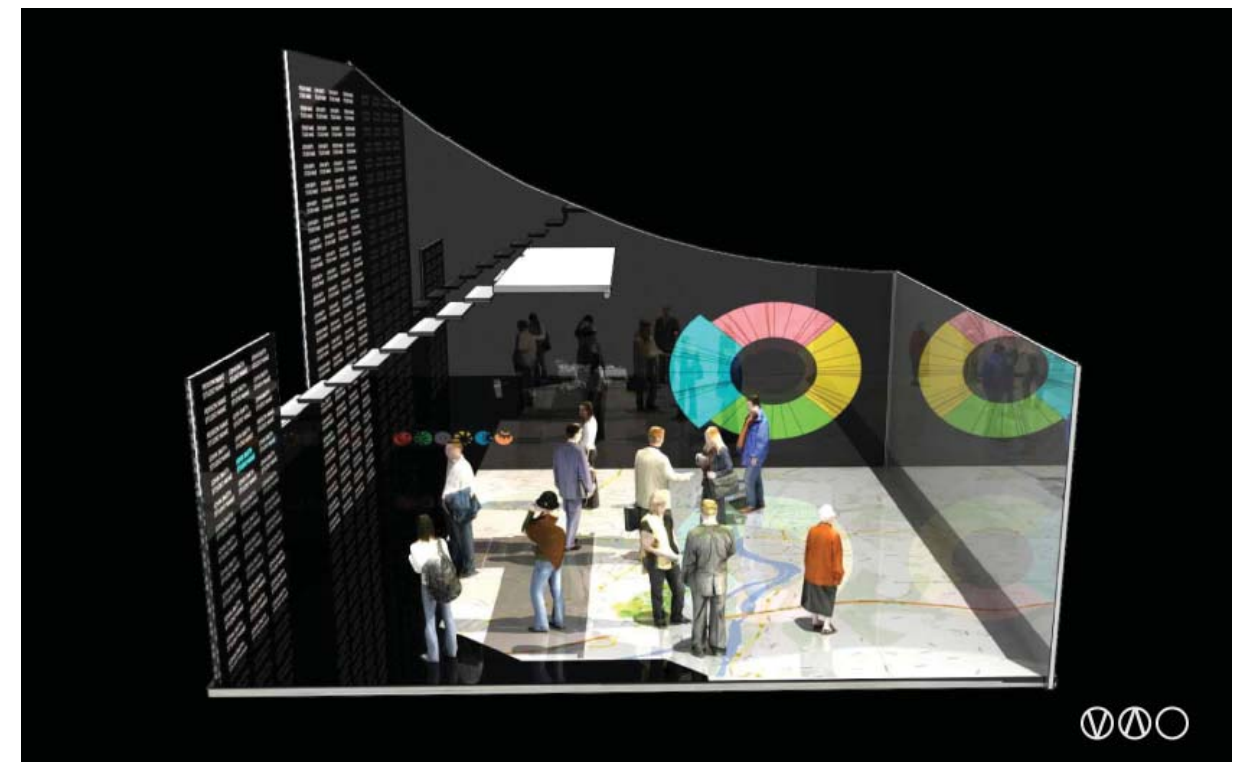
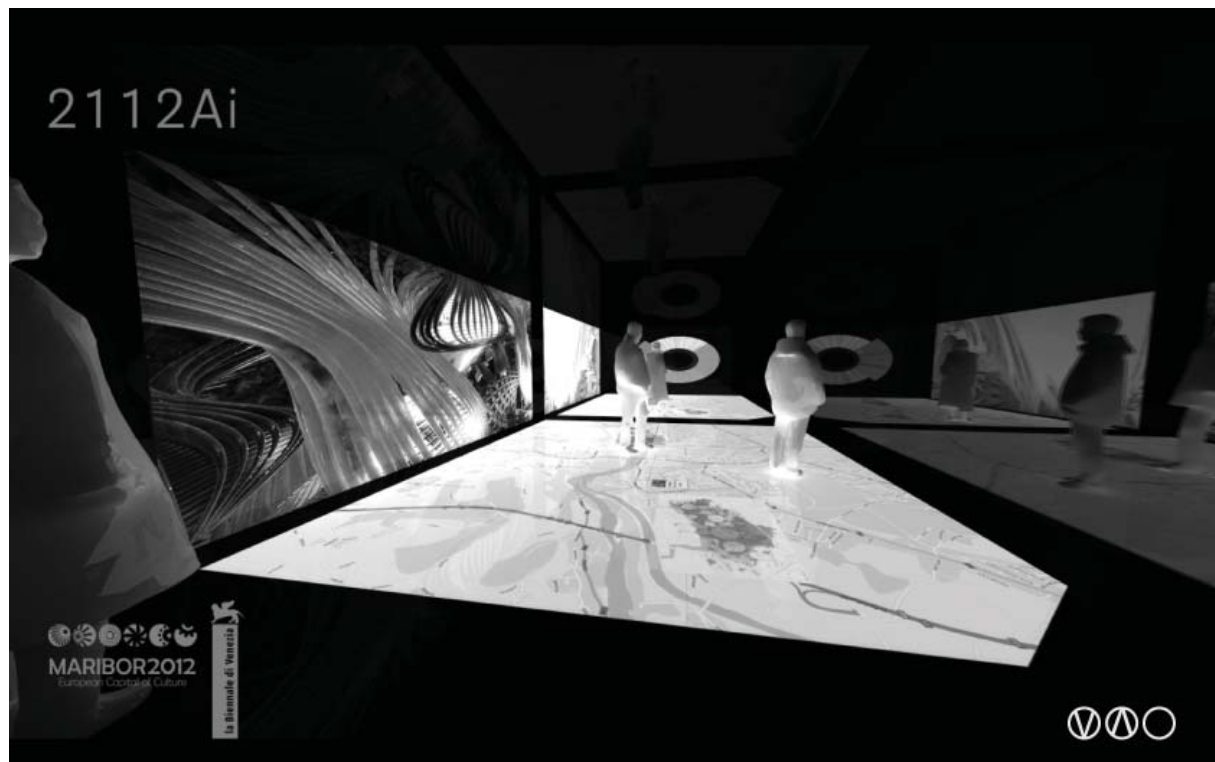
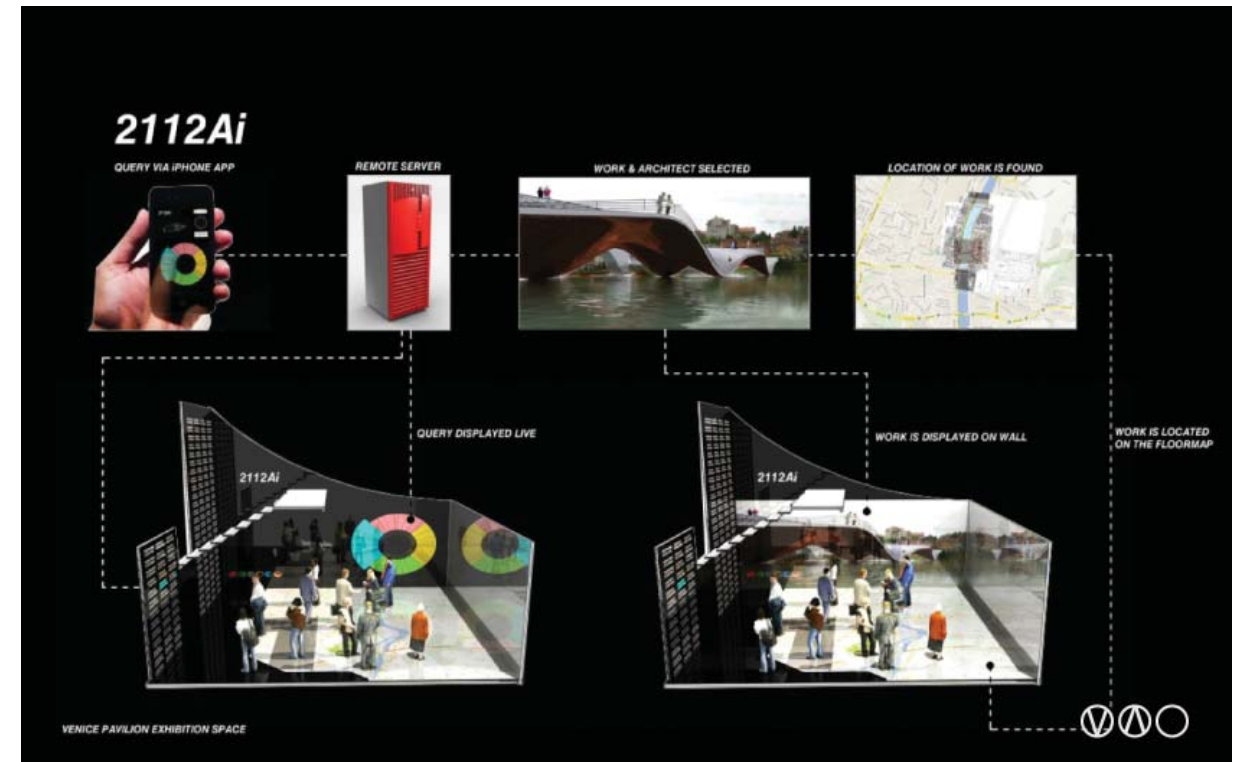


2112Ai 100YC

5.506 (Above) // Slovenian Pavilion: level one gallery ribbon layout study.
 5.507 (Below) // Slovenian Pavilion: ground floor gallery ribbon layout schematic study.

2112Ai 100YC

5.508 (Above) // Slovenian Pavilion: detail study of level one ribbon project layout schematic study.
 5.509 (Below) // Slovenian Pavilion: detail schematic study of level one gallery ribbon layout.

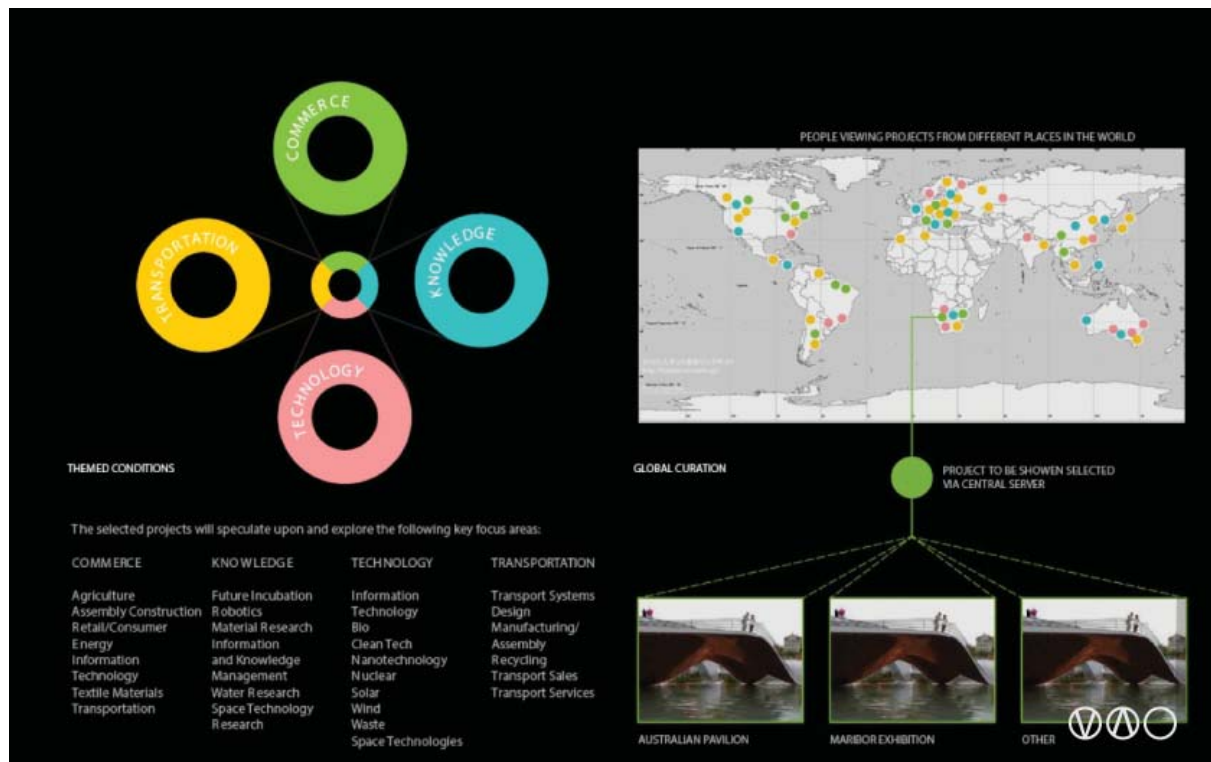


2112Ai 100YC

5.510 (Above) // Slovenian Pavilion: study of ground level main gallery space ribbon layout.
 5.511 (Below) // Australian Pavilion: schematic study of 2112Ai exhibition projection space within existing pavilion.

2112Ai 100YC

5.512 (Above) // Australian Pavilion: section and image study demonstrating the iPhone and image placement location within exhibition.
 5.513 (Below) // Detail of study of interior projection space and floor mapping of existing city.



2112Ai 100YC

5.514 (Above) // iPad and iPhone application study of 2112Ai exhibition content.
 5.515 (Below) // Application navigation and infographic visualisation schematic study.

2112Ai 100YC

5.516 (Above) // iPad content study of exhibition navigation as a grid system.
 5.517 (Below) // iPhone and iPad App screen scale variance and title page schematic.

Future Practice

From its inception, the practice has articulated its mission to be a globally networked architectural research office. As part of its structure, it has been set up to operate with an aim to deliver within a globalised, online environment, and this is a crucial and critical component. With particular reference to design-based subjects, rapid collaboration and sharing are key to successful learning outcomes. Globally run courses, particularly at a higher level require heightened cross-cultural awareness and ease of communication, in the absence of face-to-face contact and the prohibitive costs of travel for students.

It has recalibrated our practice to return to the lesson of early practice successes learning to forgo looking at computer screens and spreadsheets and re-locate attentions back on people, conversations and refocussing our efforts onto the real problems that we can engage in our future practice.

The aim of the PhD was to facilitate an excavation of knowledge for future forward thinking as a method of generating semiosis toward a more coherent and explicit agenda for a practice that comprehends the design of scaleless architectural complexities. This PhD was an attempt to unravel the body of work and present this as an opportunity to advance new, coherent spatio-morphological systems for dissemination of future practices. The key knowledge gained from the PhD is the comprehensive unpacking of the practice's past, highlighting criteria for establishing a relevant performance-conscious organisation geared toward creative futures. The PhD outcomes from this project have developed further knowledge toward establishing directions for a tangible future practice based on physical production and temporary production within the virtual domain.

The PhD reflective process has identified key areas of knowledge directions and strategies for advancing the future architectural practice. Accordingly, it has:

- Identified ways of strategising and carrying out explorations that qualify as appropriate models of design practice research.
- Recognised trans-disciplinary thinking and transformational collaborative practices as core requirements for future practice innovation.
- Recognised evolution in material science, human-computer interfaces, experience design and engineered systems as approaches emerging from new dynamics across cognitive and technological domains with the aim to exploring new models to address complexity and innovation in architectural practices.
- Sought to promote a long-view capability to venture into speculative futures and to foster extreme optimism as core conditions in order to reshape the planet and transform design and the global economies of the 21st century.
- Explored curation and exhibition of creative programmes that aim at providing international exposure and engagement for developing future knowledge.
- Planned to further develop the 2112Ai 100YC international program exhibiting a permanent research platform at the Venice Architecture Biennale and at other high profile venues, events and culture programs providing international exposure and engagement with the content.

Future Practice Core Principles seek to:

- Research and build upon the virtual platform creating navigational systems and software applications to assist my architectural practice to achieve its core strategic objectives.
- To significantly improve organised knowledge about my practice and its contribution within the architecture(s) domain.
- To increase connectivity and mobility of organised knowledge through information and sharing of discovered knowledge.

that transforms the future of my practice.

- Encourage collaboration with networks for building knowledge about the practice.
- Enable imaginative navigation of projects and information about the work that leads to furthering the experience and excellence of the practice.
- Evolve a visual and spatial tool creating a sense of space and belonging enabling constructive and agile tools and techniques.
- Drive future global networks formed around knowledge.

Virtual Technology Platform
Virtual Architecture

Brief summary of projects

Between 2005 - 2008, I conducted *Visualising the Virtual Concourse (VVC)* elective classes at the RMIT School of Architecture with Professor Leon van Schaik and Sean Kelly. The VVC researched spatial visualising techniques about learning environments and utilised online beta software (Quick-links) as part of the teaching & learning research outcomes. These visualising techniques formed part of our vocabulary and furthered knowledge for developing an understanding of behaviours for forming virtual environments.

Between 2009 - 2013 online workshops were conducted between RMIT School of Architecture, die Angewandte architecture school in Vienna and industry partner Alessi SpA, Italy. The collaboration platform and associated analytics enabled us to understand individual and group behaviours, the growth of knowledge networks and values of global online collaboration.

In 2011, our practice undertook a research project entitled "2112Ai 100YC [year city]" with exhibited outcomes at the 13th Venice Architecture Biennale. The project was conducted using the CORUS collaboration platform with support from Brian Clark, Director of RMIT ITS; Richard Blythe, Dean, School of Architecture & Design, and the Victorian Partnership for Advanced Computing (VPAC). The project spanned six months and delivered a global collaboration with twenty-three (23) universities.

Virtual - Strategic objectives

This project contributed significantly to the achievement of the understanding of my architectural practice. The navigational platform supports my PhD objective(s) in enabling me to meet conclusive outcomes reaching a clear understanding of the developments, positions and operational working sover time.

It introduced a visualisation navigational tool that will lead to transforming existing information gathered about my practice as a visual and spatial experience for sharing across iOS platforms. It brings together relevant information with focus on relationships between projects locating, Mentors, Conversations, Influencers and Outputs into a unified online knowledge sharing environment.

Through reflective navigation, it enabled me to peer into my project outcomes uncovering valuable connections. In sharing information in real time, in cross-disciplinary environments, external participation can also be invited to collaborate in a globally connected network linked by next generation tools with an aim of

exponentially increasing knowledge transfer and integrated learning. These objectives are planned through creating a visualisation tool and conducting trials with the innovative software by building information about the practice.

- The tool focuses on providing solutions to further develop knowledge about the practice's past and to inform its future.
- The tool engages collaboration with a global network and ensures the sharing of information with global growth and integration within an open source community.
- It encourages excellence in sharing knowledge development, providing a supported service facility.
- It is both a platform and solution for applying personal information for individual use and growth.
- The tool supports group collaboration and team oriented outcomes enabling sharing of knowledge across connected networks.
- It is concerned with building a visual real time environment with agile capabilities, and with abilities for face-to-face interaction, meeting the needs of individuals and groups of varying scales.
- It evolves to become a visual spatial instrument for creative industries.

Visualising Project

Abstract

The project aims to apply innovative software techniques to the visualisation of my practice and to undertake the following activities:

- Introduce primarily collaborative tools to my practice with the aim of:
- Increasing engagement between myself, my practice and networks;
- To address collaboration across and between individuals, groups and global networks,
- To involve invited industry partners, experts and networks to add knowledge with inputs via collaboration tools,
- To extract analytics of individual, group and network behaviour as well as compare platform uptake and usage locally and internationally,
- To demonstrably enhance future practice experience,
- To deliver outcomes of the practice's global aspirations across multiple networks by building global communities and pioneering trans-national collaboration outcomes,
- To ensure that analytics can be used as feedback to enhance future practice.

Rationale

The PhD outcomes from this project have developed further knowledge toward building a navigational software application to assist my practice to achieve core

strategic objectives:

- To significantly improve knowledge about my practice and its contribution to architecture. global networks formed around knowledge.
- To increase connectivity and mobility of knowledge through information and sharing of knowledge.
- Creating innovative solutions for visualisation that transform the future of my practice.
- Encourage collaboration with networks for building knowledge about the practice.
- To enable imaginative navigation of projects and information about the work that lead to furthering the experience and excellence of the practice.
- Evolving a visual and spatial tool creating a sense of space and belonging and the further creation of constructive and agile tools and techniques that work to drive future projects.

The PhD project's goal was to exemplify an innovative visualisation software tool and deliver best practice technique. A primary objective was to deliver a visualisation navigation tool for the purposes of creating new knowledge of the practice as part of my documentation in support of my PhD as a method of assisting with navigating through the project's findings. As part of my PhD documentation, a bespoke, customised technology was designed as a navigational system outlined below and it will be conducted using a range of identified software tools. The navigation tool is accessed from a web browser link and is designed for optimisation within the iOS operating system primarily for iPad. A key objective was to look at how such tools co-exist with a Google Enterprise Learning (Google Docs) Management System (LMS), leveraging its capability, whilst providing a significantly enhanced, open collaboration framework. The architecture platform necessitated addressing several functionalities and outcomes as described below.

Application Navigation Tool Process Key Functionality Parameters:

- The tool must be an open collaborative tool.
- The tool supports engagement with a broader community and.
- Brings new knowledge to the practice.

The navigation tools have been created for researching the practice database, specifically for their ease of use and intuitive interfaces that have been extensively tested for their efficacy, and represent the best of breed technology

With the requisite skill sets and expertise, the project team created, delivered and managed the navigational tool in addition to producing a manual for training and support.



Stage 1 Project Design Initiation:

- Identify and engage key functionalities
- Identify navigation needs/requirements
- Identify desired outcomes
- Develop trial scopes.

Stage 2 Planning/Design:

- Identify and consult with trial participants
- Identify trial activities
- Identify reporting metrics
- Identify the appropriate tools for the individual trials
- Conduct training and information sharing exercises with trial participants.

Stage 3 Executing Trial Protocols:

- Assist with trial initiations
- Provide online technical support and best practice guidance
- Distribute information to PhD review panel.

Stage 4 Monitoring:

- Measure and monitor ongoing trial activities
- Provide support to end users to address technical issues
- Provide feedback and metrics to trial participants.

Stage 5 Closing/Reporting:

- Conduct surveys to measure qualitative outcomes such as User Experience Surveys
- Conduct data analysis to generate quantitative reports of user engagement
- Conduct a value benefit analysis
- Make recommendations and suggestions from key findings to and with key stakeholders
- Provide a cost-benefit analyses for broader scale deployments across larger cohorts.

The project execution incorporated:

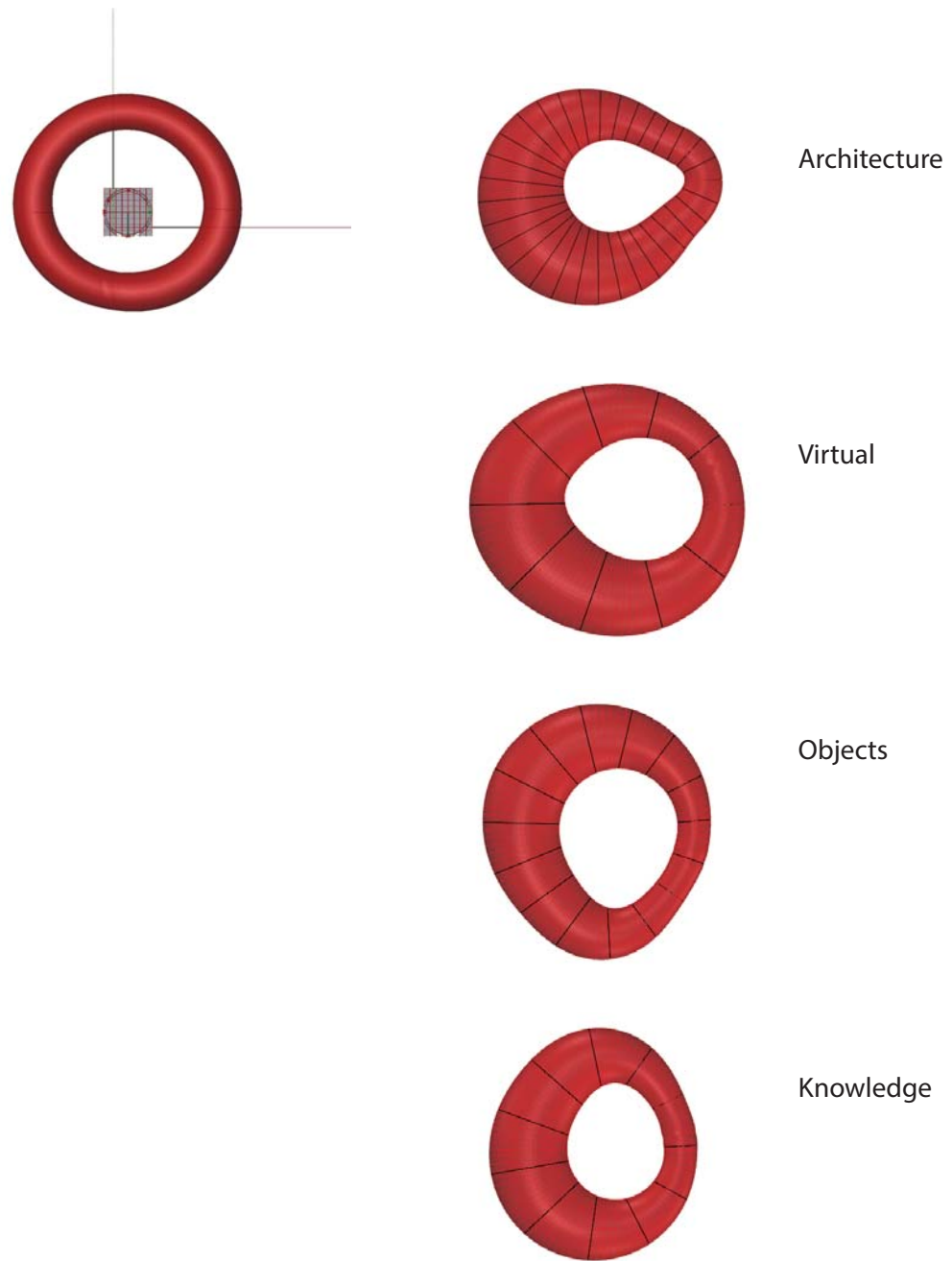
- Training and information sessions with team participants
- A project website
- Video tutorials and guided walk-throughs and,
- Online help via email.

Evolution of a Platform for Future Practice

The Torus series form spatial devices visualising the relevant information of my practice as a generative model. They attempt to unify the collective information into a comprehensible visual form. As a memoryless form, or a form without information, it evolves and changes its structure, altering and growing to form an asymmetrical variable shape. In *Symmetry, Causality, Mind* (1992), Michael Leyton describes this as “maximalisation of transfer and maximalisation of recoverability.”⁵

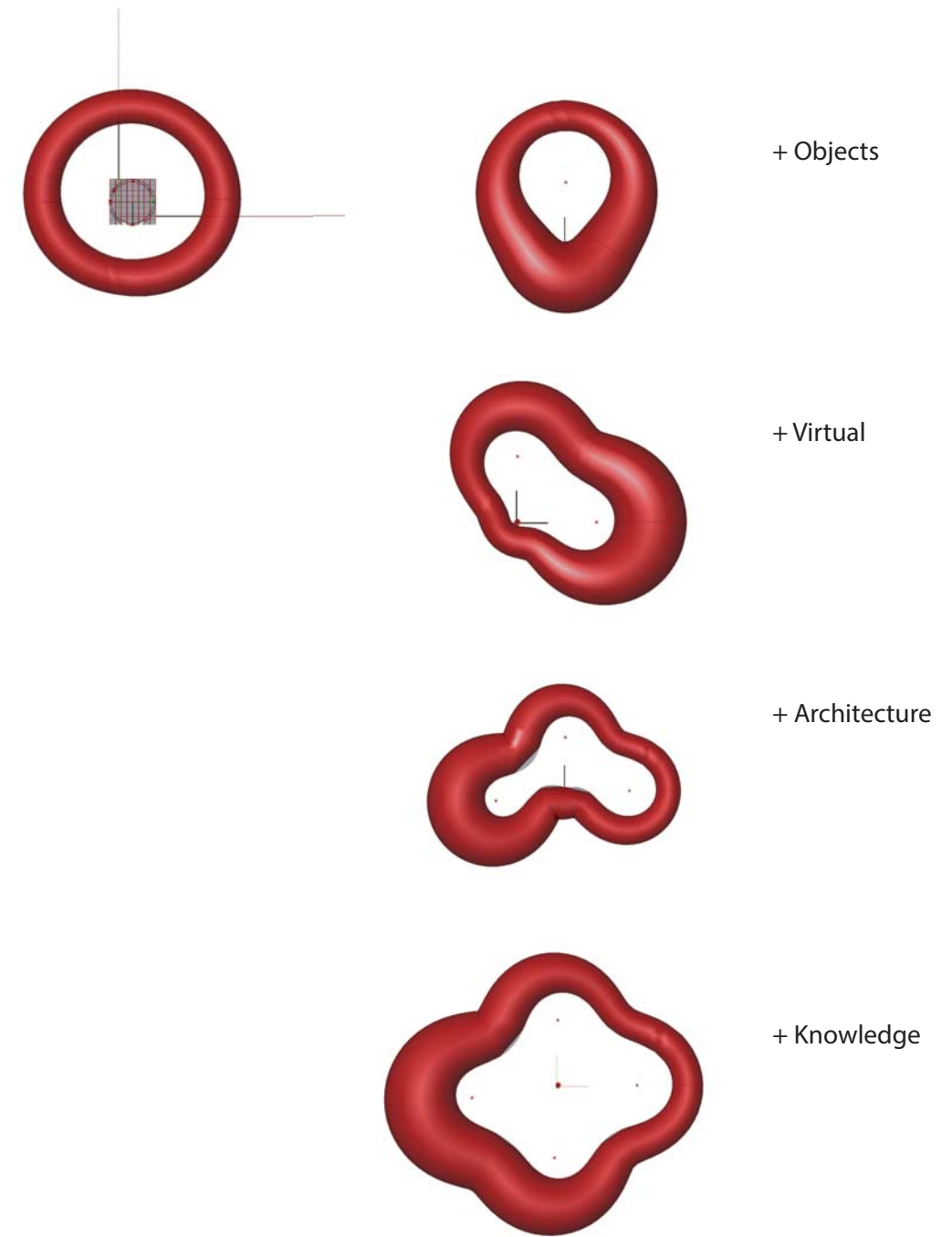
The Torus is thus a project timeline describing my architectural practice as one comprised of knowledge acquired through various associated tendencies. These are visualised as Torus forms separating the tendencies into layers of differential information.

Leyton emphasises this as “A generative theory of shape [that] characterizes the structure of a shape by a sequence of actions needed to generate it. According to our theory, these actions must maximize transfer. That is: make one part of the generative sequence a transfer of another part of the generative sequence, whenever possible.”⁶



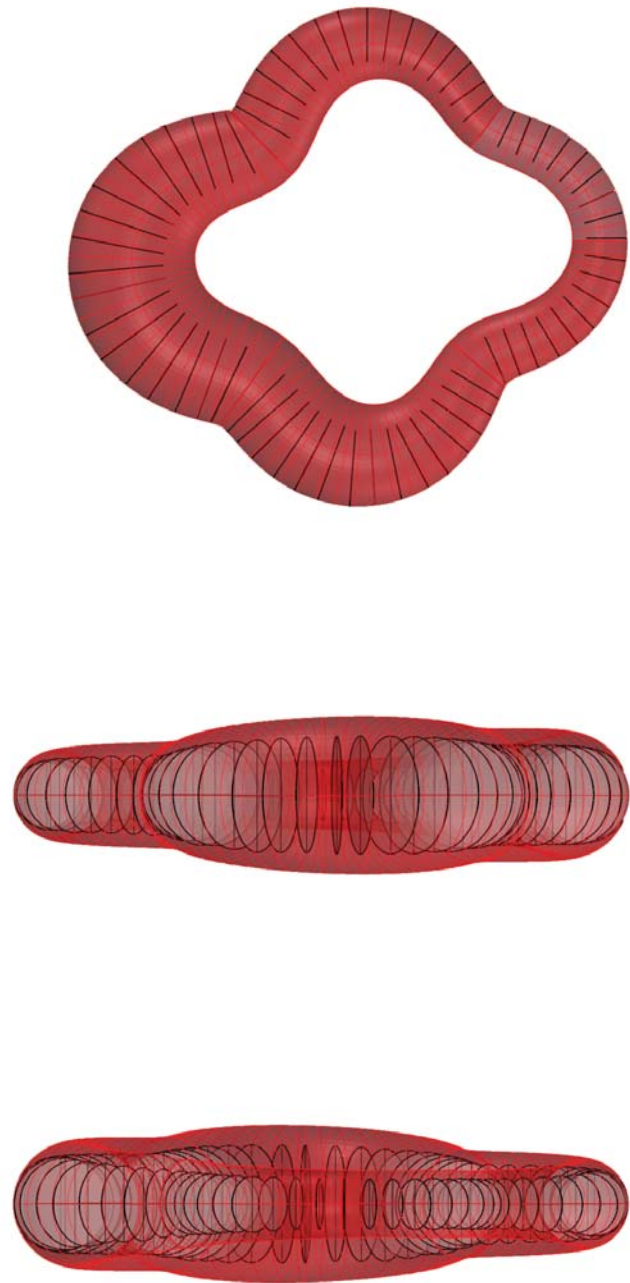
Singular Effect on Torus

5.801 // Symmetrical growth of information.



Evolution of Torus

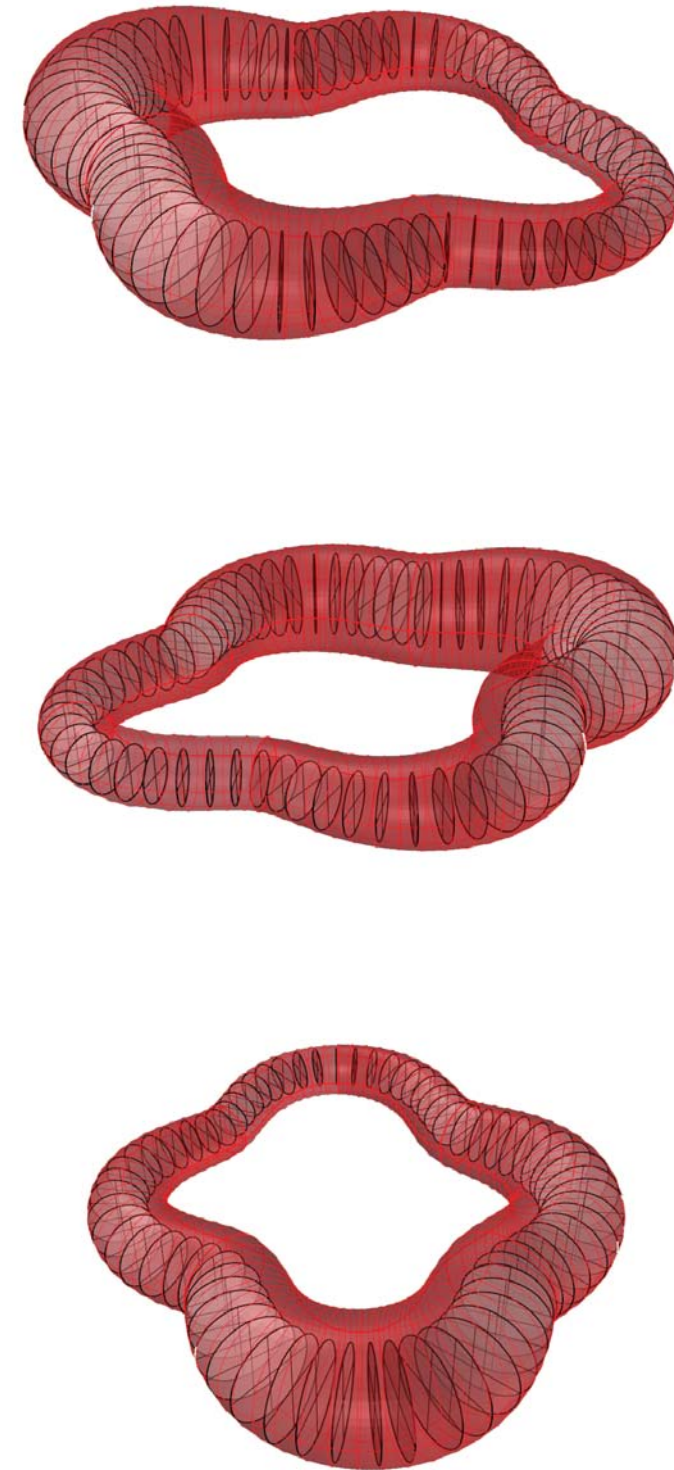
5.802 // Multiple tendencies of information represented within an asymmetrical form.



Plan & Elevations of Torus

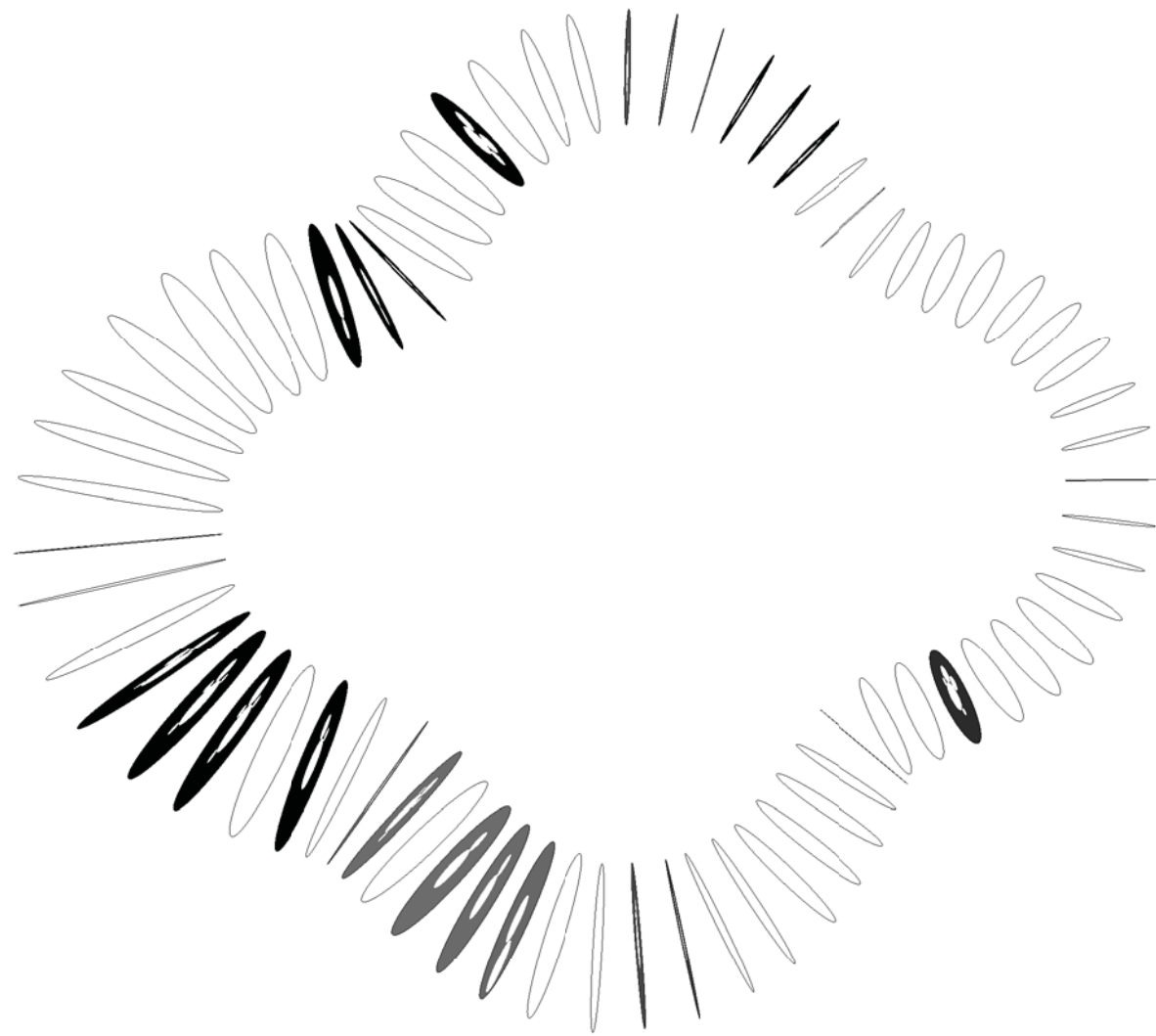
5.803 (Above) // Torus plan study with transformation analysis of four tendencies with asymmetrical scale shifts of information growth.

5.804-805 (Middle-Below) // Torus elevation study and rotation analysis of four tendencies with asymmetrical scale shifts.



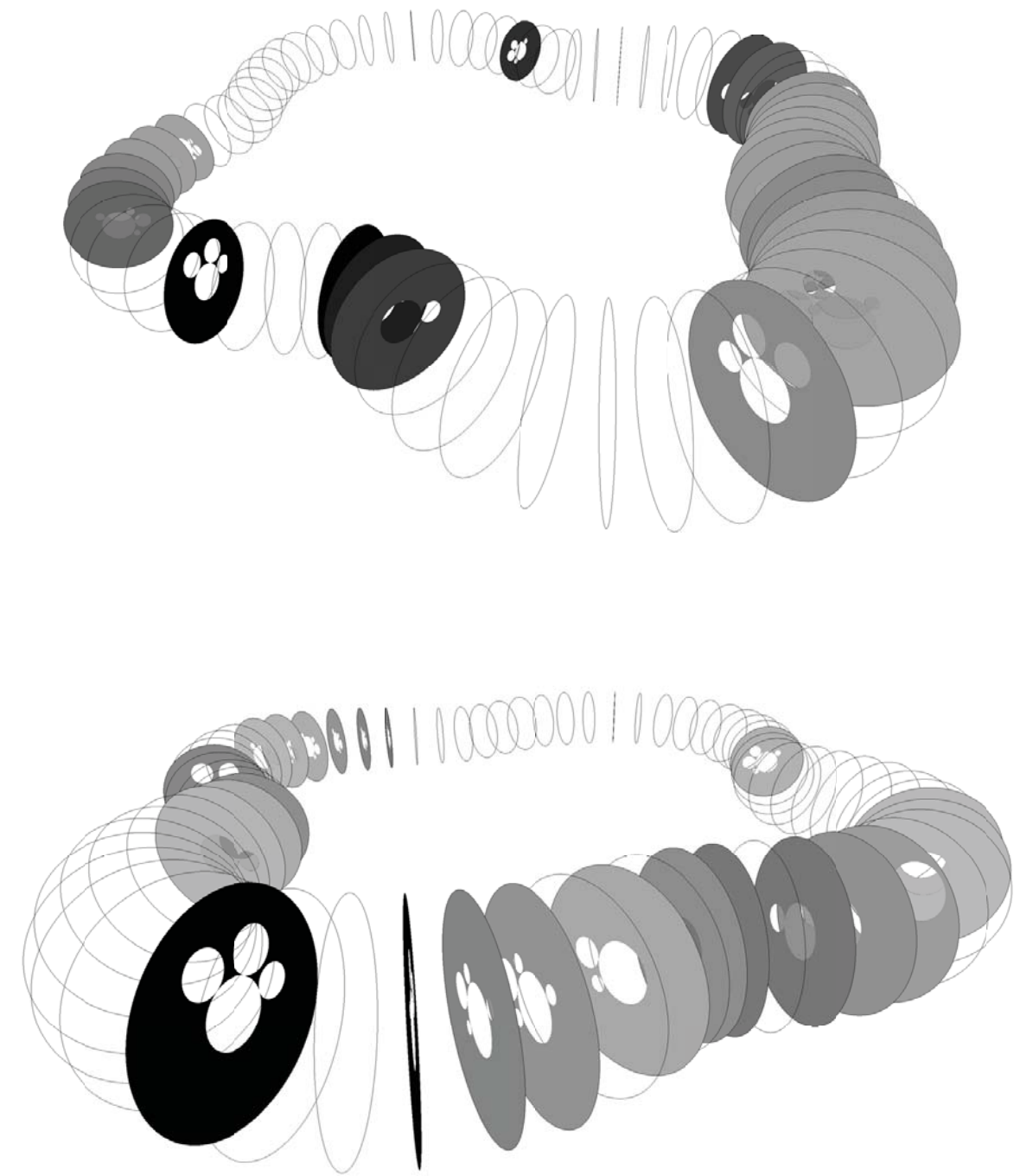
Perspective Views of Torus

5.806-808 // Torus visual rotational model analysis with various stages of asymmetry through information growth.



Torus Development

5.809 // Torus plan schematic study with qualitative data analysis of four tendencies with asymmetrical scale shifts.



Torus Development

5.810-811 // Torus rotational schematic study of dynamic qualitative data of four tendencies.



Torus Development

5.812 // Torus views and study of four tendencies demonstrating visual model with asymmetrical changes of form.



Torus Development

5.813-814 // Torus mentors detail with functionality schematic with scrolling feature for navigation and user experience.



Torus Development

5.815 // Architecture Torus schematic with variable views and study of visual model with asymmetrical changes of form.



Torus Development

5.816 // Architecture study for analysing total project experience.



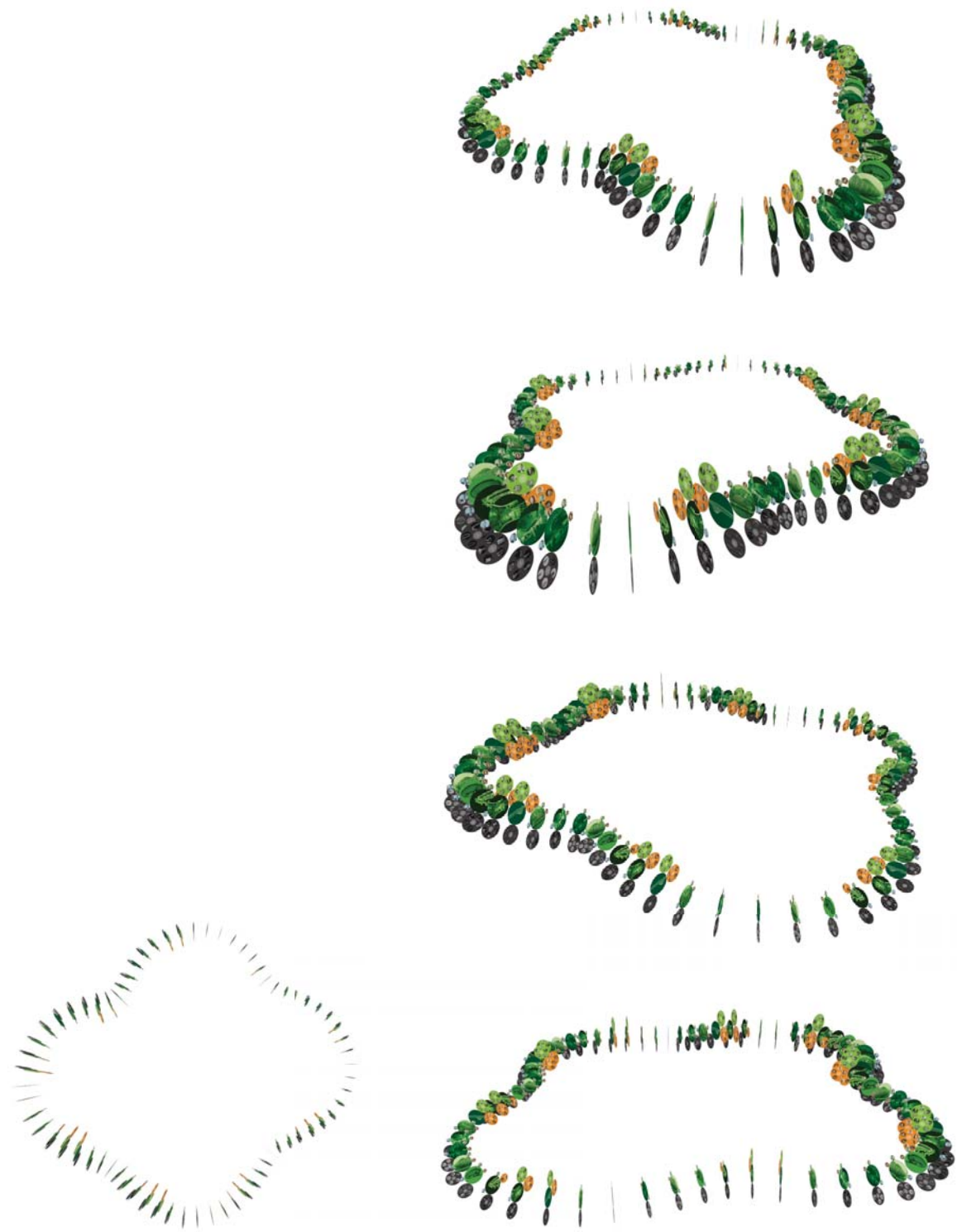
Torus Development

5.817 // Object Torus schematic. The bubbles change depending on the weight in interactive mode with variable views of visual model with asymmetrical changes of form.



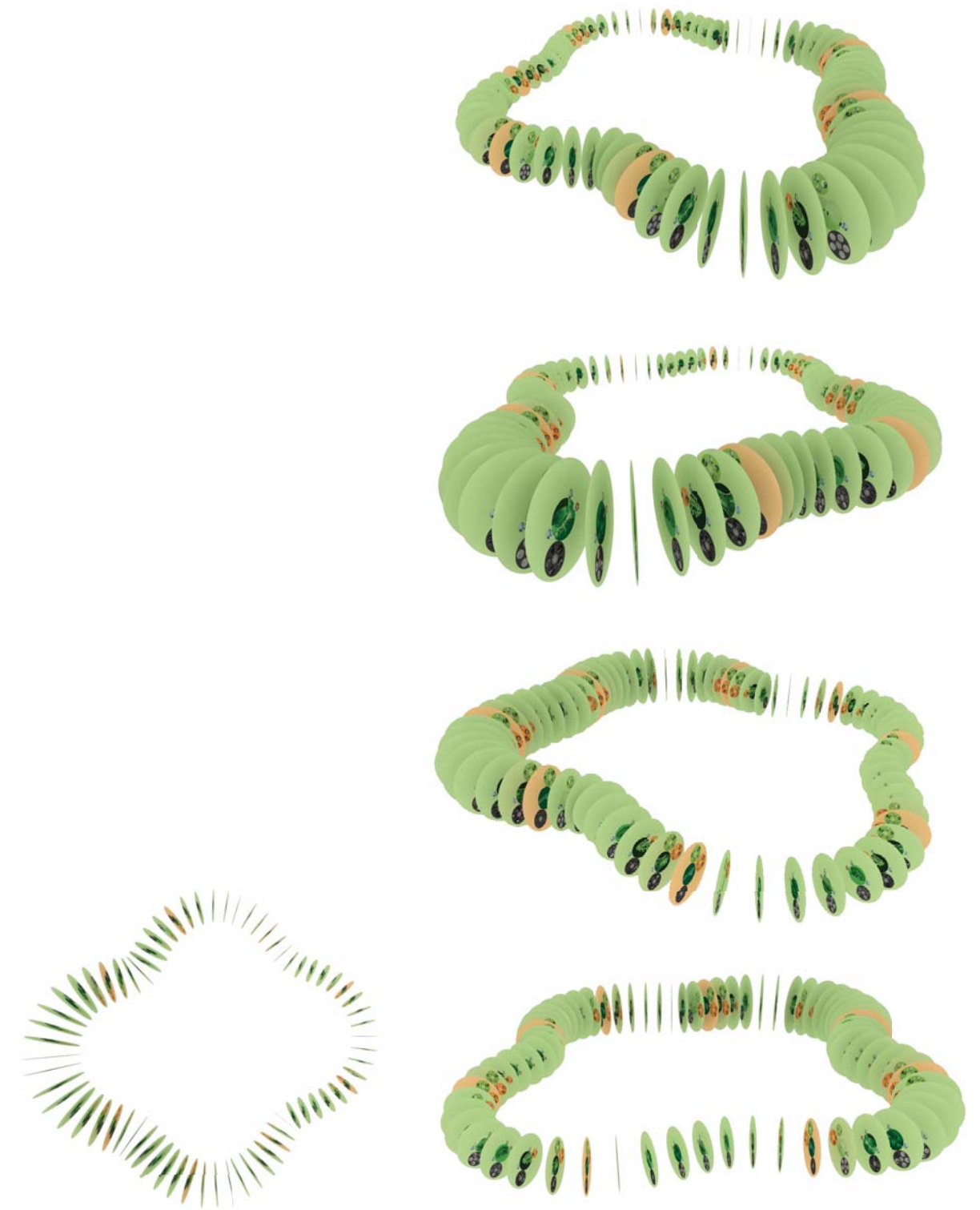
Torus Development

5.818 // Object study for analysing total project experience.



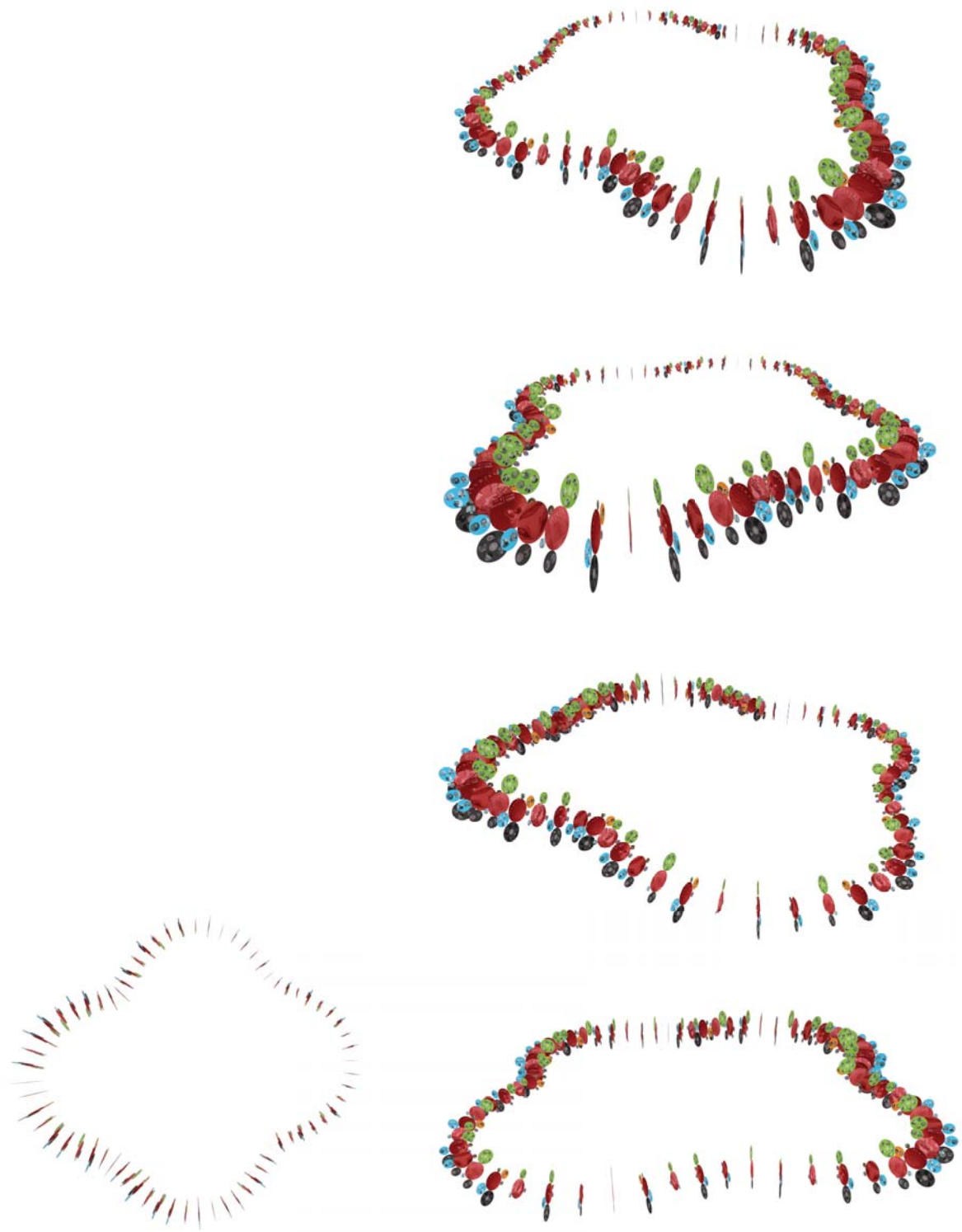
Torus Development

5.819 // Virtual Torus schematic with variable views and study of visual model with asymmetrical changes of form.



Torus Development

5.820 // Virtual study for analysing total project experience.



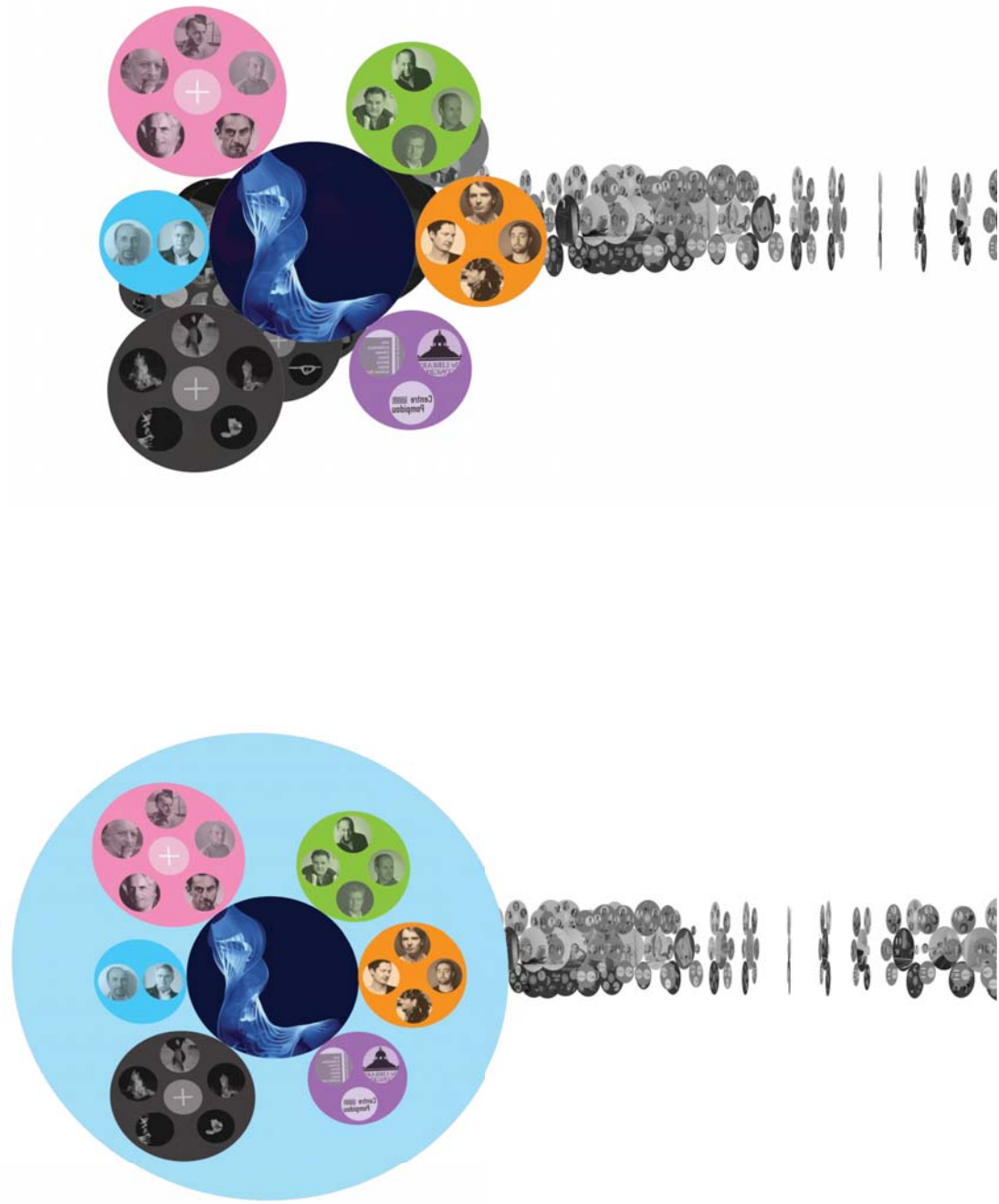
Torus Development

5.821 // Knowledge Torus schematic with variable views and study of visual model with asymmetrical changes of form.



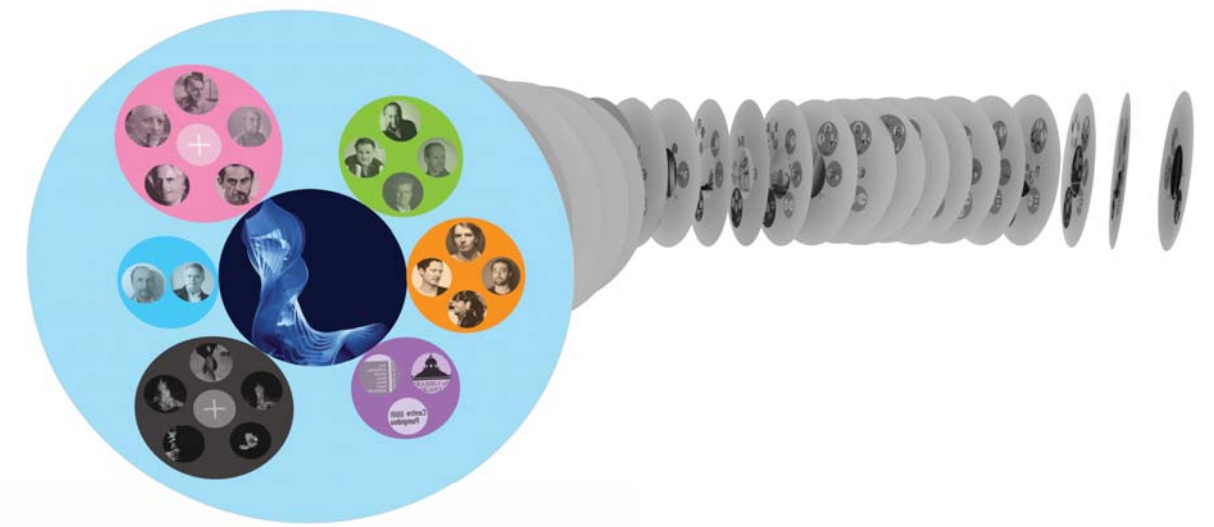
Torus Development

5.822 // Knowledge study for analysing total project experience.



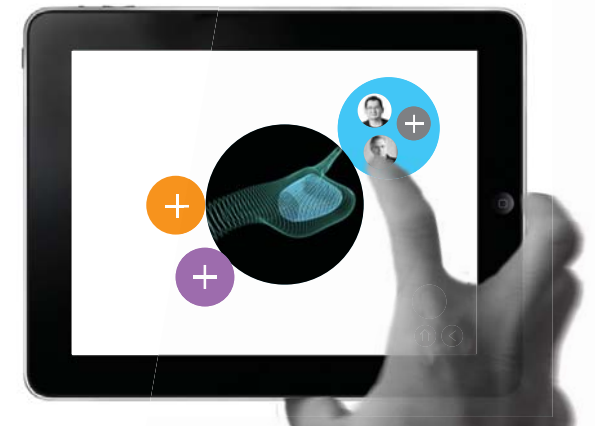
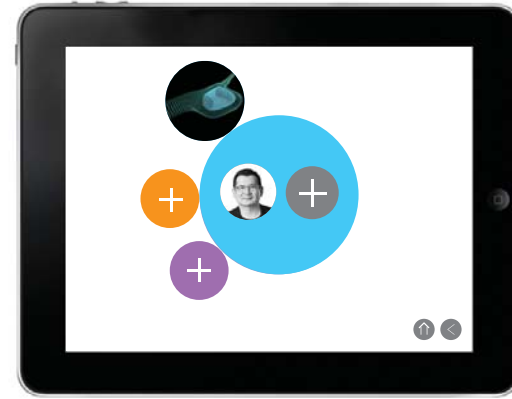
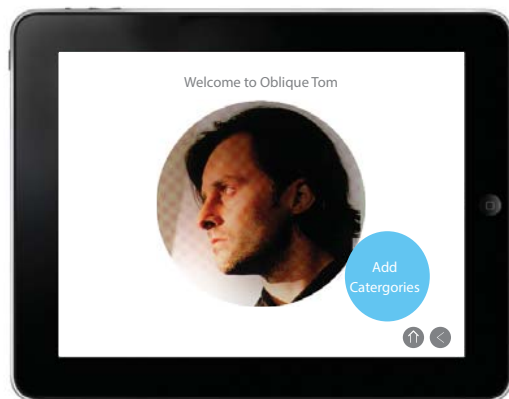
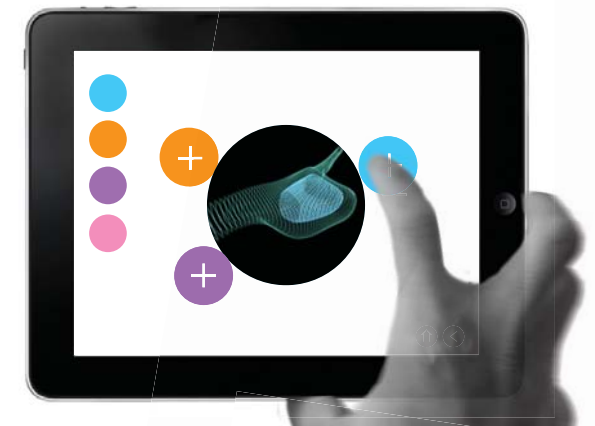
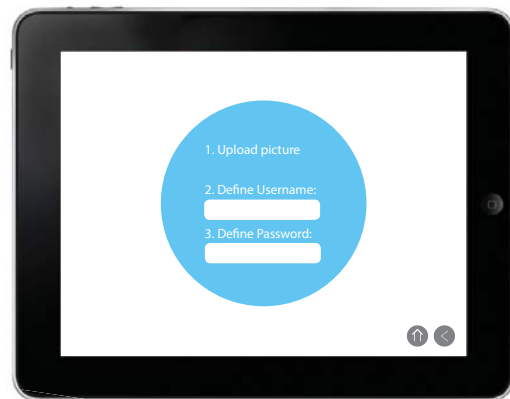
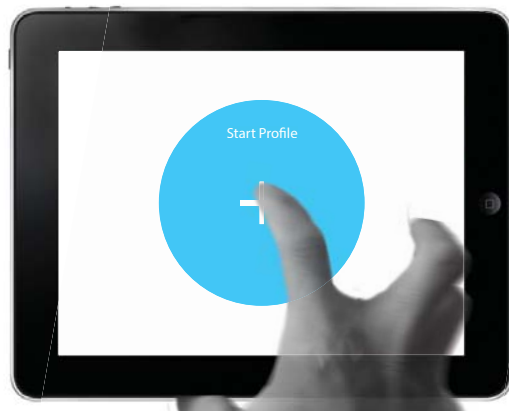
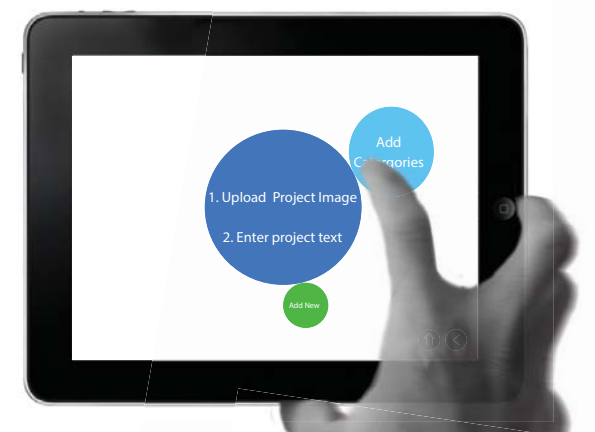
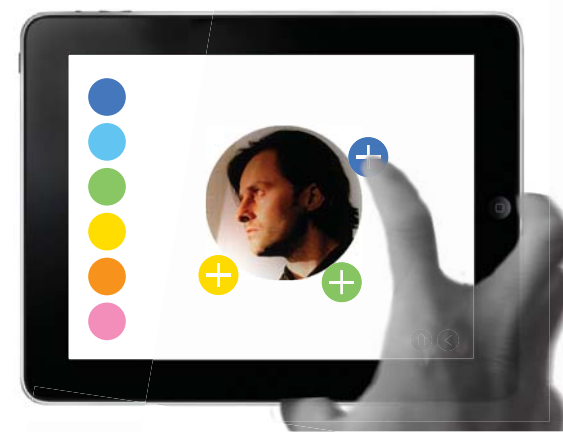
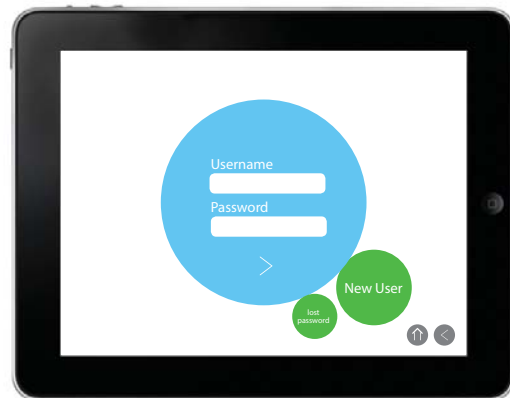
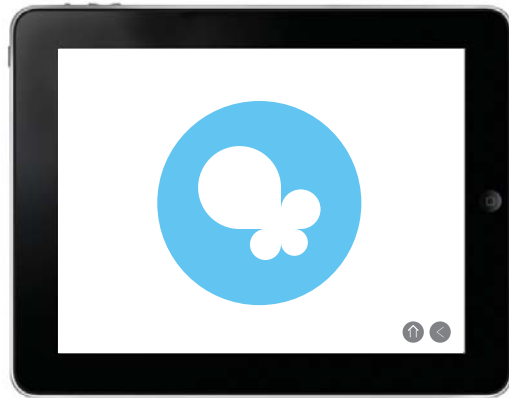
Torus Development

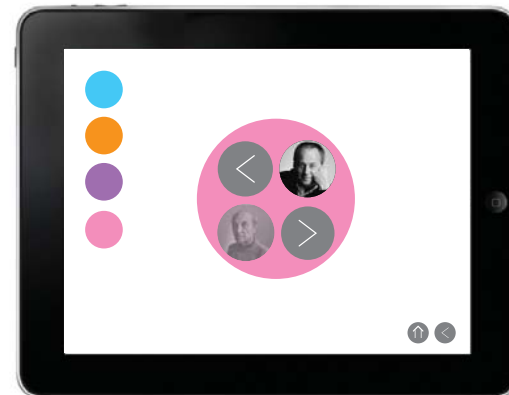
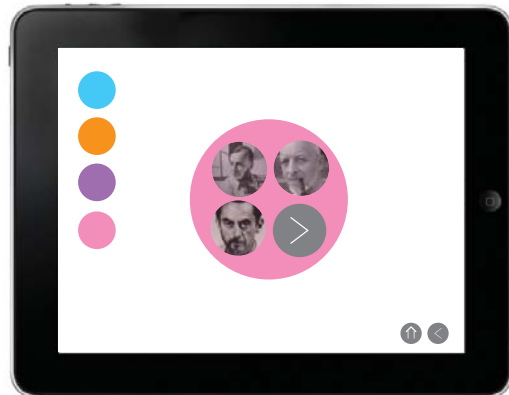
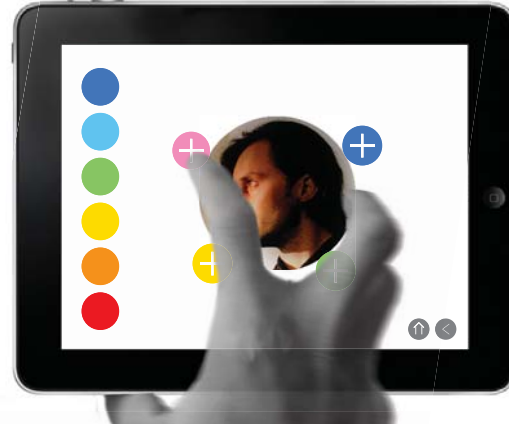
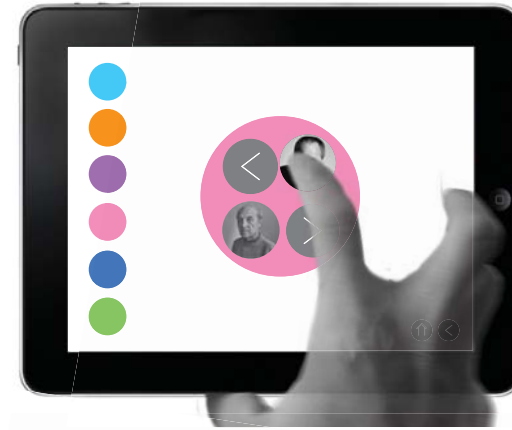
5.823-824 // Torus elevation schematic study of project related tendencies and visual model with project constellation.



Torus Development

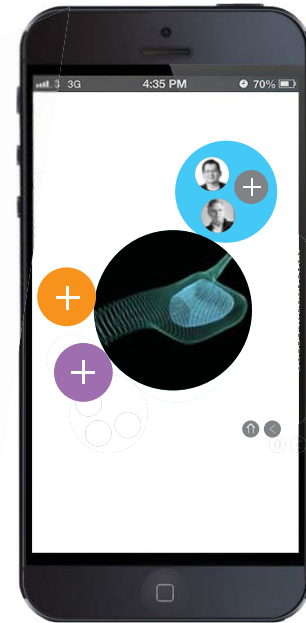
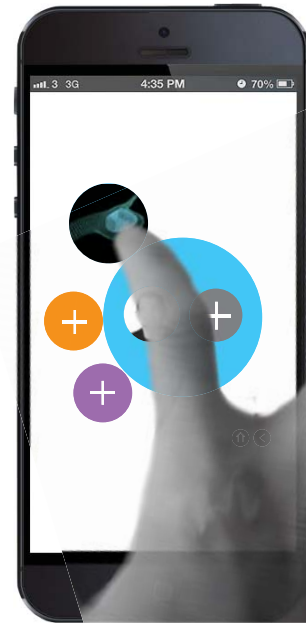
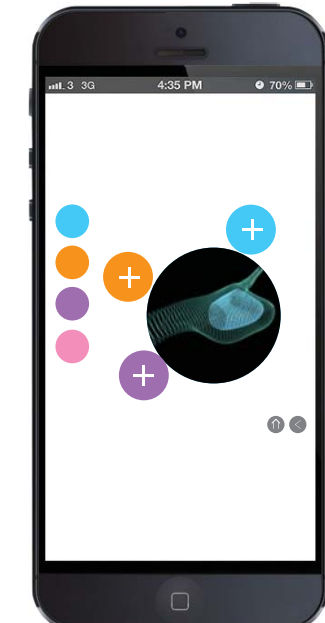
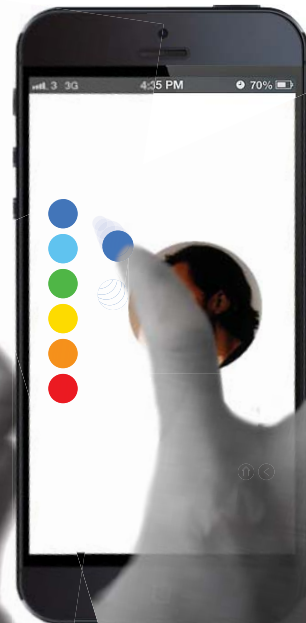
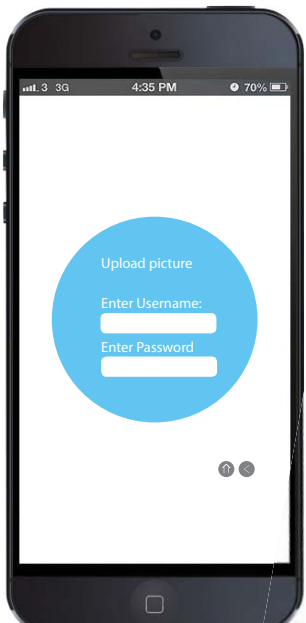
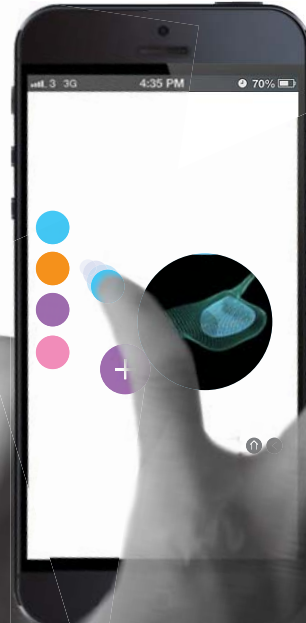
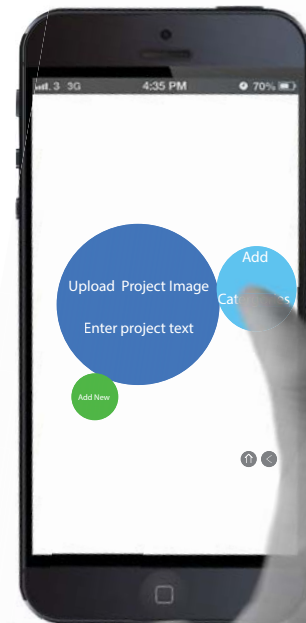
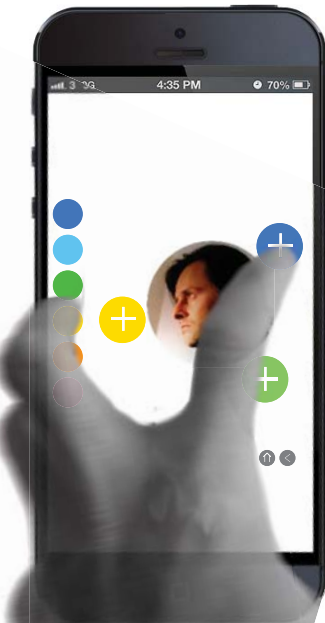
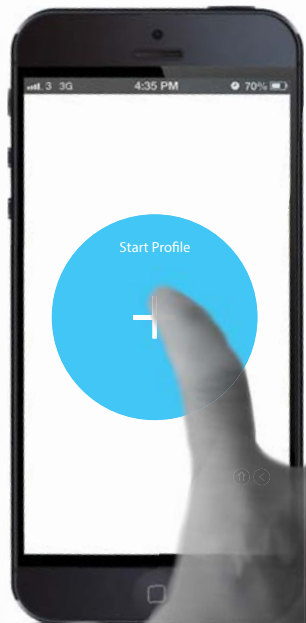
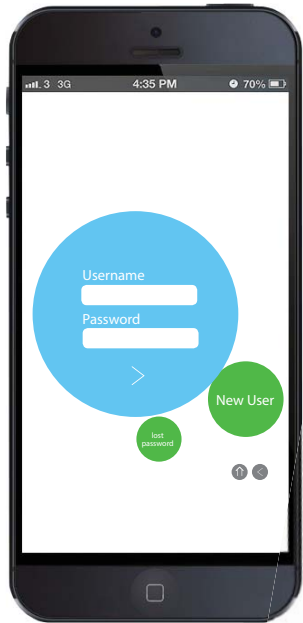
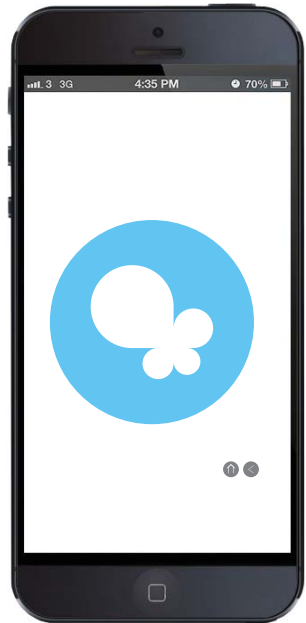
5.825 // Torus elevation schematic study of project related tendencies and visual model with project constellation with overall qualitative colour analysis.

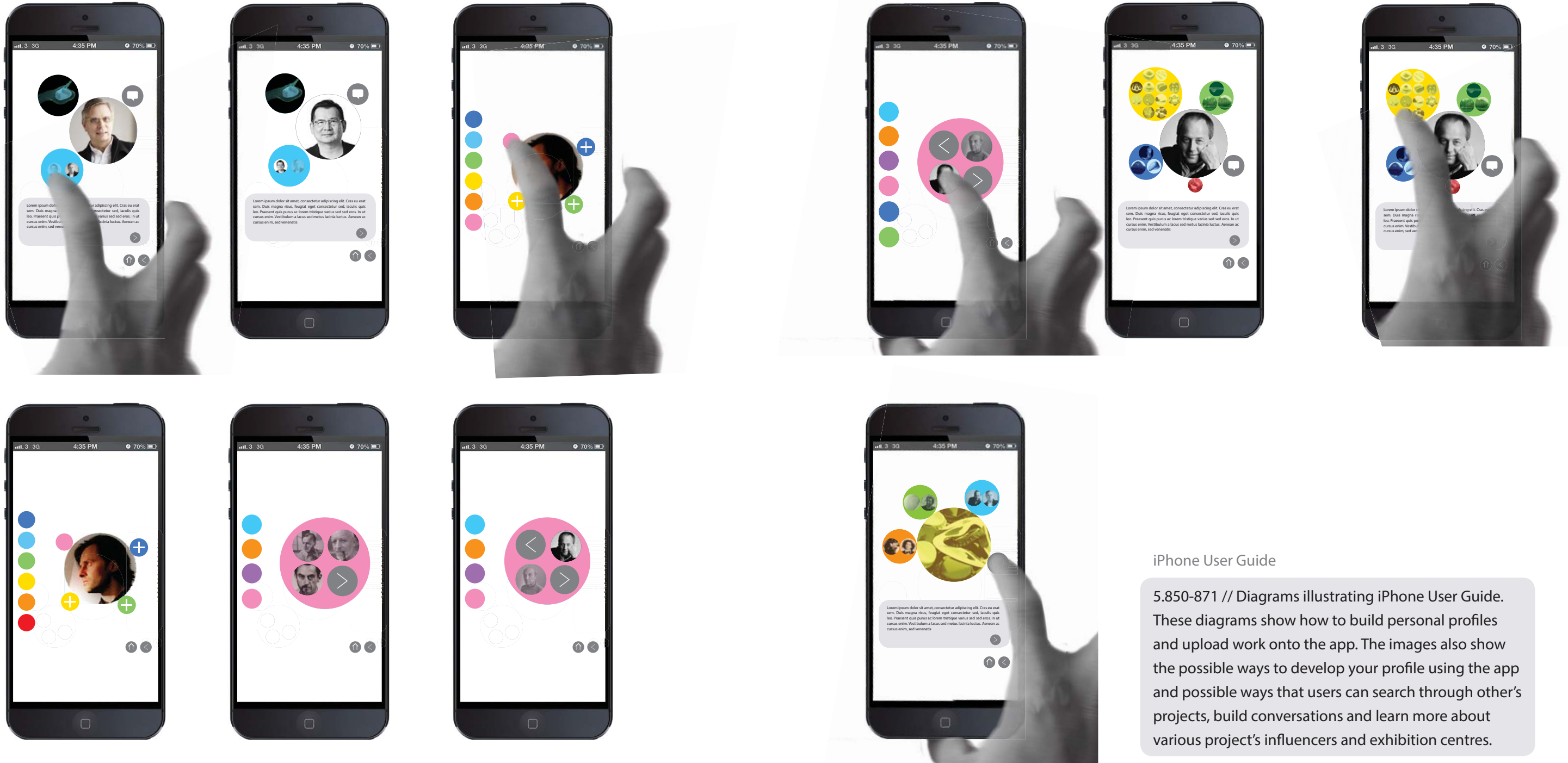




iPad User Guide

5.826-849 // A series of diagrams illustrating the iPad User Guide. The diagrams explore the possibilities and performance of the application. They further illustrate the ways you can build your own personal profile using the 'app.' Diagrams also help the user to search for information; to engage with other's projects and build a conversation with them.





iPhone User Guide
5.850-871 // Diagrams illustrating iPhone User Guide. These diagrams show how to build personal profiles and upload work onto the app. The images also show the possible ways to develop your profile using the app and possible ways that users can search through other's projects, build conversations and learn more about various project's influencers and exhibition centres.

 Chapter Five Footnotes

- 1 Beck, D & C. Cowan (1996). *Spiral Dynamics: Mastering Values, Leadership, and Change*. Blackwell (Business) Malden, MA & Oxford. p. 28.
- 2 Weiss, Peter, Francesca Appiani (eds.) (2007) Tom Kovac Architecture in, *Tea & Coffee, Piazza & Tower*. Kettler: Bönen. p.7
- 3 Ibid.
- 4 Urban Strategies Postgraduate Program. [Online]. 06-07/2012 *Alessi Mutants III*. Available: <http://urbanstrategies.at/summer-schools/alessi-mutants/#>. [Accessed January 16 2013].
- 5 Leyton, M. (1992). *Symmetry, Causality, Mind*. Cambridge, MA: MIT Press. p. 20.
- 6 Ibid. p. 4

The research has surfaced evidence about my ways of practicing and has consequently produced new insights into the trajectories of my practice. In the process, new knowledge is gained through the uncovering of the creative constellations that have supported and informed my work, a process of mapping that is potentially of use to the architecture community as a way of modeling and understanding practices. A structured process of reflection, which began in March 2008 with this schema (6.101-112) has been iteratively reviewed and refined through Practice Research Symposiums. In this pursuit, and as a platform for the future practice, I have developed a new visual tool that illuminates connections within the production of my architectures, identifying creative constellations that connect work methods, design language, experimental design, peer review, journal publication, conference presentation and project exhibitions.

This communication tool has enabled an understanding of my work by collecting together the various tendencies of both built and unbuilt works, revealing as lenses the constraints and controls governing the works as they shift from my early practice, to that of my current experiments with non-standard digital processes.

The projects from my early practice make partial claims for outcomes in sensory experience and a positivist alignment with an architecture informed by the three orders of experimentation, experience and observation. These early projects resulted from a binding system that was a dynamic, unified, creative constellation.¹ The experiential and the sensorial devices were the primary concern of my practice. Although other sources of evidence, such as memory, and the testimony of others ultimately trace back to some sensory experience, they are revealed to be secondary, or indirect sources.

The new visualisation tool frames my practice's experimental, conceptual and built works by exploring and mapping ideas from the early analogue period of practice to the contemporary stage, presenting these as a dynamic framing of relationships. The constellation of projects, mentors, conversations and influencers are assembled as images that define the networks around every project.

The visualisation tool uncovers architectural formations that have informed the visible and virtual nuances of the practice since the early 1990s; unpacking the theoretically driven digital response to architectural practice that has deeply influenced the making of my architectural forms. This way of comprehending

¹ I use this term as it is used by Dr Marcelo Stamm whose research concerns the constellating of creativity. See *Meaning In Space: Housing the Visual Arts, or, Architectures for Private Collections* (2011) by Leon van Schaik.

previous, current and future practice reflects the practice's vitality and diversity, and forms a visually meaningful reflection tool.

The dismembering action of the visualisation tool identifies various strands and classifies key aspects transforming that, which I would term, an 'early digital style' of the mid to late 1990s that responded with representational outputs to the mode of a decade later, which embraces the analytical and behavioral state of production. While some of my architectural outputs and those of my colleagues of the 1990s and early 2000s avant-garde were experimental and often based on conjecture, the method employed then has reached a level of acceptance within global commercial practices using advanced digital tools. This has grown a creative constellation of intelligent networks in which my practice is participating and in which it contributes to the knowledge base. The period of 'exponential change'² with transformative systems is an ever-expanding ecosystem exposed to different media such as coding, computer simulations, pattern recognition, additive manufacturing and expressing itself through tools that are informing and impacting on my practice at a pace unimaginable in my first period of architectural practice. With its creative freedom, this transformation also brings different perspectives and processes a more complete representation of the constellation of new knowledge within my practice.

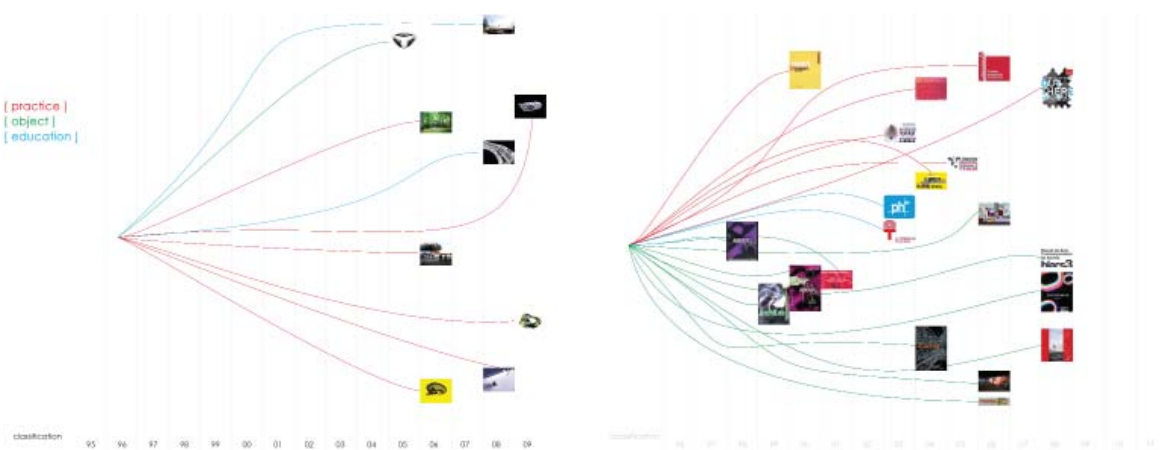
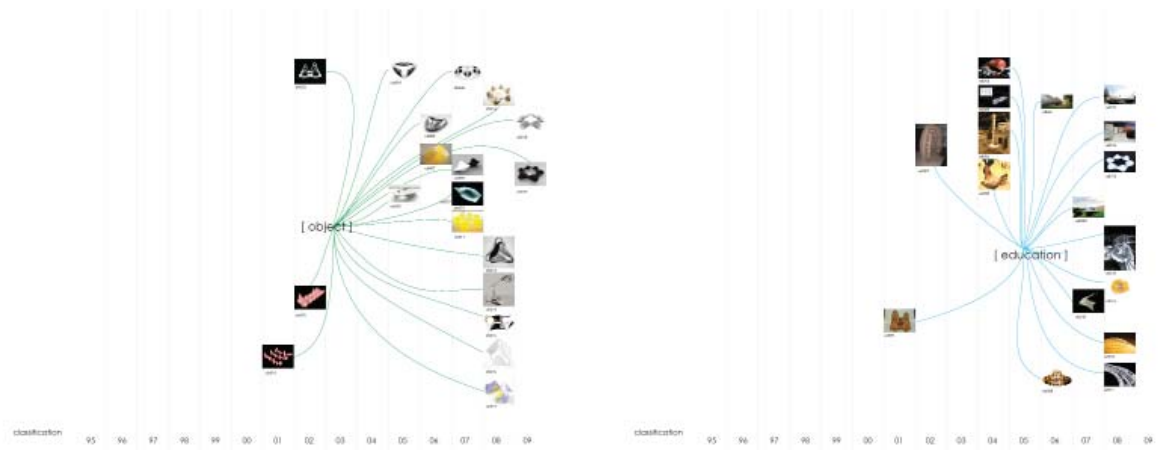
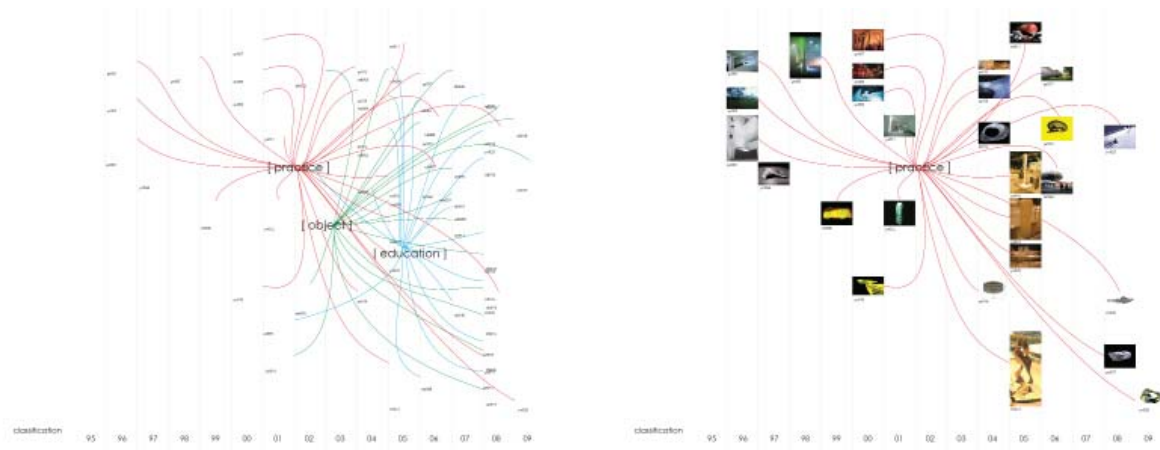
In this research, I map a constellation of people and discover unknown personas clustering these aggregatively. This gives rise to the idea that to constellate projects as clearly defined entities can free up the inclusion of new notions that can be deployed on many levels. The tool allows drivers of a dynamic practice to be referenced as a constellation comprised of levels, opening up qualitative references. Identifying changes over time, the tool assembles a body of information analytically, grouping visible and virtual connections of relevant insights about my practice and the interests, which helped the various scales of projects over time to come to life.

The visual tool has enabled my understanding of my architectural practice as a constellation of ideas, influences and inputs made up of force fields that converge at micro and macro scales to spark new projects. As we operate in the internet age, and amidst an explosion of networks, we may have many different discussions occurring simultaneously. The fact of them, however, does not mean that they are fruitful and meaningful. The value is in what is discussed, and how we make

² Kurzweil, R. (2001). *The Law of Accelerating Returns*. Source: <http://www.kurzweilai.net/the-law-of-accelerating-returns>. [Accessed 10 March 2014].

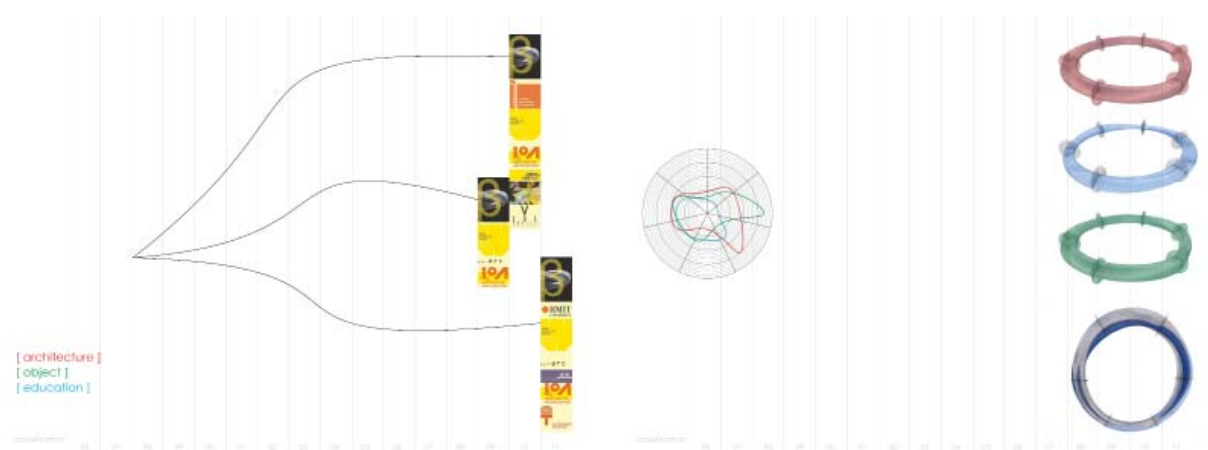
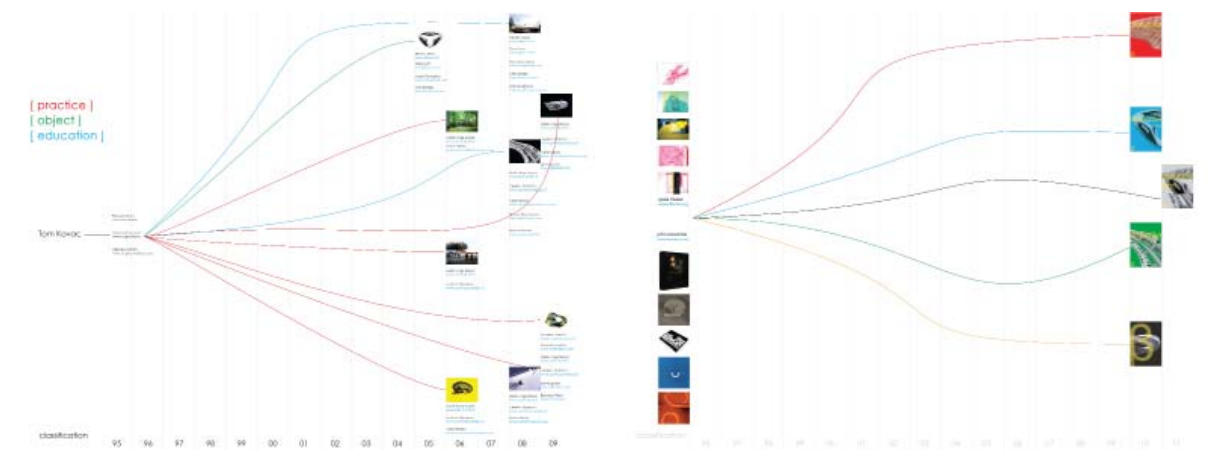
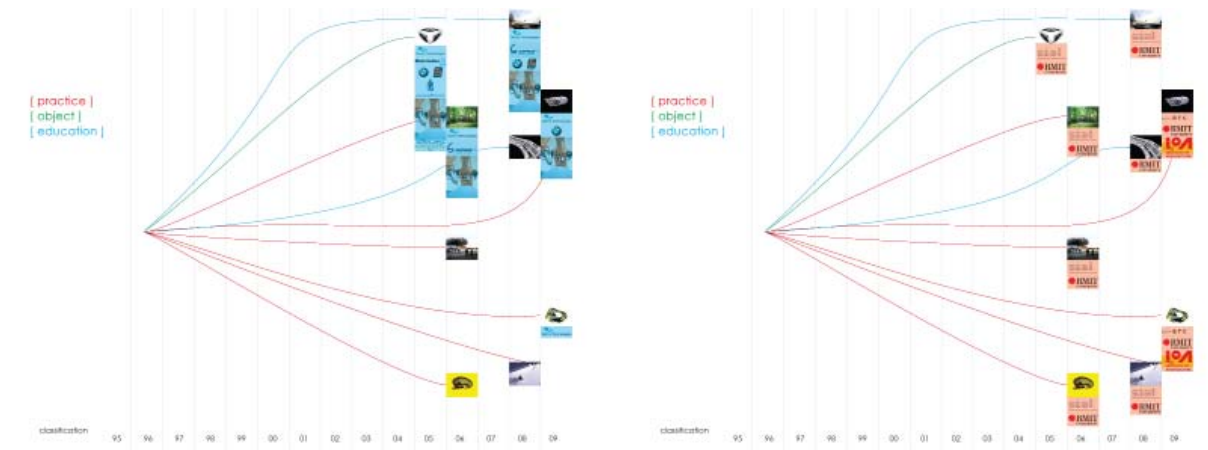
use of that in projects. This is very evident in the drawings and built projects of the early practice: the potent emergence of the virtual side has transformed the practice, and this is a trajectory of the constellation that is visible within the later works, particularly the pavilion projects and the *Visualising the Virtual Concourse* (VVC). Currently, the practice explores the notions of information space into three-dimensional worlds, and the tool developed during this research is in itself an example of this new practice.

My PhD presents a research into and an investigation of my practice. It reveals a reflective study that assembles an array of growing relationships prompted by the evolving techno-social change, inter-disciplinary, and ideological disparities that confront and challenge my future as a practitioner of architecture(s). This is not in any way a definitive model but a speculation about uncovering dynamic systems for research into the ever-growing constellations of my practice to date.



Tom Kovac PhD Proposal & Outline (2008)

6.101-106 (Left to Right, Top to Bottom) // Images of my first Practice Research Symposium (PRS) presentation in 2008, demonstrating the beginning of my research and the three distinct tendencies informing my practice: Architecture, Object and Knowledge.



Tom Kovac PhD Proposal & Outline (2008)

6.107-112 (Left to Right, Top to Bottom) // Virtual Architecture, the fourth tendency introduced as part of my research practice framed an important research direction with the Virtual Pavilion and Biennale exhibitions producing valuable knowledge and research. It demonstrates the beginnings of my reflective practice and setting new directions for my future practice.

Abbreviations: (TBLR) Read images top-to-bottom left-to-right (TB) Read images top-to-bottom (LR) Read images left-to-right.

1

- 1.201-202** Leyton, M. (1992). *Symmetry, Causality, Mind*. Cambridge, MA: MIT Press. pp. 24-25.
- 1.203** Ryan Studio diagram. Image by Kovac Architecture.
- 1.204** Ryan Studio diagram. Image by Kovac Architecture.
- 1.205** Succhi diagram. Image by Kovac Architecture.
- 1.206** Atlas House diagram. Image by Kovac Architecture.
- 1.207-210** Alessi Superstar diagrams. Image by Kovac Architecture.
- 1.301** Gan House sketch (1993). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Image by Kovac Architecture.
- 1.302-303** Capitol Nightclub sketches (1994). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Images by Kovac Architecture.
- 1.304-306** Museum of Victoria sketches (1994). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Images by Kovac Architecture.
- 1.307-313** Ryan Studio sketches (1995). Images by Kovac Architecture.
- 1.314-321** Atlas House sketches (1996). Images by Kovac Architecture.
- 1.323-328** Atlas House sketches (1996). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Images by Kovac Architecture.
- 1.329** Urban Attitude sketch (1996). Image by Kovac Architecture.
- 1.330-331** Pless House sketches (1996). Image by Kovac Architecture.
- 1.332-334** Pless House sketches (1996). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Image by Kovac Architecture.
- 1.335-338** Federation Square sketches (1996). Images by Kovac Architecture.
- 1.339** Island House sketch (1997). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Image by Kovac Architecture.
- 1.340-341** Island House sketches (1997). Image by Kovac Architecture.
- 1.342-344** Island House sketches (1997). Published in *Architectural Monographs No 50 Tom Kovac*, Academy Editions (1998). Image by Kovac Architecture.
- 1.345-348** Glow Bar sketches (2001). Image by Kovac Architecture.
- 1.349** World Trade Centre sketch (2002). Image by Kovac Architecture.
- 1.350-353** RMIT Digital Design Gallery sketches (2002). Image by Kovac Architecture.
- 1.354** RMIT Digital Design Gallery digital sketch wireframe (2002). Image by Kovac Architecture.

2

- 2.106** Dense packings of congruent circles in a circle (1996). Image source: maged sourced from http://www.math.ucsd.edu/~ronspubs/98_01_circles.pdf
- 2.107** Circle Growth Network Formation/Nesting Method. Image source: http://www.davestasiuk.com/wp-content/uploads/2010/07/EM_circle_pack_nesting_mechanism-01.jpg.
- 2.2** *Mentors (TBLR, by Year)*: (1) Dale Jones-Evans, Image sourced from <http://www.architectureau.com>; (2) Jon Lelleton, Image sourced from <http://www.facebook.com>; (3) Kai Chen, Image sourced from <http://www.www.lovellchen.com>; (4) Leon van Schaik, Image sourced from <http://www.designmatters.com>; (5) Frederic Migayrou, Image sourced from <http://www.ucl.ac.uk>; (6) Alberto Alessi, Image sourced from <http://www.die-neue-sammlung.de.com>; (7) Wolf D. Prix, Image sourced from <http://www.e-architect.co.uk>; (8) Niels Jonkhans, Image sourced from <http://www.digital.ohmarch.de>; (9) Reiner Zettl, Image sourced from <http://www.facebook.com>; (10) Richard Blythe, Image sourced from <http://www.transitingcities.com>.
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