MAKE *ing*

A New Zealand tiny house as an exploration of research by making within architecture

MA K E *i n g* :
A New Zealand tint house as an exploration of research by making within Architecture

BY

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ABSTRACT

Making within architecture encompasses many definitions and modes, but these are often at some distance from the production of buildings. IE architect's 'make' drawings and models, but a builder makes a building. This thesis explores the benefits and liabilities of bridging between imagining and enacting architectural production through the design and build of a 'tiny house'.

Via an analysis of craft, symbol, processes and experience, the research begins with the activities of 'the hands' in architectural production. From here the mode of micro-architecture – specifically, a client driven 'tiny house' – is investigated and implemented as an example of research-by-making.

A theoretical and model-based concept for the design of the 'tiny house' was developed, from which research-by-making could be conducted. The Build Phase, comprising the most significant aspect of this research, was then implemented, with commentary and reflection.

Although this approach is not without its limitations as a proxy for practice based making, it facilitates a greater range of making considerations than conventional studio-based production. In this way this project makes and advances an alternative design-research while advocating for learning by making.

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A huge thank you to all my friends for everything.

To all the tradespeople who helped progress the build in so many ways; the builders (Tom, Quinn, Julian, Matt), the plumbers (Tim and Rodger), the electricians (Niall, Jamie, Josh) thank you all so much for your expertise.

Thank you Helen, for providing the best editing a girl could ask for. You truly are a special woman.

Lastly, I would like to dedicate this book to my best friend, Sol. You are my whole world on legs. Thank you so much. I promise to never bite off this much again (or at least not drag you into it!).

LOVE, PETRA.

TRADITION:

WHAT HAPPENS
WHEN THOUGHT
+ REALIZED
ARE CONTROLLED
BY THE
SAME HANDS?

could be up the
will?

- SITE...
- CLIENT
- ENVIRONMENTAL CONCERNS.
- FUNCTION (PLAN BEYOND THEOIS.)

STUDIO??

FRIDAY.

PRAGMATICS.

TRENDS. → TOPOLOGICAL.

DRAWING??

IS IT EASIER
TO EXPERIMENT
W ARCHITECTURE
WHEN THERE IS
LESS AT STAKE?

YES

INVITED
COMPETE
SUBMIT

do i like // agree with
DIRECTS.
INDIRECTS.
EPS // MARKETS.
L
ITY.
PRICE.

E DRAWING.
PROPOSE

THE FOLLY, KIOSK, TINY HOUSE, PAVILLION INSTALLATION SCULPTURE

1940
1950
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100

KIOSKS GIVE
AN INSIGHT INTO
CULTURE. THEY ARE
SMALL, ENABLING
SPACES. THEY ARE
MADE
EASILY SWAP

- CASE STUDIES
- FOR BUILDING
- DRAW
- KIND INTEREST

HELMUT
JAHN

FOR BUILDING

WHAT THE [] IS ARCHITECTURE?

WHAT ARE MY MAIN CONFLICTS // CONFRONTATIONS
WITH IT?

HOW DOES ARCHITECTURE BE GOOD OR BAD?

WHY ARE THERE SUCH BIKING SOCIAL NORMS
SURROUNDING IT??

IF I AM ME AND I DO ARCHITECTURE
AM I DOING ME OR ARCHITECTURE?

IS THE ONLY REAL THING I LEARNED
AT ARCHITECTURE SCHOOL, HOW TO SPELL
ARCHITECTURE?

I LIKE TO USE MY HANDS.

IF YOU SUCCEED IT BUILDING
A MODEL, YOU VISUALIZE
WHAT IS LIVING INSIDE OF
YOU,

SO THAT THE OUTSIDE WORLD CAN
ADAPT IT, STUDY IT, DISCOVER IT,
SEE IT.

BODYS ISEK KINGELEZ

Models are the spatial rendering of the
maker's obsessions. ←

FRANCESCO BONAMI
INVISIBLEVILLE
THE FORM OF BODYS
ISEK KINGELEZ.

COGNITION

FEED BACK / IDEAS!

- ROSS JENNER PHD → AVCK
- NZ SPECIFIC.
- 1992 VENICE BIENNALE INSTALLATION.
- CLARIFY DISTINCTION BETWEEN LOCAL + INTERNATIONAL...

APPLICATION
CASE STUDY ANALYSIS
WRITINGS.

'ARCHITECTS OWN'.

NZ
ARCHITECTS.

STANFORD ANDERSON.

1.6 .30

'GROAT 2002.

GRAY 2004.

700

PROBLEM.

- ARCHITECTS DO NOT BUILD +
ARE HANDS OFF.

- THIS LEADS TO A NON HUMAN-
FOCUSED ARCHITECTURE

- + NOT CULTURALLY RELATABLE.

- IF WE CRAFTED WE MAY
HAVE A BETTER UNDERSTANDING

↓ what?
- WHAT NZ WANTS IS ARCHITECTURE
TO BE + WHAT ACTUALLY MAKES IT
GOOD ARE 2 VERY DIFFERENT THINGS.

REPRESENTATION vs JIS

HOW DO WE THINK THROUGH OUR HANDS?

THINGS TO LOOK AT AS READER:
• 1951 VENICE BIENNALE
• MICK SCHULZ AT ARCA
• BARTOLUCCI

BY MANIPULATING MATERIAL, WE AFFECT THE WORLD AND ARE SIMULTANEOUSLY AFFECTED.

MASIMO SCOLARI

has a position.

aporia
- an unsolvable internal contradiction or logical disjunction in a text, argument or theory.

CEILING + DREAMS
= the architecture of identity

TO DO 5/3

- SKETCH BUILDING LOGO?
- FINISH AT LEAST 4 READINGS.
- WRITE 500-600 BABBLINGS.
- ANALYSE MODEL?

FORGOT A COLOURED PEN!

FINISH
WHAT YOU
STARTED.

REPRESENT a
DENOTE a
INDICATION OR

BENJAMIN
WATTS
"BUILDINGS ARE
APPREHENDED IN A
TWO-FOLD MANNER:
BY USE + BY
PERCEPTION OR
RATHER BY TOUCH
AND SIGHT."

carlo scarpa → relationship of the whole to its parts
"craftsmanship + diagrammatic."

detail as a generator

"Sometimes the building as a whole is present in the
drawing, and generally it is represented on a miniature
scale, and so it seems a detail among details."

P24
THE TAIL - THE
TINY DETAIL.

DRAWING ——— INTERSECTION ——— THING // BUILT // TANGIBLE.

analytique

"the detail was no longer seen as a joint:
instead it was seen as a production of drawing"
P26

ARTS + CRAFTS MOVEMENT... * DETAIL SEEN AS
MEANS OF REDEMPTION
FOR WORKERS.

"the joint... the detail, is the
place where of the meeting of
the mental construing and of
the actual construction" P26.

DETAIL AS A MINIMAL UNIT IN THE PROCESS
OF SIGNIFICATION.

IF MODERN
SCIENCE IS ORIENTED
NOT TOWARD REPRESENTATIVE
BUT TOWARD PRODUCTIVE KNOWLEDGE, +
IF ITS MAIN INTEREST IS THE
DOMINATION + CONTROL OF REALITY WHAT ROLE
IS ANY (CAN BE LEFT TO REPRESENTATION?

P R E F A C E

I have always wanted to be an architect. Since someone, somewhere suggested it as an occupation you could pursue. I have always been intrigued by people and their relationship to both one another and their contextual surroundings and the consequential ability architecture has to facilitate those relationships. I have always found the physical experience of this fascinating, and the concept that the physicality of making with the hands develops an experience. I have been told many times: "We are architects. We build things". However, I could not disagree more. As a student of architecture I often feel I have no idea what 'we' actually do. I have no practical knowledge of building; only theory. How is it possible to even begin to try to understand how space is conceived if we have no physical experience of how the elements implemented in its construction work together at a basic level?

Cynical as it sounds, I wondered if, verging on five years at tertiary education, I had any real skill or knowledge I could be proud of. I have treated this thesis as an avenue in which to explore how I may fit within architectural reality. A way of exploring the utopia of architectural conception and production I believed to be true. The utopia where I am me and that makes me special. What I create with my two hands is a direct self-actualisation of myself as an architect in the world. In a sense this thesis is something of a sole searching exercise. On reflection perhaps, a little soul destroying at times.

Fig/1 personal work process axonometric

WHERE TO
BEGIN.

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PART 1.1

PART 1.2

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HOW TO

My personal way of working is through friction with material. Therefore, the sketchbook is my preferred method of collation. The research has thus included the ongoing and coordinate sketchbook within the thesis to attempt to allow a more holistic insight into the work. The sketchbook has been used as a more relaxed form of note taking, idea exploration etc and therefore is simply supportive of the surrounding research. Questions, suggestive statements and themes which arose predominantly throughout the initial stages of the research acknowledged as is in keeping with my research umbrella.

indicates a somewhat significant text I have come across yet may not be directly related to within the work.

indicates “thinkers’ people who have theorised particular concepts the research grapples with

indicates ‘makers’ in the physical sense of the word: people who have made things with their hands

indicates the ‘made’

INTRODUCTION

“Whether in ritual, myth or architectural speculation, the primitive hut has appeared as a paradigm of building: as a standard by which other buildings must in some way be judged, since it is from such flimsy beginning that they spring”¹ -Joseph Rykwert

Architectural making involves a multitude of modes, mediums and materials as the practice progresses. Fundamentally, this thesis explores the physical realm of architectural ‘making’ -making with the hands and material; a tactile relationship of maker and made. Conceptually split in two, this thesis offers a theoretical standpoint, before taking physical action. However, with reference to the following pages surrounding the research process, this split is predominantly for legibility.

Part One, explores the concept of ‘made’ with respect to character, craft and process within architecture. A development of stance is conducted, essentially outlining an assertion of sorts for the research. Real aspects of architectural practice such as client, brief and site then allow for the research to be developed in reality before design investigations are carried out.

Rykwert wrote “...paradise is a promise as well as a memory”² in that the primitive hut must be looked upon in the promise of architecture. Part Two, the *real* working part of this thesis is an exploration of making with my own two hands, with the ultimate goal of constructing a variation of the primitive hut for the shelter and inhabitation of my family.

Sally Ogle reflected, “...sure there are architects that build. But they’re the exception”³. The following pages are an attempt to consider the possibilities of that exception.

METHODOLOGY

C T

CLIENT
introduction

seperate space investigation

DESIGN INVESTIGATION #1
what if ?

EAT+PLAY
SLEEP
BATHE
COOK

LITERATURE REVIEW

DESIGN INVESTIGATION #2
exsperience?

CONCEPT

PART 2:0

(GOOD FOR COMPARISON
OF WESTERN +
NON-WESTERN VIEWS OF
SPACE, FEELING ETC).

CASA DEL MAR.

MAYBE MY FAVORITE
DETAIL AS OF NOW.
THIS IS JUST A WINDOW BUT
IT IS A ROOM.

In Praise of Shadows - Jun'ichirō Tanizaki
Ornamentation instead seen as a device
with which to differently interpret a
space. Although architecture defines
space, ornamentation manipulates
space.

Eugène Viol

Gesamtkunstwerk
Total Work of Art

K. F. E. Trautson wrote and say with the term

A. W. N. Pugin

Let-le-Duc

Antonio Gaudi

ART NOUVEAU

- + aimed to break down traditional distinction between fine arts and applied arts
- + reaction against the academic art, 'eclecticism and historicism'

ARTS & CRAFTS

- + seen as a reaction to the great exhibition
- + traditional crafts using simple forms
- + aimed for social & design reform
- + anti-industrialism

William Morris

John Ruskin

The Stones of Venice

Charles Rennie Mackintosh

- + concern was to build around the needs of people: people seen, not as masses, but as individuals
- + combined art nouveau and simple Japanese forms

Glasgow School of Art

MINGEI
+ Japanese folk art
movement

Yanagi Sôetsu

- + founder of Mingei movement

Terunobu Fujimori

Ian Athfield

Jeremy Till

Architecture Depends

Juhani Palasmaa

The Craftsman

Richard Sennett

The Dog Box

The Thinking Hand

The Great Exhibition

WE ARE HERE WE ARE HERE WE ARE HERE

1700

Leon alberti -
+ defined beauty as "the concinnity" of all the details
in the unity to which they belong"
+ master builder

"master architects"

Renaissance

1750

1800

Gottfried Semper

BRIAN MACKAY-LYONS

SAM MOCKBEE

DAN ROCKHILL

1850

emper

1900

1950

2000

Yahagi Soetsu

+ founder of Mingei movement

Richard Sennett

The Craftsman

Ludwig Mies van der Rohe

Walter Benjamin

Robert Morris

+ introduced indeterminacy and temporality into the artistic process
+ by cutting, dropping, or stacking everyday materials emphasized the ephemeral nature of the artwork

PROCESS ART

+ concerned with issues attendant to the body
+ focus on process of art, not art

Eva Hesse

Building, Dwelling, Thinking

Martin Heidegger

Alvar Aalto

Sigurd Lewerentz

Gaston Bachelard

Louis Khan

Marco Frascari

Richard Serra

David Pye

Carlo Scarpa

The Poetics of Space

The Tell-The-Tale Detail

The Nature and Art of Workmanship

WE ARE HERE WE ARE HERE WE ARE HERE

similar process of production

The Four Elements of Architecture

PART 1.0

THE HAND

a definition of make

I began this research with a simple question; what can my hands do? Consequently, how does that effect *what* I make and how it is experienced or reacted to?

Inherently, I wanted to build something, anything that was real with my own hands. The definition of *real* as being so reasonably vague as to incorporate post boxes, miniature dog houses and character-based shelving. I wanted to investigate, simply, what can my hands achieve that my brain cannot?

The verb 'make', is described as "to bring into existence by shaping or changing material, combining parts etc"⁴.

However, the term does not have to be so physical. One can 'make' assumptions, conclusions, statements. Or make another person do or say something. It is control. To make something is essentially to produce, construct, create. It is to act with intent. Typically, we see the hands as those which make. The term 'make' within this research is predominantly a reflection of research by making.

TELL-THE DETAIL.

MARCO FRASCARI'S DREAM HOME:
A THEORY OF IMAGINATION

ÁLVARO SIZA

"ARCHITECTS DON'T
INVENT THINGS, THEY
TRANSFORM REALITY".

"FROM MODELS TO DRAWINGS"
IMAGINATION + REPRESENTATION IN ARCHITECTURE

TAKING OUT MY NEW
PENCIL OR TRY TO
DRAW NEW REALITY?

...CONFABULATIONS...
What does storytelling
have to do with
architecture?

← "architecture is embedded in
storytelling" ← FRASCARI

"eleven exercises in the art of architectural drawing"
storytelling the only way to make 'non' trivial architecture.

SOMETHING
SO SATISFYING
ABOUT THIS.
LIKE YOU
COULD HAVE
A PROFOUND
REALIZATION
FROM THIS
DETAIL...

SOMETIMES
SIMPLE IS BETTER

I THINK AS ARCHITECTS
WE ARE TAUGHT TO
THINK BIG. THINK
CONCEPT. THINK LIFE
CHANGING. BUT IN
DOING THIS DO WE
MISS THE DETAIL?

THE HAND

representation

When considering the notion of making within architecture not only is there the physical and mental construing of concept but also the complex notion of representation. “What surprised me most about architecture”, Aldo Rossi once recognised “is that a project has one life in its built state but another in its written or drawn state”⁵. Rossi here alludes to the notion of the translation between modes of architectural representation. Do we *make* representations? Within his now dated yet compelling essay ‘Architecture and the Conflict of Representation, Vesely Dalibor explained a shift of representation within architecture. He allowed that architectural representation was once somewhat of an art form, vague and interpretational but has since shifted. It is now more analogous with science in the sense that conceptions are clearly defined⁶.

Architectural theorist Marci Franciscari also maintains the separation between the drawn and the built, allowing that both separate forms of representation were perceived as architecture. The interpretation by the craftsmen from drawing to building was the condition at which details were considered, allowing invention and innovation to act out the potentially vague concept of building⁷. Drawings were *made*, and separate from buildings *made*. This has now been replaced by exact and potentially over specification of drawing.

Juhani Pallasmaa recognises this process as having “...fragmented the traditional entity of the architect’s self-identity, working process, and end result”⁸. An idea is constructed, it is then drawn, it is then tested, it is then specified to ensure all aspects have been thought out before being built exactly as outlined. This stipulation is where the constraints are found. How is it possible to specify the solutions to problems you cannot see or cannot foresee? Vesely states that “the crucial element in the development of the physiognomy of representation, particularly in architecture, was a tendency toward idealization. It was through idealization that visible representation moved closer to ideal forms which thereby acquired a new tangibility”⁹. Through this newly developed, and potentially now greater shift seen within the manifestation of architectural representation came the need to specify- thus, disallowing the process of interpretation and, consequently resulting in the elimination of the ability to exploit the craftsman’s creativity. This somewhat idealised move away from contingency in architecture has, in a way, also diminished the architectural making process. The process defines a point at which architecture is done, disregarding the continuation of the users influence of the built as architecture.

THE HAND

knowledge + symbol

Traditionally, we see the brain as the intelligent and creative capabilities of the body and the hands more so as a key physical tool to carry out tasks. However, this is an often-misunderstood distinction¹⁰. The notion of 'the intelligent hand', that is to suggest a hand beyond the physicality of it, was introduced as early as 1833, when Charles Bell published 'The Hand'. Bell argued for the levelling of the hand and eye with respect to knowledge and intelligence¹¹. It could be argued that to detach the physical body from the intelligent and creative capacities of a person lessens, or rather somewhat disrespects the capabilities of both the brain and hand simultaneously yet in distinct ways¹². For example, to build a chair with one's hands could be seen as the physical body acting out the instructions of the brain. However, the brains material knowledge of the task is gained through the hand. Both head and hand are in continuous consolidation.

Within his book "Process: Material and Representation" which explored the translation of architecture, Gail Peter Borden suggests "the significance of the how we make (representational method, the materiality of what we make with and the techniques of both) are the determinants of form"¹³. The hands knowledge has a direct effect of the made. Jeremy Till argues that the computerisation of architectural process has led architectural thinking to be governed by visual, suggesting that it "...brings the distancing of architecture from the temporality of the world right to the start of the design process"¹⁴. This reduction in temporality implicitly affects both architectural production and architectural discourse as a consequence, less importance is often accredited toward physical making within architectural practice.

For a variety of reasons, architects have become less directly engaged physically with the process from idea to realisation. *I would argue this space is where architecture becomes interesting or intelligent or engaging.* For this reason, it could be argued, perhaps not so much that the story that architecture divulges has changed or that its role as a form of cultural production¹⁵ is irrelevant, but that the method by which the story is constructed has shifted. Through this change of conception, inevitably comes a change in the relationship of realised architecture and the user. *It should be noted here the somewhat interchangeable use of haptic and tactile. Both describe the sensation of touch. However within this research, the haptic will generally be used to describe the sensation in terms of the user/occupant, whereas the tactile will pertain*

more to the relationship of maker to material. Or rather tactile describes process whereas haptic relates to product.

The separation, or fusion of the brain and hand has been discussed in relation to architecture and craft by writers such as David Pye,¹⁶ Juhani Pallasmaa¹⁷ and Richard Sennett¹⁸. Their discussion situates itself within the notion of craft, and more so the relationship of the hand and the craftsman. Sennett suggests that "...understanding is separated from doing, the 'mind's eye' that of an observer rather than of a maker...the craftsman, engaged in a continual dialogue with materials, does not suffer this divide". Suggesting that the physicality of involvement allows a greater connection between understanding and doing, or rather, the noun and the verb. Through the process of craft, it is simply argued that the intelligence of the hand is evident. A consideration is evidenced. Yet as Pallasmaa allows, although architecture was once seen as a craft, or situated within the realm of craft, it has since become detached¹⁹. Both Sennett and Pallasmaa express the notion that architecture in which the hand is evident, haptic architecture, is in a way, more profound than structures which do not possess that quality²⁰. Therefore, it could be argued that the haptic intelligence of architecture is ultimately obtained through the craftsman's hands and, consequently, the relationship between architect and craftsman is imperative.

Pye bluntly allows that "the quality of the concert does not depend wholly on the score, and the quality of our environment does not depend on its design"²¹. The translation from concept to concrete is where the architecture is determined. Sigurd Lewerentz, a famous Swedish architect was particularly known for his on-site influence and relationship with the craftsmen executing his work. For example, within his St Mark's Church in Stockholm, although Lewerentz implemented a particularly basic and cheap material, brick and mortar, his understanding and consequential attention to detail in the way each brick was laid ultimately influenced the overall architecture²². Through specifying the variation in mortar between bricks not only was Lewerentz able to create his desired forms, but also either emphasize or diminish the prominence of the brick. Such attention was taken, it is said he would even sit and point to each brick being laid and prescribe its placement to the bricklayers²³. Although Lewerentz was not directly *physically* involved in construction, his dedication and appreciation to those executing his work enabled a dynamic relationship,

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CONSULT THE FIGURE LIST FOR FURTHER
DETAILS

Fig./2 *St Marks Church, Stockholm* - Sigurd Lewerentz 1960

WHERE DO ARCHITECTS
ACT OUT THEIR ROLE?

(ON-SITE) .. OFF-SITE.
HANDS ON .. HANDS OFF

HOW MUCH IMPORTANCE IS
PLACED ON CRAFT IN
ARCHITECTURE?...

What is the role of the
architect?
+ who's hands create
architecture?

"MASTER-BUILDER"
(GREEK?)

MIDDLE

ROMAN ARCHITECT
"THE DIRECTOR"

16TH CENT.

ARGUE FOR CRAFT
NOT AGAINST CRAFT

This shift has
happened because
of many factors:
population growth,
industrial revolution,
a need for cheap...

Well obviously there has
been a shift from
architects as 'master builders'
to architects as 'assemblers'.
I do not mean to suggest
that we need to go back
to the idea of the
architect as god. However
it could be argued that
if architects had a
little more practical
experience of making +
craft then maybe

"THE ASSEMBLER"

DESIGNER OF SPACE +
FORM, ORGANISER OF USE
+ FUNCTION, ASSEMBLER OF
PRODUCTS. } TODAY.

Shift of the role of the architect,
from 'the Master Builder' to what
could be argued today is 'the
Assembler'. This shift is due to a
multitude of factors such as popu-
lation growth, industrial revolution,
economic change etc.

diminishing the feedback loop. This 'on-site' presence he adopted also allowed for a higher level of adaptability, or organic design decisions to be carried out.

Through the involved process of craft, an embodied character of material and detail is sought. The intelligence of the hand is revealed. I believe architectural process also needs an involved, craft-like quality in which the intelligent hand is observed. Drawing, being potentially one of the most overall and widely implemented *physical* acts of creating architecture today is the place where both brain and hand combine. *(It should be noted that today the most used method of architectural production is in fact the computer however I do not categorise that as physical)*. The concept of the time craft involves is potentially a reasoning for architectures speculated separation from craft. Within practice, through the reduction of time taken to exercise physical drawing, and potential increase of virtual work, the sense of satisfaction that craft allows is not so prominent. Sennett suggests "the slowness of craft time serves as a source of satisfaction; practice beds in, making the skill one's own"²⁴. It is the ownership and understanding of the hands capabilities that craft allows which enables an intelligent production/ability. The sense of ownership enabled through time heavy practice is seemingly the factor which reinforces the hands independent intelligence.

The hand is arguably the part of the human body most frequently used in symbolism²⁵. It is used within language, gesture and motif. Sennett again introduces the decisive notion of the grip of the hand in comparison with the brain's somewhat unconscious movements allowing that, "Grips are voluntary actions; to grip is a decision, in contrast to involuntary motions like the blinking of the eyelids"²⁶. Within these small acknowledgements of the importance of the hands ability to react and decide intelligently the separation of the hand and brain is suspended. This is also mimicked in language. We associate the hand with powerful and absolute sayings such as 'right hand man' or to 'come to grips with an issue'²⁷. Le Corbusier implemented the hand as a symbol throughout his works. His 26 meter tall 'Open Hand' sculpture in Chandigarh, India is his largest and perhaps most direct application of the symbol. Being able to say one has built/made something with their 'own two hands' depicts a deliberate and considered human action. An intelligent hand is evidenced. Within this relation, it can be seen that although the hand and brain are perceived to be separate outside of craft, our subconscious appreciation and reliance on the hand as a source of knowledge is inherent.

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PLEASE CONSULT THE FIGURE LIST FOR
FURTHER DETAILS

Fig./3 *Open Hand* - Le Corbusier 1964

*"But the craft of the hand is richer than we commonly imagine...The hand reaches and extends, receives and welcomes-and not just things: the hand extends itself, and receives its own welcome in the hands of other...But the hands gestures run everywhere through language, in their most perfect purity precisely when man speaks by being silent...Every motion of the hand in every one of its works carries itself through the element of thinking, every bearing of the hand bears itself in the element. All the work of the hand is rooted in thinking"*²⁸

-Martin Heidegger

The separation of brain and hand has resulted in the diminished ability of the hand to assert its significant intelligent capabilities, or rather, its ability to be recognised within architecture. The traditional role of the architect today is somewhat distanced from not only the physical construction of architecture, but the consideration of physical elements of architecture. It is argued this separation from the manual labour of physical craft has been growing since the Renaissance²⁹. Within 'Changing Ideals in Modern Architecture, 1750-1950, Peter Collins and Kenneth Frampton argue that preceding the Renaissance a conflict/crisis arose within society grappling for a 'new' architecture. They say the Renaissance "...brought man into closer contact with the inside and the outside of its buildings"³⁰. This moral conflict of modern life was also proposed by the Arts and Crafts movement in which figures such as John Ruskin attributed manual labour with the social morality of life³¹. Shifting from the architect as the *master craftsman* to the architect as the *assembler of parts*³². However, Le Corbusier's assistant, Andre Wogensky, said of his mentor: "For him it was not enough to see it. He felt it with his fingers"³³. Although he only physically *constructed* one of his own designs, Le Cabanon, Corbusier did in fact *make* architecture with his hands. For example, within his renowned later work Notre-Dame du Haut, Corbusier conducted exhaustive sketches and models to consider the chapels architecture. Within these physical interrogations of material, light, depth, form etc Corbusier was able to work through the elements of architecture at all levels at once, even considering (and placing great importance on) the route of the users, from approach to departure³⁴.

Therefore, it could be said, there is a distinction between making and construction, both enable a character within the resulting architecture, and both create presence through craft. Yet, further, it could be argued that with the development of the architectural profession, the physical, even the detached physical hand is becoming predominantly absent. Pallasmaa observed, "the fact that being an apprentice at the construction site used to be a mandatory part of architectural education, and that architects often practised craft, drawing, painting or sculpture as a hobby or a means of acquiring manual skill and carrying out formal experiments, reinforced the connection between professional architectural practice and the realities of making – between idea and matter, form and its execution"³⁵.

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FURTHER DETAILS

Fig//4 Sketches: *Notre-Dame du Hut*

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FURTHER DETAILS

Fig//5 *Notre-Dame du Hut - Le Corbusier 1955*

Fig//6 Sketch: *Jinchokan Moriya Historical Museum* - Terunobu Fujimori

Regardless of subject matter, a trained and considered hand is developed through use; through the practice of the tactile movements of the hands, consequently recognised within the architectural object by the user. A trained hand in architecture leads to a visible, physical difference in what is built. Therefore, to consider the practical, real and making aspects of architecture, the architect's physical use of their hands becomes paramount. As Roy Decker insisted, the "hands are the most difficult to deceive, and eyes are the easiest"³⁶. He then expands to consider the time difference between sight and touch, the former significantly quicker than the latter. Consequently, the craft of architecture is considered through time, thus resulting in an architectural process which utilises craft to manipulate moments of architecture. In doing so, the overall architecture develops its own character because of its perceived presence.

Terunobu Fujimori works, almost exclusively with elements on site, enabling the materials to reveal the craft. He humbly reveals that "The most fun thing about architecture for me is that I can build things with my own hands"³⁷. Creating with the hands for Fujimori is an experience which allows not only exterior knowledge to be gained, but is in fact where the imagination, invention and consideration of architecture is explored. He expands to recognise his interest in working within the "basic unit for architecture" as allowing a more free and imaginative architectural exploration process³⁸. Of his first work, 'Jinchokan Moriya Historical Museum', it was noted that "This building is Fujimori himself. It is as if Fujimori has assumed the shape of a building. Here stands Fujimori, and there stands the building to which he has transformed himself"³⁹. Through his process of making within architectural production Fujimori allows his own hands to be a direct self-actualisation of himself as an architect.

The consideration of architecture by its maker inevitably influences the result. Lazslo Moholy-Nagy explained that "the way in which something has been produced shows itself in the finished product. The way it shows itself is what we call fracture"⁴⁰. The notion of fracture is inherent with architectural experience. With the shift away from architects as makers who experience a tactile relationship with the made comes a shift of the haptic relationship of user and the made. A change in the fracture. The story able to be told through architecture may not have changed as such, yet the process through which it is conceived has in a sense separated and diverged.

Oriel Window House -
Shinsuke Fujii Archi-
tects 2015
Area: 75m²

Utilizing a small site typ-
ical of Japan, the house
implements alternative
means of layout and
openings. Privacy is
increased in verticality,
using windows which
punch outwardly to fo-
cus the interior space
to the trees adjacent.

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TAILS

WINDOW HOUSE
- SHINSUKE FUJII ARCHITECTS

WHAT IS THE CULTURAL
IDENTITY OF NZ???

STORY TELLING
THROUGH THE
HANDS

how through making,
layering etc is
space able to tell
a story?

THROUGH
THE POINT
THE DETAIL
AS GENERATOR.

A DETAIL OR JOINT IS MAKE OR BREAK
RIGHT? YES A GOOD PLAY? LOOKS GOOD
ON PAPER BUT HOW THOSE ELEMENTS OF
SPACE INTERACT & COMBINE //
DICTATES THE PLACE.

How through the process
of making, can space tell
a story. In consequence
allow an architectural
character to be perceived.

How can the detail as
a generator be used
to create identity
within architecture.

Exploration of making. Detail and craft are built up through the making process to tell a story and create an architectural character.

Construction process worked through modelling enabled consideration of reality of construction. Thickness and material are thought over.

As a physical occupant of architecture, we are intrigued or rather able to react to forms, spaces, conceptions in which we can relate, or rather, correlate, our own body. Although arguably further toward writer than maker, Massimo Frascari suggested that “too much attention cannot be given to produce a distinct character in every building, not only in great features, but in minor detail likewise; even a moulding, however diminutive, contributes to increase or lessen the character of the assemblage of which it forms a part”⁴¹. It is from these details which constitute the whole that, inevitably, engagement with architecture is established. Consequently, the physical construction, of these details consummates the user’s response.

For example, within my own home a set of floating stairs carries one from the ground floor up to a mezzanine. Effortless in their appearance, the stairs carry with them the inherent notion of intelligence. How is it possible to hover eight 150mm thick slabs of solid timber in mid-air? The effect is one of intrigue which arguably heightens the experience of circulating upward. Similarly, the new Tate Modern extension houses a spiral staircase which, cast in situ, compels its user to consider its conception and thus actively engage with the architecture. Richard Sennett discusses the importance of presence within architecture, allowing that “Presence can be registered simply by leaving a maker’s mark, such as a brickmakers stamp”⁴². Through the explanation of the making process the user is, if not consciously, inherently aware of the production of architecture. That awareness elevates the experience. Therefore, when discussing the notion of the haptic, it is rather a concept of acknowledgment of the tactile qualities the architecture possesses, or has been through which allows character to be determined. As Walter Benjamin said, “buildings are appropriated in a two-fold manner: by use and by perception or rather by touch and sight...Tactile appropriation is accomplished not so much by attention as by habit”⁴³. The body’s actions inherently and subconsciously act and react to the surrounding architecture. Lars Lerup suggests architecture must embrace *building the unfinished*. He argues, “human action...is a complicated matrix with unknown combinations, the result of which is considerable unpredictability, a marvellous unfinishedness and openness. When this fact is brushed, ignored or forgotten the importance of architecture becomes simply utilitarian, design becomes dull, repetitive and mechanical”⁴⁴. Allowing the story of architectural production to be told enables a more involved user experience.

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Fig//8 *Tate Modern Staircase*

Some Thoughts on The Building of Houses

- James Walter Chapman-Taylor

"...the actual structure is made the means of decoration and each material is treated to bring out its inherent qualities"

"There is no finer timber than our native gum... strong, durable + black as boy's oak."

21923 - James Chapman-Taylor.
Some thoughts on the building of houses.

"If the machine could work my timber so as to retain its character... Boy, I would use the machine."

"The actual structure is made the means of decoration + each material is treated to bring out its inherent qualities."

"The plasticity of plaster be given + smoothness of stone, all these are used to their full extent to give a living interest to the work."

"...there is a ground plan in which our lives are lived."

1743 ABOUT HOUSES - ERNST PLISCHKE.

"This means that a house should respond to our individual characters + way of living."

"...a home is to a certain degree a mirror of the mind."

I AM

ME +

THAT ME MAKES
ME SPECIAL.

About Houses

- Ernst Anton Plischke

"...a house is a framework in which our lives are lived...this means that a house should respond to our individual characters and way of living...a house is to a certain degree a mirror of the mind"

Firth Concrete of-
fices
Considered as an
influential and pivotal
piece of New Zea-
land architecture.

Roof lines
within New
Zealand context
are important

Milford Sound Visitor Centre
- John McCullough

THE HAND

craft + detail

Considering the notion of character and presence within architecture consequently announces the fundamental components of craft and detail. Frascari suggested that “It is possible to define architecture as a system in which there is a “total architecture”, the plot, and the detailed architecture, the tale...architecture becomes the art of appropriate selection of details in the devising of the tale.”⁴⁵. Within this analogy, it could be understood that detail is the point at which the essence and consequential character of architecture is situated. How these details are thus crafted and constructed becomes the vindication of the tale. In essence, the craft of the detail, the imprint of the maker, allows for presence to be registered, which in turn amalgamates into an architectural character. For example, a bandsawn face of timber board recognises the act of the saw blade on the timber, and so offers insight into the material’s conception. Prominent proponent of the Arts and Crafts Movement, John Ruskin famously stated that “Truth is craft. Craft is truth”⁴⁶, in relation to the social wellbeing architecture allows. He believed craft was the utmost honest and moral treatment of material and structure, and thus architecture. Sennett considered this truthful unity of the head and hand as fundamentally shaping Ruskin’s advocacy of manual labour⁴⁷. Through the dedication craft demands, the presence of its result is exhibited. This can be seen within master architect Carlo Scarpa’s work. Scarpa was not involved in the construction of his works but he supervised them closely. He dedicated much of his time to the craft of drawing and conducted exhaustive discussions with manual workers, enabling a constructive craft basis for his work⁴⁸. This is intelligently shown through his work on the Olivetti Showroom. A montage of materials, Scarpa utilised his knowledge of craft to exploit what was before a narrow, long and relatively dark space. Through a composition of heavy and delicate elements such as the marble staircase distinctly separated by small brass rods to allow a negative detail, the space is wholly crafted and considered. Considering even the floor in relation to the whole, he implemented an intentionally irregular tiled pattern using four different colours and sizes to create a water-like surface, consequently offsetting the heavier elements of the space.

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TAILS

Sketch of the Church of Three Crosses flicks between the plan, detail, section continuously on one page, one thought. This creative exploration of drawing allows a semi-unconscious process between the hand and eye.

ALVAR AALTO

Fig//10 Muuratsalo - Alvar Aalto 1953

TAKE YOUR
PLEASURES
SERIOUSLY

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INFORMED MAKING
IS AN INTELLIGENT ACTIVITY.

Muuratsalo Experimental House -Alvar Aalto

The work became an experimental study various architectural qualities such as materiality, construction techniques, climatic conditions etc.

Informed making is an intellectual activity

An admirer and student of Scarpa, Frascari⁴⁹ commented that, “Details of Scarpa’s architecture solve not only practical functions, but also historical, social, and individual functions”⁵⁰. Through the craft of drawing, Scarpa was able to simultaneously consider all aspects of architecture in different scales. David Pye acknowledges the ‘workmanship of risk’, which is ultimately a fundamental aspect of craft. It simply allows that craft must have risk *and* contingency drive the work; it must not be preconceived⁵¹. Sennett suggests that “The good craftsman places positive value on contingency and constraint”⁵². In doing this the craftsman is able to utilise the potential that contingency and risk allows. However, in many instances and for many reasons, architecture has transitioned to a particularly low-risk practice, or rather works on minimising risk which arguably reduces the space for imagination. Till posed the question: “how could anything conceived in a vacuum cope with the conditions it has denied were there?”⁵³ suggesting that architecture which does not acknowledge exterior entities will inherently be unable to relate to the exterior society. He argues that architects must somewhat let go of control, explaining “But then we let time move in, disturbing the impossible purity of the plan....”⁵⁴. These two seemingly distant concepts relate to one another in terms of consideration. Considered architecture embraces the external forces it is bound by. Interrogating the detail, Scarpa accommodated the unexpected.

THE HAND

p r o c e s s

The process of architectural production today is a lengthy one, and therefore maintains a large gap between thought and feedback, due to the insertion of other steps. This could be recognised as a *long reward loop*. The notion of reflection and revaluation is distanced through the gap between thought, action, result. Traditionally, architecture is realised through a process of representation. Firstly, an idea is conceived, then tested through drawing (predominantly virtually). This tested and documented idea is then passed on to someone to interpret it before building it. As previously discussed, both are distinct forms of making.

Although categorically art theory, the Process Art movement of the 1960's sought to embrace the limitation of craft as a process over art as visual object, thus shifting the focus from the image to the operation⁵⁵. This could arguably sit parallel to the conversation seen within the architectural discipline today over the representation of architecture, its focus on imagery, of justification over making. Prolific artist Robert Morris said that "I believe that there are 'forms' to be found within the activity of making as much as within the end products"⁵⁶. In this he suggests the rejection of form at the outset allows for a clearer, more logical approach to making which, rather than limiting contingency, simply accepts it. Challenging the traditional process of architectural production enables an exploration of the space between idea and result. Rather than potentially being a lengthy linear process, by speeding up the feedback loop, architectural production becomes a cycle of invention, reflection, adaption, reinvention. Jackson Pollock said his 'drip' paintings were "an extension of the body and as a process of discovery rather than an act of intention"⁵⁷. He worked with the materials contingency to discover the unprescribed. 'Ant Farm', perhaps the most well-known architectural group to practice within this movement, began in 1968 with the intention of exploring alternative styles and practices more in line with the revolutionary spirit of the time⁵⁸. The group would stage large scale 'happenings' which critiqued the "virtual architecture of image, icon, and power"⁵⁹.

Process art embraced the limitations of craft as a process instead of art as an image or final product. In this act, the movement not only allowed for, but actively engaged with contingency.

Fig//11 *Jackson pollock painting*

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Fig./12 *Ant Farm 'happening'*

William Morris
1861 & 1863.
(1861)

1. CRAFTING
SCALE. > DRAWING
THESIS
COULD WE
WORKING DR
THAT EXPLAIN
HOW TO

15 MAKING

WG

ANALYSIS
AND INCLUDE
DRAWINGS
EXPLAIN EXACTLY
TO ARCHITECTURE.

Book & Loos.
(5706).
MAKING W
INTEGRITY.

NEED TO...

WORK OUT FEASIBILITY
OF SCOPE. (10⁰ M)
HOW MUCH IT RES

THE QUALITY OF
BEING HONEST +
HAVING STRONG
MORAL PRINCIPALS

BEGAN IN BRITAIN
 1880 → 1920
 TRADITIONAL
 CRAFTSMANSHIP
 USING SIMPLE
 FORMS ...

→ AUGUSTUS PUGIN

EMPHASIZED THE IMPORTANCE
OF CRAFTSMANSHIP &
TRADITION IN
ARCHITECTURE
LOCATED FOR
TO MATERIAL,
FORM & FUNCTION

A hand-drawn sketch of industrial buildings with smokestacks, labeled "FABRIQUES" and "DÉCHETS".

RUSKIN /
→ RELATED MORAL &
SOCIAL HEALTH OF
NATION TO THE
QUALITIES OF ITS
ARCHITECTURE

CRAFTSMANSHIP

APPRECIATION OVER ALL

TOURIST
SHOW

NOT

ARCHITECTURE
AS CULTURAL
PRODUCTION
JENIFER
BLOOMER

SOMMER

DOES SOMETHING THAT IS MAN-
PRODUCED HAVE AN IDENTITY?
DOES IT HAVE CHARACTER?

Arts and Crafts Movement sought to reintroduce manual labour within architecture, suggesting that factories of mass production were dishonest. To implement craftsmanship was to be honest and moral.

Easier to interrogate the detail when it is tangible, one must actually address how it is constructed. Through the process, problems are addressed and solved continuously. Allowing things to arise, before reaction supports a development of knowledge to consequently address the next problem.

THE HAND

In suggesting that the traditional architectural process today is one of increasing specificity that leads to delayed feedback of architect and architecture, alternative methods which implement making challenge this perceived process. Through making, subconscious and conscious decisions are able to be made in real time, thereby embracing architectural contingency. Many of these alternative methods of architectural process were born out of a desire to experience and understand physically, the process of making architecture. For example, Wellington based firm 'Patchwork Architecture' essentially formed through an exploration of physically building. Founders Sally Ogle and Ben Mitchell-Anyon and their friends Tim Gittos and Caroline Robertson of 'Space Craft Architects' began with a simple ambition, "...to be practical"⁶⁰. As a consequence, they decided to buy a piece of land in Whanganui and build something on it. The group bought four trusses and 45 pine poles and then set about designing how to make use of their purchases, ultimately allowing the material (along with site factors) to determine the design. Ogle writes, "The house is not attempting to 'speak' of anything -its not a symbol or metaphor for something else, and we haven't post-rationalised a conceptual starting point"⁶¹. Fundamentally the project was an exercise in experience, learning by doing, and an experience which has had a major impact on their retrospective careers and approach to architectural design⁶². Similarly, spaces such as Objectspace provide a platform to discuss alternative ways of making within the architectural context of New Zealand. In 2019, 'Making Ways: Alternative Architectural Practice in Aotearoa' asked *how its possible to make architecture today?* A reviewer wrote "...it left an impression of how much the work on show was eclipsed by ways of working"⁶³, suggesting a tone of involved process; of architecture as a conversation rather than a statement.

Alternative forms of architectural education with the common focus of 'building' also implement making focused ideology, or rather learning by doing⁶⁴, with some it being their primary focus⁶⁵. One such program dubbed 'Ghost Lab' was the research laboratory of Mackay-Lyons Sweetapple Architects and began in reaction to North American architectural education⁶⁶. The two-week summer design/build program consisting of a one-week design phase and one week build phase fundamentally aimed to provide construction experience. Perhaps the most concise treatise by its founder Brian Mackay-Lyons. In his introductory words of 'Ghost' he writes, "Pragmatism is the best teacher. Learning is accelerated by purpose. We learn best when we need to know. Technology is best understood by making. Teamwork is learned quickly when there is too much to do"⁶⁷. This seemingly straightforward declaration provides an accurate description of the ideology of these design/build programs and perhaps the utopia of architectural practice. Perhaps the case here is not that architecture is stuck in a traditional, control focused modality but that the frequency of ability and space to challenge or test or explore alternative architectures is limited.

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In her paper 'Building the Studio Environment', Louis Wallis conducted a comprehensive analysis of design/build studios around the world. She concluded the similarity between them was the importance placed on students experiencing the design and build process, in a hands-on way, as well as being involved in a real project⁶⁸. She found learning by making provided students with a stronger link with material experimentation and construction, allowing them to develop a considered and understood architectural approach to program⁶⁹. Rural Studio founder Sam Mockbee stated that "what's important is that the students understand the process...for young architects it takes it out of the theoretical and makes it real...students learn that drawing on paper and building models is not architecture"⁷⁰. However, design and build schemes have been criticised because of their inability to be judged as architecture. In 2002 the Journal of Architectural Education said evidence of success was anecdotal, based on student learning and empowerment over 'architecture'⁷¹.

My research sits in the gap between the idea and the realized. The thought and the tactile. That is where true design comes from -the invention OR adaptation of an idea in the space between, rather than the beginning or end.

WHAT ARE THE THINGS
WE NEED TO DWELL...

TO BE PROTECTED

who shares
these ideas...

- 1 - relationship between architect + builder
- 2 -
- 3 -

everyone deserves architectural
'beauty' → a space that
allows them peak. this does not
have to be

DESIGN OUTCOME
+ THIS IS ARGUMENT
NOT SAME THING.

big hope.

needs to agree
for not
against! ???

expensive → 'architecture'
doesn't have to be expensive

TONY WATKINS
MIKE O'SULLIVAN
PAOLO CARLESSO
SALLY OGLE
IAN ATHFIELD

Architecture at smaller scales are arguably the avenue in which the architect can be the maker.

Making allows for an almost immediate feedback loop not traditionally seen within architectural production. Decisions and reflections are able to be made in real time, allowing for the contingency of architecture to be embraced. Problem solving through the hands.

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TAILS

Details show
sincerity of
construction.
Honest, simple materials
are combined
in a way
which accepts
their imper-
fections.

Materially rich spaces
softened through the
consideration given.
Craft and detail are
interrogated through the
relationship of maker
and material.

Fig/14 Collection of scanned images in sketchbook

SALLY OGLE +
TIM GITTOS +
BEN MITCHELL-ANYON

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FURTHER DETAILS

Self build
projects by ar-
chitects with a
desire to build.
Both projects
were undertak-
en by groups
living on site
and learning by
doing.

Fig/15 Collection of scanned images in sketchbook

ANNALIE RICHES +
SILVIA RICHES +
BARTI GARIBALDO

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FURTHER DETAILS

Built completely himself, the space is materially rich, allowing the architecture to relate to the human body. Boundaries are blurred as if the garden were an extension of the house enabling the user to continuously associate the surrounding outside.

Invention and adaptation is told through the crafting of elements such as the stairs.

Fig//16 Collection of scanned images in sketchbook

Marking of the hand tell a story
and allow the architecture a
presence to be interpreted.

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FURTHER DETAILS

Fig//17 Collection of scanned images in sketchbook

THIS CONTENT IS UNAVAILABLE.
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FURTHER DETAILS

Materially rich spaces emphasise the tightness of them. Because of the complexity of the meeting of stone, tile, timber, brick spaces are not overwhelmed but inherently considered

Fig//18 Collection of scanned images in sketchbook

+

AIMS:

+

TO ACQUIRE A PHYSICAL + EXPERIENCED
KNOWLEDGE OF BUILDING AND UNDERSTAND ITS
INFLUENCE/IMPORTANCE WITHIN ARCHITECTURAL
PRACTICE.

METHODOLOGY:

THROUGH THE MEDIUM OF SMALL-SCALE ARCHITECTURE,
I WILL PICK APART ARCHITECTURAL SPACES TO DESIGN
SOMETHING WITH THE INTENTION OF BUILDING IT.

RESEARCH QUESTION:

WHAT CAN MY HANDS ACHIEVE WHICH MY
BRAIN CANNOT?

+

+

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LIST FOR FURTHER DETAILS

Fig//19 Renzo Piano Workshop

Renzo Piano Building Workshop

The process of working within the office similar to that of the craftsman, tireless repetition, through movement. Drawing and making and continuously switching between the two somewhat relates back to the guild essence of how architecture once was and allow the architectural process to in a sense bring back the romance of architecture

GINNY PEDLOW +
GARY HUNT

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FURTHER DETAILS

Design somewhat dictated by material objects. Makers sourced industrial window frames and consequently designed the house around them. This not only allowed for design decisions to be made, but also an opportunity to manipulate the treatment of the material.

Fig//20 Collection of scanned images in sketchbook

Worked in a way in which contingency was embraced, architecture as a process that was furthered by the user's occupation. In this sense Athfield's architecture returned to the *romantic*.

Fig//21 Collection of scanned images in sketchbook

ANTONI GAUDI ROMANTIC

FRANK GHERY DESIGN CONVIC-

Alvar Aalto

Sigurd Lewerentz

Both treated architecture as a craft and had a deep respect for crafts people. Their architecture considers the act of making and thus addresses construction within the architectural

The Thinking Hand - Juhani Pallasmaa
An advocacy for multi- sensory architecture the book investigates the potential of the hand and body within architectural production

Some Notes on the Phenomenology of Making - Robert Morris
"I believe that there are 'forms' to be found within the activity of making as much as within the end products"

Glenn Murcutt
Human focused architecture which uses vernacular techniques

Fig/22 Magney House - Glenn Murcutt 1984

Studio 804

Part of the University of Kansas

Department of Architecture the nine month course aims itself at those who wish to be better architects by gaining experience of completing the whole process of construction.

Rural Studio

Questioning what should be built rather than what can, the Design-build program as part of Auburn University allows students to work within the community to gain hands-on educational experience.

Ghost LAB

Based on the apprentice model of professional education he two week course consists of one week design and one week build phases.

BRIAN MACKAY-LYONS GHOST LAB

SAM MOCKBEE RURAL STUDIO

DAN ROCKHILL STUDIO 804

I ACTUALLY DO
LIKE ARCHITECTURE

I JUST FIND IT
HARD TO UNDERSTAND
MY PLACE WITHIN IT.

OBJECT SPACE

- DEDICATED TO CRAFT
DESIGN + ARCHITECTURE.
- + 2004 RECOGNISED NEED FOR
SUPPORT OF FIELD OF CRAFT
APPLIED ART + DESIGN.

DIRECTOR SIM PATRICK

"AT ITS HEART, OBJECTSPACE
HAS ALWAYS BEEN, DRIVEN
(AN REORGANISED)
BY HANDS - BY THE
CONCERNS OF THE DISCIPLINE
IT SERVES."

THESE ARE MY
TRAUMATIC +
NON-
ESTI-
MATE
LOCAL.

THIS IS MY
DISSENTING +
CRAFTED BODY. (ORGANISATIONS)

TO DO
- FOCUS
- RE-FOCUS
- REFOCUS
- COLLABORATE.
↓
EVENTS.

COLLABORATE

Object Space - Gallery
Recognised a need for support within the field of craft applied art and design.

"At its heart Object Space has always been driven by the concerns of the discipline it serves".

House on Sleds

- Crosson Architects

Moveable 40 m² bach

designed to close up to the elements when not in use.

Double height space in the living area allows a greater sense of space whereas and defines kitchen from lounge.

Private spaces are then acknowledged through vertical and horizontal separation.

Process

Challenging the traditional process of architectural production enables an exploration of the gap between idea and result. Rather than potentially being a lengthy linear process, through quickening the feedback loop, architectural production becomes a cycle of invention, reflection, adaption, reinvention.

What though
can my hands
achieve that my
brain cannot?

TYPOLOGY

GO SMALLER.
TODAY: DRAW PUMP

Salt
River

KAITIAKI HARBOUR, NEW ZEALAND
SALTRIVERHARBOR.NZ PH: 021 072 1470

character...
PUMP

To dwell is to protect the daydream.
you are most protected when
you have a room to
shelter. a corner. how
these are evolved is
very important. to
join is to actively protect
the day dream.

HOW TO START?
CHAPTER:

architectural education
- missing the real
- case studies on alternatives.
- reason for need.

definition of (dwell)
need for craft in architecture.
maybe history of craft... maybe
need for raising borders
art + craft.
IMAGINATION + INVENTION
detail
relation of joining to
character...

* can even see
see the outline of
the picture??

TODAY. 11/05

• FINISH PROJECT.
• PRESIDENT → DESIGN BUILD.

→ FOUR

• MAKE!

• READ...

• POINT.
• LINE.
• SURFACE

METHOD
OF
REASON
RETURN

PROCESS

+ UK MULLIN - SHAW MAISON
- HEATHERNICE STUDIO.

+ MAISON TROPICALE
- JEAN PERRE.

+ JEAN MARIE TILLOT
CULTURAL CENTRE
- RENVED.

+ US PAVILION EXHIBITION
- BUKMINSTER PE

+ TAMEL DE LA VILLE
- TSCHUMI

+ EACH FOLD IS
A CENTRE FOR
SCHOOL

OPEN
A...
B...
C...
D...
E...
F...
G...
H...
I...
J...
K...
L...
M...
N...
O...
P...
Q...
R...
S...
T...
U...
V...
W...
X...
Y...
Z...

WHAT WAS
THE PROBLEM...

WHAT LEVEL WAS
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Fig/25 Trés Grande Bibliothèque - OMA 1989

Fig/23 *Parc de la Villette* - Bernard Tschumi 1998

Fig/24 *UK Pavilion Shanghai* - Heatherwick Studio 2010

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PART 1.1

TYPOLOGIES

The folly. The pavilion. The kiosk. The installation. The sculpture.

All of these topologies of architecture have an innate cultural value, grappling with the concept of identity, technology, making and arguably most importantly, architectural experimentation.

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Fig//26 *Kunsthhaus Graz* - Peter Cook + Colin Fournier 2003

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Fig//27 *The Plug-in City: Maximum Pressure Area* - Peter Cook 1964

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TYPOLOGIES

The folly. The pavilion. The kiosk. The installation. The sculpture. All of these topologies of architecture have an innate cultural value, grappling with the concept of identity, technology, making and arguably most importantly, architectural experimentation.

Peter Cook suggested that, "...if you look at these things that aren't proper architecture they tell you about the city, and I only wish that our architecture could have the same spirit..."⁷². Small-scale architecture allows a quality relatively unseen within mainstream architectural discourse today, experimentation⁷³. Due to a multitude of factors such as economic investment, political power and regulatory restrictions, traditional architectural objects must be defined and wholly specified. Often described as 'micro-architecture', small scale building is an avenue which deviates, or rather, re-orientates itself from this restriction. Albeit varied from country to country, micro-architecture provides loopholes within the fabric that restrains architectural creativity. Thus, consequently creating space for experimentation. This includes elements of architecture such as material, detail, construction, regulation, timeframe and budget.

'Microarchitecture' is a somewhat ambiguous yet seemingly definitive term we use for some pieces of architecture. Works are described as 'microarchitecture', yet when asked what 'microarchitecture' is, it is almost impossible to receive a straight answer. Ruth Slavid suggests microarchitecture defines "...the construction of really tiny spaces, of buildings that are more like artefacts"⁷⁴. Fuliginous in her wording, this description continues the notion that perhaps it is easier to explain what microarchitecture is not, than what it is. Within this also, Slavid alludes to the association the term micro-architecture has with the miniature and the act of miniaturization as imagery. The word 'artefact' denotes the object, and this object is often how 'micro-architecture' is depicted⁷⁵. However, within this research the term 'micro-architecture' is implemented as an umbrella, with which to encompass architecture towards the smaller scale. From borderline product design spaces such as, Heatherwick Studios 'Paperhouse', to installation spaces such as, the Overtreders W 'The Roof That Goes Up in Smoke', micro-architecture denotes experimentation within architecture.

Fig//28 *Paperhouse* - Heatherwick Studio 2002

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Within the umbrella of micro-architecture, (along with many other topologies of architecture), sits the 'tiny house'. Many other topologies of architecture may have sufficed as appropriate avenues with which to conduct this research, but it has been determined that, in a New Zealand context, the 'tiny house' allows a degree of exploration relative to the scope of research. Its practicality also allows for a real client and budget to be established. The topology of the 'tiny house' provides the freedom of imagination, which Japanese architect Terunobu Fujimori likens to his work with tea houses as the 'basic unit for architecture'⁷⁶. He explains that, for him, the most exciting thing about architecture is being able to build things with his own hands⁷⁷. A language in which to express, without predisposition, what architecture through making can achieve. Similar to Fujimori's approach to architecture, through the lens of the 'tiny house' (small dwelling, micro-architecture) this research aims to both conceptually and practically question the idea of making, craft, and culture, and perhaps even provide an architectural 'spirit'.

Again, somewhat ambiguous, the term 'tiny house' can be interpreted in many ways and has somewhat recently been projected by social media, television shows and the like into the public domain, consequently widening its architectural field of vision. To attempt to address and thus provide a stance toward the 'tiny house' as both an idea and an architecture, this early section of research aims to investigate the term, the imagery, and the architecture before constructing a stance and consequential means.

Oxford defines 'tiny' as, 'very small'⁷⁸. It is thought to have originated in the 16th century as an extension of the now obsolete 'tyne' which meant 'small, diminutive'. Its origins materialize from a word alluding to the unusual, the abnormal, the distinct. Yet there are two predominant and distinct aspects of the word 'tiny' as used today, one being the 'insignificant', the 'miniscule', the other being, the 'pocket-sized' or the 'cute'. The notion of the word 'tiny' insinuates something novel. Perhaps *not your everyday*.

The word 'tiny' has had little investigation. In theoretical terms it is appropriate to investigate its synonym, the 'miniature'. Susan Steward analyses the idea of the miniature through lenses such as scale, nostalgia and value, recognising the miniature allows a certain freedom that 'real world' does not. She suggests "the miniature offers a world clearly limited in space but frozen and thereby both particularised and generalised in time - particularised in that the miniature concentrates upon the single instance and not upon the abstract rule, but generalized in that that instance comes to transcend, to stand for, the spectrum of other instances"⁷⁹. In a similar way, a word can be confusing by itself in terms of the reader needed to decipher letters and meaning. However, if that word is then put in the context of a sentence, the meaning can jump out and instantly become clear and memorable.

This somewhat contradiction yet reliance seen within the relationship between the particular and the general, assists with the notion of juxtaposition the miniature faces. At one side the miniature is the object, inward facing and frozen, yet at the other, because of its particularisation, it is the avenue with which to explore. Oliver Herwig said "size loses itself when miniaturised"⁸⁰, clarifying this idea that it is not so much the object, but the *act* of miniaturisation which challenges scale.

When relating this to architecture, although comparatively miniature, we are faced with a conflicting outside presence from the object; the user. In this sense the microarchitecture, the 'miniaturisation of architecture' must both adhere to its role as a miniature, while also maintaining some degree of function, form and structure⁸¹. This is an intelligence Fujimori carries throughout his work, but that is particularly evident and acute within his tea houses. Fujimori utilises the concept of miniaturisation (most occupying less than three square meters) as a form of condensation rather than *small*. For example, in his project Takasugi-an, which translates to 'a tea house built too high', rather than simply implementing large and frequent windows to allow the space to feel larger, he created an exaggerated, asymmetrical roof form which enabled golden light to filter through the space. This not only challenged the miniature internally but externally. The combination of small openings, assertive roof form, not to mention its separation from the ground plane, allow the tea house to become its own entity, accordingly, completely detached from the concept of traditional house and arguably somewhat abstract to micro-architecture.

MINIATURE

Bachelard definitively stated that “the cleverer I am at miniaturizing the world the better I possess it”⁸². The act of making as discussed earlier also shares the quality of involvement that Bachelard is leaning toward here. Being able to consider something wholly allows one to further understand it wholly. Like Fujimori’s tea houses this supports the notion of condensing and enrichment within the act of miniaturisation and in fact allows that miniaturisation is perhaps the stimulus needed to carry out these processes. Simply, it speaks to the idea that being able to consider something in its entirety, because of its reduction or simplification, allows a heightened understanding of its value. Practically Stewart allows that “minute description reduces the object to its signifying properties, and this reduction of physical dimensions results in a multiplication of ideological properties”⁸³. He is suggesting that through the reduction of signification in a physical sense, the strength of ideological ability is multiplied. Therefore, it could be said that both the act of and resulting miniaturisation challenges traditional architecture. The act of, pertains to the aspect of detachment, which consequently allows architecture a freedom that is usually not available. It is within this gap that perhaps there is space for architectural imagination. Convention and tradition may be disregarded as the maker must think beyond the custom of architecture. Actual miniaturisation allows, at both a practical and ideological level, a pressurisation that in disregarding the unnecessary, allows the user/observer a greater understanding of the whole.

Fig./30 *Takasugi-an* - Terunobu Fujimori 2004

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Fig./31 *Walden* - Tumbleweed Tiny House Company

TINY HOUSE

The term 'tiny house' is synonymic to such alternatives as cabin, hut, lean-to and shed. A 'tiny house' immediately alludes to a romanticised idea of 'getting away from it all' and 'the world as your backyard'. The media promulgates the notions that the 'tiny house' arguably has an aesthetic and challenges the traditional notion of liveable space through fold away tables and hidden storage. Therefore, this research aims to move away from the term 'tiny house' and move closer to that of architecture perhaps 'architeenie' or 'tiny-tecture'? By doing that, this research is not compared to the 'tiny house' aesthetic or ideology, it is simply tiny-tecture to suit a brief. However, to successfully move away from the 'tiny house', it is important to first conduct an interrogation of that.

It could be argued that living in small spaces has occurred since the primitive huts of our ancestors. Why then has the 'tiny house' movement gained so much attention in recent years both in New Zealand and elsewhere? An article in the New Yorker bluntly allows that "human beings have always lived in small houses – not to make a statement but because small houses were practical and cheap"⁸⁴. Yet it has only been relatively recently that the 'tiny house' has been considered its own *movement*. However, there seems to be somewhat of a distinction between the 'tiny house' with respect to small living, and the 'tiny house' movement as such. Oliver Herwig insisted that "Mobile homes are a culture of their own, from the VW Bully with tent roof to transportable homes that can be stored up and secured with bricks. The idea of "here today gone tomorrow" is a romantic and pragmatic extension of nomad culture that exchanges the standardised suburban existence for taste of freedom"⁸⁵. To begin to understand the distinction of culture and product it may be useful first to acknowledge the multitude of contributing factors.

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Fig/34 *Nakagin Capsule Tower* - Kisho Kurokawa 1977

NON-TINY TINY HOUSES

Japanese architecture conceptualised and promoted small-space living long before the concept of the 'tiny house' or the 'tiny house movement'. Post war Japan saw a push by the Government towards homeownership to boost the economy and this has since been cited as the predominant catalyst for small-scale living⁸⁶. Legalities in terms of residential zoning requirements and land prices have further created a demand for innovative, non-conformist architecture. Today in Japan "most private lots are extremely small...and always more expensive than the buildings that stand on them"⁸⁷. It is therefore understandable that domestic dwellings challenge traditionally preconceived ideas of space. Cathelijne Nuijsink cited as much as 70% of architectural firms work in Japan as coming from what is *classified* as micro-homes⁸⁸. The alternative living models conceived by Japanese architects are arguably not so much a romanticised movement as they are simply a method of solving a problem. In a sense, through the restrictions of space seen within Japan, architecture is able to be redefined. Traditional needs are not so paramount. Arguably the largest scale small-living model arose out of the Metabolist era of Japanese architecture. Kisho Kurokawa's Nakagin Capsule Tower consisted of 144 theoretically interchangeable capsules the size of a shipping container which housed a residential unit⁸⁹. However, preceding this definitive structure, detached/semi-detached residential dwellings have challenged preconceived notions of architectural tradition within the *Modern Movement* since the 50's⁹⁰. Curtains as walls, ladders, transparent or even completely open traditionally private space, the dwellings ultimately interrogate traditional residential architecture. It seems that Japanese small-scale architecture is simply a lifestyle, a societal difference from the western 'tiny house', established through many factors such as economy, land, regulation etc.

Fig//35 *Steel Train* - Kengo Kuma 2003

Fig//36 *House NA* - Sou Fujimoto Architects 2011

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Fig//37 *House N* - Sou Fujimoto Architects 2008

Fig//38 *Shimogamo Jinja Hojo-An* -Kengo Kuma

Fig//39 *Beetle's House* - Terunobu Fujimori 2010

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Shimogamo Jinja Hojo-An
-Kengo Kuma + Associates
Paying tribute to Japanese author Kamono Chomei's book *Hōjōki*, or "An Account of My Hut" the temporary structure draws on the concept of impermanence. The cedar structure combined with plastic sheets can be easily dismantled and reconstructed elsewhere.

Beetle's House
-Terunobu Fujimori
Displayed at the V&A museum as part of the '1:1 - Architects Build Small Spaces' exhibition the tea room plays with scale, inviting visitors to climb a ladder to enter the alternative space above.

Fig//40 *A-Z Wagon* - Andrea Zittel 2000

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Fig/41 Flying Mud Boat -Terunobu Fujimori

Exploration of the proportion between roof and body, and their relation to ground, within Fujimori's tea houses.

Play of scale allows the small spaces to appear larger than they are, and become their own entity.

'Tiny house' forums and media outlets suggest a multitude of reasons for the 'tiny house' movement's increase in popularity in America. These include, the 2008 financial crisis⁹¹, changes in housing legislation and ever increasing environmental concerns⁹². Particular texts such as 'Shelter' by Lloyd Khan and 'Tiny Houses' by Lester Walker are cited as being the inspiration for the movement, with particular emphasis and citation of transcendentalist Henry Thoreau's 1854 text 'Walden'. 'Walden' reflects upon living simply within the woods, which he did so for approximately two years. Poetic statements such as "With this more substantial shelter about me, I had made some progress toward settling in the world"⁹³ are used as avocation for the 'tiny house' movement. Many 'tiny house' companies have even named their designs after 'Walden' motifs. Collectively these 'tiny house' texts are written with the resolve of simpler living, through a reduction in possessions and square meterage. The theme of Do-It-Yourself construction is also prominent, ultimately perpetuating the notion of the 'tiny house' as a device to positively enhance living. Walker states his intention for the book was "...to inspire those in need to dream and to build"⁹⁴. In this relation of dreaming and building, Walker is thus, perpetuating the romantic, transcendentalists rhetoric that drives the movement's fundamental principles. This can be seen within both the terminology used within the movement and its aesthetic. Statements such as 'the world is your backyard', or 'getting away from it all' alongside pictures of wooden interiors and pot belly stoves induce the notion of the simple life connected with nature. Walker continues his declaration, explaining that, "one of the great thrills in life is to inhabit a building that one has built oneself"⁹⁵. The sense of empowerment and, self-actualisation these perspectives embody perpetuate a dream the 'tiny house' movement in North America associates with.

TINY HOUSE MOVEMENT

A woman named April Anderson who built her own 'tiny house' has critiqued the 'tiny house' movement (though not necessarily the 'tiny house'). Anderson suggests the romanticism surrounding the movement is more a marketing ploy aimed at creating a commodity than a bonafide philosophy. She maintains "... the rhetorical dependence on tropes of wilderness escapism and territorial appropriation threaten to undercut the 'tiny house' movement's more revolutionary aims"⁹⁶. Although smaller space living evidently can be implemented to solve societal problems⁹⁷, the movement's rhetoric is to a greater extent image-centric romanticism. Anderson expands on this further, suggesting the 'tiny house movement' as more commodity based because of its temporality, allowing that many tiny homes are in fact stepping stones towards a real-sized, larger house, or potentially even as a secondary income -an economic progression⁹⁸. However, key figures within the movement such as Jay Shafer, cited as the 'pioneer', maintain the idealistic romanticism of simplification, Shafer states, "...I think it comes back to nature. In every area of nature, efficiency is the law of the land. Efficiency just makes sense. The only thing I know of that doesn't abide by efficiency is the human ego"⁹⁹. However, Shafer too has commercialised the movement, setting up multiple companies which sell the dream.

Therefore, it seems perhaps the movement within North America advertises itself as a shift in ideology and lifestyle when in fact -respecting that in some instances this is the case -as a whole its concerns are more economically driven.

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FIGURE LIST FOR FURTHER DE-
TAILS

Fig//42 *Tiny Hairloom Tiny House Company* - North America

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LIST FOR FURTHER DETAILS

Fig//43 *Conestoga Huts* - Alliance for the Homeless

New Zealand's relationship with transient architecture is deep rooted within culture. Our relationship to the sea arguably recognises a fascination of movement. Mike Austin allowed, "...the oceanic connection between house and boat is acknowledged in numerous myths and stories"¹⁰⁰.

Within the context of the New Zealand 'tiny house' movement, the notion of ideology distinct from actuality is also evident. However, it is arguably less romanticised than within the North American movement, adapting more so the D.I.Y aspect of the movement. When google searching "tiny house NZ" the majority of results are tiny home builders -companies offering their services to supply you with the dream house you can afford. When searching for "tiny house America" the results are populated by forums and 'tiny house' blogs educating people on the benefits of 'going tiny'. In a podcast a New Zealand reporter allowed, "...there's something very Kiwi about tiny houses...it really fits with our desire to connect with nature, and it's really not that far from our rural heritage"¹⁰¹. This relation to rural nature may allude to a romantic rhetoric, however, not only do these things very much play an active role in our society today, but, as a comparatively young country, these aspects of lifestyle, the 'tiny house' movement, perpetuates are seemingly not so distant within our history. Mike Austin and Jeremy Treadwell acknowledge that "...houses in Oceania tend to be tied down rather than built up as with the compressive earth-based technologies of walls and arches"¹⁰², alluding to a more transient existence. Perhaps another rational for the 'tiny house' movement gaining popularity within New Zealand is its natural progression from the house truck (a descendant of the Gypsy wagon) which arose within the 1970's¹⁰³. So far the main criticism and/or difficulty facing the 'tiny house movement' in New Zealand is the problem of obtaining land to park it¹⁰⁴. The privilege that land associates arguably competes with the very principals the movement aims to address. Therefore, it should be acknowledged the 'tiny house' movement within New Zealand has its conflicts too.

To summarise, the 'tiny house *movement*' is arguably a separate concept from the 'tiny house'. Furthermore, the term 'tiny house' alludes to a potentially preconceived notion of house model, a miniaturised house rather than architectural *space*. Beginning with the *movement*, a predominantly economically driven concept has the ability to detract from its fundamentally significant qualities. The object of the 'tiny house' provides an avenue within New Zealand -although potentially flawed in terms of land use and accessed within which to explore domestic living without restriction (comparatively). Separate to both movement and object, Japanese small-scale architecture provides a fundamentally confronting area of exploration within domestic architectural *space*. Therefore, this research aims to distinguish itself from the 'tiny house movement' aesthetic, ideology etc and through the 'tiny house' object, create architectural space which challenges domestic living.

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FOR FURTHER DETAILS

Fig./44 *Hut on Sleds* - Crosson Architects 2012

TINY TIMELINE

Gypsy Wagon

Henry Thoreau

+ inspiration for Tiny House movement, romantic text referred to by tiny house proponents

"Walden"

house trucks
popularised

Charles Miller

Le Corbusier Cabanon

JAPANESE SMALL-

Jos
"On

JAPANESE 'ECO

ECONOMIC MIRACLE'

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PART 1.2

DESIGN INVESTIGATION #1

*w h a t i f ?
i n o r d e r o f a p p e a r a n c e*

The aim to move aesthetically away from 'the tiny house' makes room to pose the question "what if?". This initial investigation aimed at challenging, or in some cases adhering to, both the idea of what a 'tiny house' is and what it looked like externally. Through the mode of making, this exploration developed organically, or rather, using the technical term, through prehension. I first came across this term in Richard Senette's book "The Craftsman" which explains movement in which the body anticipates and acts in advance of sense data¹⁰⁵. Raymond Talis separates prehension into four categories; anticipation, contact, language cognition and reflection¹⁰⁶. Essentially it is a process in which the hand acts before an awareness has been developed. In doing this, the investigation was enabled a freedom, or rather, expression, through the hand. This consequently allowed the preconceived 'tiny house' to be explored and challenged.

what if...

...it used all the legal space allowed?
If the exterior is a box what then happens on the inside?
This is kind of what all tiny houses look like...

what if...

...it took up the bare minimum of space?
 What if it was all utility until it was in use? Fold.
 Collapse. Up. Down. Out. In. What could it be
 when not in use? What are its different functions
 and at what time scale is this? If shelter is provided
 how can the hearth be used to create walls?

what if...

...did not have a strict/obvious axis?
Through this idea scale is also questioned. Determining one roof form at a particular scale results in its relating parts to seem either much larger or much smaller. Practically this exploration disregards practicality. Further exploration into this could include challenging parts which related to one another perpendicularly.

WHAT IF IT LOOKED LIKE LOTS OF HOUSES?

what if...

...it looked like a hillside of houses?

what if...

...it could expand?
Questioning what aspect of the architecture
must be stable. What is stability? What does
it offer?

what if...

... it had no function?

What if it were just frames?

What defines function? In not predetermining a function, pure structure allows a freedom that planes do not. Continuously changing viewpoints.

what if...

... it was all roof?

This actually creates a lot of space whilst maintaining an interesting form.

CONCLUSION

An inherent and somewhat subconscious exploration of the 'tiny house' was enabled through the process of making with the hands. Pallasmaa explained that "the hand grasps the physicality and materiality of thought and turns it into a concrete image"¹⁰⁷. Through the process of making physically, hand and mind, concept is developed. Design investigation #1 employed a circular process in which multiple questions, concepts, preconceived notions etc. could be explored at once and subsequently perpetuate making and thought. Beginning with "what if it looked like all its allowed space?". Predominantly pragmatic, this naturally instigated, "what if it took up as a little as possible?", "what if it had no defined axis?" etc. To conclude, design investigation #1 enabled a development of question. While design will inevitably become restricted, this process allowed thought to become concrete, which could consequently be again conceived. A development of the brief will enable a construction of Design Investigation #2.

I'm looking for
a plot just like
this one. Please
build me a beautiful
archetini house on it.

Kerry Parker
Kerry Parker

Fig//45 Note from client

CLIENT

Fundamentally, this research aims to interrogate architecture within the physical world of making, that is to say, real. Therefore, the client is real, the brief is real, and what is built will be real. Aptly, this research avenue can only be realised by a client willing to allocate the 'tiny-tecture' a budget. Therefore, I have approached my mother, **Kerry Parker**. A relatively new, and extremely enthusiastic grandmother she has been in the market for some kind of self-contained dwelling to sensitively position on the land surrounding my sisters' recently purchased home in Ōkato, Taranaki (although this may not be its final resting place). The new home, housing two adults, one four-year-old and a one-year-old consists of three relatively small bedrooms with approximately one acre of surrounding land. Kerry is aware a growing family needs its space. However, living in Wellington, some four and a half hours' drive away, she would like to visit regularly and stay for between two to four week at a time, perhaps even longer in the summer without constantly impacting on the family dynamic. Dismissing the potential alternative of up scaling to a larger house, the proposition of a detached, potentially movable dwelling, or tiny-tecture, is ratiocinative. This proposition also provides a potential income, as a space to rent out to when Kerry or other family visitors do not need it.

Sustainable

Hand crafted

Off-grid

kerry's core archi-teenie need
s

Movable

Adaptable
for ageing

Functional

+ Ōkato is a small rural town in Taranaki, approximately 20 minutes south of New Plymouth. Situated on the Surf Coast Highway// SH45, the surrounding area is populated by rough yet popular surf spots. The town itself has a school with a role of 280, a Four Square, three Churches, a vet and a fire station. My sister's house is a quick six-minute drive south of the town itself with a surrounding acre of land which houses five sheep and four chickens. The house sits on the eastern border of the land with a garden planted on its western face. The site is relatively flat with a slight slope to the west. High winds and heavy rainfall frequent the area.

Fig//46 Aerial view of site

Fig//47 'Parking spot'

I WANT
TO BE
PROFOUND

OUTSIDE

MY WINDOW
- LYALL BAY

Everything must be comfortable

BRIEF → DPM - KERRY

is there a way
to combine flush
↓ of hand using?

things to overcome...

+ trailer dimensions.
+ making space ← the tiny house
+ if trailer is light obviously uses all
IN THE WINDS. might its space
2m. 1T. BLOW AWAY? how can you create
160 m. more by opening up?

BRIEF

EVERYTHING MUST BE COMFORTABLE!

MUST BE ABLE TO BE TOWED...

WEIGHT MUST NOT EXCEED
(includes car + trailer).

6000kg.

CHASSIS OR
NO CHASSIS.
↑↑↑
REMOVABLE
SUBFRAME.

TME TO
2 MONTHS TURN
OVERWIND.
779K.

10 square meters?
how often do you
want it moved?

just cheap trailer.
8.5 tone. ← norm
light trailer.

once was
8yrs 3 years.

THIS DETERMINES
BASE // TRAILER.

flaming thickness → 120mm.

2.5...

Roof → 100 X 50

SUB-4x2 x
150x50 x
100x50

WALLS → 75x50
400 cm

IF THIS
EXTENDS
TRAILER MUST EXTEND.

Trailer Tenure

Translation of the poetic character of space into defined and specific material decisions.

Aakron Xpress Ltd

Auckland - Glenfield - 149 Wairua Road - T: 09 427 4613
Rodney - Warkworth - 69 Woodcocks Road - T: 09 425 7855
www.aakronxpress.co.nz / www.aakronboats.co.nz

sales@aakronxpress.co.nz

Sales Invoice

SO-00007050

GST 122-243-141

Customer Deliver: Solomon Rose
Solomon Rose

Due Date: **17/06/2020**

Invoice: **17/06/2020**

Required Date: **17/06/2020**

Solomon
solbuilding@gmail.com
#

ASM Number

Delivery Method

Description	Qty	Units	Price	Total
Custom Trailer	1.00	EA	7,961.739	7,961.74

As per specs in the comments section

REGO 12 month & WOF 3 years. Please provide copy of DL and advise physical address for trailer to be registered in your name. Or copy of certificate of incorporation.	1.00	EA	143.48	143.48
--	------	----	--------	--------

Comments: Your 5m x2.5m trailer will be built from pre-galvanised box steel with welded areas cleaned and given two coats of 'cold-galv' zinc rich paint. The main frame and draw-bar are made from 150x50x3mm box steel with a welded-on deck frame made from 65x35x2.5mm steel with 'joists' at 800mm centres, under which will be a supporting central 'spine' to stiffen up the floor. There will be two axles, the front one of which is fitted with Knott Break-away brakes allowing a GVM of 3500kg on a equalising suspension system. Lights are all LED's to NZTA requirements, a galvvanised jockey wheel is fitted to the drawbar, tyres are 195R50-13" 8-ply commercial rated to 900 kg each. Registration and WOF are included so you can drive away completely legal on collection."

Sub Total 8,105.22

Tax 15% 1,215.78

Total 9,321.00

Knott Break-away brakes allowing a GVM of 3500kg:

Payment Terms:

Remittance

Direct Credit payments can be made to: ASB 12-3107-0019653-00

Please Include Reference: SO-00007050 and Solomon Rose and Solomon Rose

Please note that payments made by Credit Card will incur a 2% surcharge. Please also change the trailer registration into your own name.

Fig/48 Trailer invoice

TRAILER TENURE

The trailer is the first thing one must fork out for when constructing a 'tiny house'. It is the foundation and therefore, (I hope), one of the hardest things to decide on. The dimensions will determine the house, once that box steel frame has been welded together there really is no turning back. Then there is the issue of time, cost, Durogalv, dipped galv -all to be decided on when the ideas about what the end result could be are still being explored. It is a confusing juxtaposition and one I assume does not happen often in building practice. Even when all this confusion has been worked out you must then get the people making the trailers to answer the phone and give you what you believe to be a good price, based on your very limited knowledge. The real stress came when the first deal fell through. It was all arranged, good price, good turnaround time, dimensions given, quote received. I called the makers of the trailer to confirm. It was a Friday afternoon and I was excited to tick something off the 'to buy' list. I call Naweed, who informed me that unfortunately they had just received a deposit for five large trailers and therefore my trailer would not be done till the end of August. Not ideal.

Returning to the drawing board I then call, email, text, add to watchlist, leave messages for as many trailer companies as I can. Eventually coming to a second agreement with the help of Solomon, with a company named Aakron Xpress in Auckland. Four weeks, \$9321, 5X2.5m Done.

DOMESTIC SPACE

brief development

How can protection be emulated?

Deeply
personal yet
acknowledged
within the
exterior

Beginning exploration of movement patterns of each space. Acknowledgment of restriction of movement within small space. How can this inform/build upon the character of the

DESIGN INVESTIGATION #2

Following Design Investigation #1 the need became evident for a theoretical framework to be developed to enable architectural space to be considered rather than the 'tiny house' as object. Within Design Investigation #2 the aim was to establish both pragmatic and poetic principals of the space to be outlined. A question of *need* was explored in conjunction with *character*. Early on I stumbled upon two German terms, '*Erlebnis*' and '*Erfahrung*' which adequately describe this consideration. Both terms translate into experience, though *Erlebnis* describes the emotional impress of an event/relationship whereas *Erfahrung* depicts the pragmatic acknowledgement of an exterior event/relationship¹⁰⁸. Beginning with analysis of the client's movement and pragmatic needs, the investigation would then reflect on literature and precedents before exploring questions established within these earlier phases through modelling. Essentially Design Investigation #2 aimed to provide a framework, translating poetic character of space into defined specific material decisions.

DOMESTIC SPACE

brief development

ERLEBNIS > NAMES AN EVENT OR RELATIONSHIP
THAT MAKES AN EMOTIONAL
INNER IMPRESS.

ERFAHRUNG > EVENT OR RELATIONSHIP THAT
TURNS ONE OUTWARD + REQUIRES
SKILL RATHER THAN SENSITIVITY

"CREATIVITY" CARRIES TOO MUCH
ROMANTIC BAGGAGE

CREATIVITY

1950s
1960s
1970s
1980s
1990s
2000s
2010s
2020s

SLEEP → PROTECTION
NIGHTLY
EARLY MORNING.
PRIVACY
LOOKING UP
ON CORNERS...

LOOK
COOK → RELATE TO OUT
MORNING +
EVENING.
LIGHT LIGHT
the ceiling +
window.

EAT + PLAY → RELATE TO OUT
AFTERNOONS...
EXPAND
ADAPTABLE.

IN DAY +
NIGHT +
BATH → SOMETHING DIFFERENT.
NOT JUST AN AFTER THOUGHT
the floor.

ELEMENTS
OF ARCHITECTURE

BRUCE LANGSTON

intimate writing

Recognition of the need
for both the pragmatic
and poetic qualities
of each space to be
outlined. What charac-
ter does each different
space require + what
spatial desires apply.

'Erlebnis' +
'Erfahrung'

Both translate
from German
into 'experience'.
Erlebnis the emo-
tional impress of
an event/relation-
ship. Erfahrung
the pragmatic ac-
knowledgement
of an exterior
event/relationship

Initial ideas of brief:

Protection // adaption to the
elements rain, wind, sun

Maintain connection with the
outside to enable the space
to become bigger.

Investigating dimensions

POLICE NO. OR-62961N

LOOK AT.

WRITE → 'TINY' AS A WORD
WHAT DOES IT MEAN? ABOUT
WHAT DOES IT EMBODY? CLOTHING THING
OR TRADE MARK.

+ TERMINOLOGY...

CHANGING / EVOLVING THE WORDS
WE USE TO DESCRIBE ARCHITECTURE
eg 'SCUPA' & 'dinner'.

+ COMPARISON OF USA TINY HOUSE VS NZ //
HUGE TRUCK.

REMA → 'WALDEN' THOROVX.

HOUSE TRUCK.

NB CONTEXT OF THE TINY HOUSE

LOOK → BRIAN BRACE
AND JANA.

O'SULLIVAN
BOB MUST HAVE

DRAW → DESIGN.

CLADDING

SCUPA ← unknown

PRAGMATICS →

CONCEPTUAL

works but not
measure.

but don't
act.

back??

BOB HARVEY MUST HAVE
→ MIKE O'SULLIVAN

→ MIKE O'SULLIVAN

→ MIKE O'SULLIVAN

→ MIKE O'SULLIVAN

→ MIKE O'SULLIVAN

→ MIKE O'SULLIVAN

I THINK WITH THE
CURIOSITY OF A
CHILD

IN ORDER TO
MAKE SOMETHING THAT
SURPRISES ADULTS

STARBORD

LOUNGE COCKPIT

WASH

BATH

DECK

TOPSIDE

MAK

STEAL

STARBORD

LOUNGE COCKPIT

WASH

BATH

DECK

TOPSIDE

MAK

STEAL

STARBORD

LOUNGE COCKPIT

WASH

BATH

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LOUNGE COCKPIT

WASH

BATH

DECK

TOPSIDE

MAK

STEAL

STARBORD

LOUNGE COCKPIT

WASH

BATH

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BATH

DECK

TOPSIDE

MAK

STEAL

STARBORD

LOUNGE COCKPIT

WASH

BATH

DECK

TOPSIDE

MAK

EAT + PLAY

A HOUSE HOME IS NOT A HOUSE.
ROYALDE BANHAM. - 1965.

"when you have controls, such a complex of piping, pipes, ducts... when it demands too many services"

that the housewife could stand up by itself without any assistance from the house, why have a house hold it up?" p.54

EAT + PLAY

sleep.

70 EAT IS TO STARE...
TENDENTIALLY.

COOK + EAT??

The kitchen is where one is best self.

I AM AT MY BEST IN THE KITCHEN.

THE BACKBONE?

like verbiage the kitchen is made up of multiple components that work as one.

FEED OTHERS TO OFFER OTHERS

THE KITCHEN AS EFFICIENCY.

like a laboratory or factory

"What is secret never has total objectivity"

- Gaston Bachelard

"...I am the subject of what I am thinking."

- Gaston Ba-

+ GO THROUGH - HOME WORK.
+ READ SOME GASTON
+ WRITE MY FIRST PRINCIPALS.
I WANT TO
CREATE SOME
THING THAT
IS ME + I
AM PROVID
OF!

THE HOUSE FROM CELLAR TO GARRET.
PLANNING
200.

TONY WATKINS
FRITZ EISENHOFER
DON DO NUTTIORNE
GRINNY PEDLOW + GARY HUNT
TERRY BOON

NE ARCHITECTS
WHO ACTUALLY
BUILT THEIR
OWN HOMES...

"WHAT IS SECRET NEVER HAS
TOTAL OBJECTIVITY" → BACHELARD
VISTALGIA
"I AM THE SUBJECT OF
WHAT I AM THINKING"

"ITS TIGHTLY PLANNED, YET
THE CONNECTIONS CREATE A
FEELING OF GENEROUS SPACE"
- TERRY BOON

Something that
we cross hard ...
actually remembering
SCOTIA

MAYBE IF EVERYTHING SLOWER DOWN +
WE RETURNED TO THE HUMAN
THERE WOULD BE LESS WASTE.

I AM
THE SPACE
WHERE
I AM.

NOËL ARNAUD.

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Fig//49 *Walden* - Henry Thoreau 1854

DOMESTIC SPACE

i n h a b i t i n g

The notion of *inhabiting* is arguably one of the primary functions of human behaviour¹⁰⁹. Yet what is it to inhabit? A somewhat seminal text of the 'tiny house movement', 'Shelter', outlines what may be conceived as vernacular dwellings. It allows that shelter is much more than a roof overhead¹¹⁰. Both thinkers and practitioners -and all in between- grapple with the notion of inhabiting. From Heidegger to Bachelard, inhabiting has been discussed, theorised and examined -with some devoting their lives work to explain this phenomenon. Therefore, this research does not aim to encapsulate the whole essence of inhabiting, but merely define a 'stance' of sorts to allow the development of a framework for design.

As Bachelard allows, "...it is not enough to consider the house as an 'object' on which we can make our judgments and daydreams react"¹¹¹. We must go beyond pure description of facts or impressions to allow a closer understanding of what it is to inhabit. Micro-house user Christian Shallet said that in designing his 'Lego Apartment' in Barcelona "for me, the key approach was to ask one very simple question: what are the essentials of everyday living? The answers I came up with were somewhere to cook, wash, sit and sleep"¹¹².

I have separated the qualities of the house into four spaces - 'Sleep', 'Bathe', 'Cook' and 'Eat + Play'. I acknowledge that in reality these spaces will almost definitely intersect and overlap. In short though, the aim of this exploration was to develop a character for each space from which to design.

I have attributed the four spaces a certain time or times of day which, along with other practical requirements, have been established through analysis of the client's *regular sized home* in Wellington. Similarly, each space has been assigned an architectural element(s) and local climate, again derived from analysis of the client's home yet further explored through theoretical concepts, precedents and model making. Through this codification the suggestion is that both the pragmatic and poetic will be clearly established within a defined framework.

- 1 // bookshelves
- 2 // table
- 3 // fireplace
- 4 // large bay window
- 5 // lounge space
- 6 // access to outdoor area
- 7 // stairs to lower level

floor area: 26.5m²

EAT + PLAY

DOMESTIC SPACE

e a t + p l a y

In response, the space has been attributed the afternoon time of day. Within the occupational analysis, eat and play are seen to be ever flowing between one another, in a constant state of flux. It could be considered the heart of the house. By far the largest space, it pumps its blood to all other attached spaces. This analogy somewhat consolidates the notion of collectivity that eating and playing promote. Sharing a meal, or engaging in other activities with another is a collective action. In an investigation undertaken by Sarah Wigglesworth for the development of a residential space in London, movements of a dinner were mapped before being translated into the floorplan. Domestic life interrupts the conventional plan grid, resulting in unconventional yet collective spaces¹¹³. This notion of collectivity is a transformative process of individuating, disparate to the individual solely¹¹⁴. Thus, it could be argued the 'Eat + Play' space is conceptually interactive.

Because of this fact, I have attributed two architectural elements. The first is the *façade* because it facilitates the notion of collectiveness in relation to the whole, through both its exposure to the exterior and its direct relationship with the interior. The second, the *hearth*, is a more obvious, more primal explanation of collectiveness, a simple yet powerful gesture. Lastly to enable the openness that 'Eat + Play' maintains, its local climate has been assigned as light. The notion of the space as the heart was fundamentally adopted through the modelling phase. Consideration of how the hearth and façade work together to enable a sense of collectivity interrogated the notion of envelope and disruption. Through this, the essence of 'Eat + Play' was discovered to be fundamentally the heart. The surrounding spaces are influenced by and somewhat a product of 'Eat + Play'.

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Fig//50 *Sketch: Disorder in a Dining Table* - Sarah Wigglesworth

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Fig//51 *Dining Building with Window Chairs* -Allan Wexler 1983

how can...

*...the hearth create a network
of which to break from the construct of the house envelope*

how can...

*...the hearth create a network
of which to break from the construct of
the house envelope*

how can...

*...the hearth create a network
of which to break from the construct of the house envelope*

1

2

3

4

5

7

8

6

- 1 // four element cook top
- 2 // microwave
- 3 // water jug
- 4 // coffee machine
- 5 // deep sink
- 6 // full sized fridge
- 7 // hanging space for pots and pans
- 8 // deep storage

floor area: 5.56m² (exc bench space)

COOK

DOMESTIC SPACE

To cook is to dance. It is rhythm and science intertwined in creation. Its physical appearance is predominantly one of apparatus and function, yet its essence is arguably described by its occupation. The 'Cook' space my client currently occupies is her favourite room. The analysis of the space's occupation highlighted the very obvious trait of continuous movement, between tools of creation. However, because of the client's relation to the permanent house on the land, the space has been attributed only *morning* and *afternoon* times of day.

Conceptually, the 'Cook' space of the modern house may be considered an embodiment of humans' development of tools. An evolutionary demonstration of people's move from the open fire pit to the microwave, it is a space that houses the equipment needed/desired to carry out an essential task. It would be arrogant to overlook the role of 'The Frankfurt Kitchen' on modern 'Cook' spaces and their relation to the house. Designed by Grete Schutte Lihotzky in the 1920's, the design treats the kitchen as a laboratory. Unpretentious and socially orientated, Schutte Lihotzky believed the newly designed kitchen to be "... one of the first steps toward building a better more egalitarian world..."¹¹⁵. Although the ideas projected in 'The Frankfurt Kitchen' profound at the time, what is taken from them today is somewhat aesthetic. It is therefore not the intention of this research to adopt nor take inspiration from The Frankfurt Kitchen, but simply to acknowledge its potentially unconscious yet distinct role within 'Cook' space. The advancement of tools within the 'Cook' space has changed its role in relation to the house. Tools are now showcased for others.

Once a separate space, the 'Cook' space is now an integrated and integral part of the home. It has therefore been attributed two architectural elements. Firstly, to draw attention to the notion of performance/entertainment, the *window*. More subtly, the *ceiling* offers the symbolism of autonomy. Finally, to address its transient nature, a *hot* climate has been attributed. The modelling phase predominantly investigated this transient quality of the 'Cook' space. It testing the juxtaposition between the tools and occupation of the space, and more conceptually, how the idea of the transient can be physically embodied through a blurred distinction of envelope and boundary.

To summarise, the 'Cook' space is both science and art. Its character aims to showcase a composition of occupant and tool.

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Fig. 52 *Frankfurt Kitchen* - Grete Schütte-Lihotzky 1962

how can...

*... movement collaborate with the static
investigation into how the user may occupy the cook space*

how can...

... movement collaborate with the static
investigation into how the user may occupy the cook space

how can...

...the space connect to the outside
how can the window be manipulated to define the space

how can...

...envelope allow a greater expanse of the space?

how can...

...envelope allow a greater expanse of the space?

DOMESTIC SPACE

b a t h e

The bathroom is often a neglected aspect of architecture yet, is arguably the space where occupant and architect are most intimately bound. Occupational analysis of the client's bathroom resulted in what could be classified simply as efficiency. For obvious reasons the 'Bathe' space was attributed *all* times of day to address its role within occupant life. However, this research aims to delve further into the concept of the 'Bathe' space. To *bathe* is to reflect, to contemplate. It is privacy. Meanwhile its functionality is undeniable. An interesting and somewhat contrasting stance on the bathroom comes from an article written by Beatriz Colomina and Mark Wigley which suggest that, "...to enter the toilet is not to enter the smallest room in a building but to enter a space as big as a city whose smells, noises, flows, and chemical processes are deeply threatening"¹¹⁶.

Throughout history the bathroom has grappled to its relation with the rest of the house, largely staying away from the 'problem' (or addressing it at a superficial level). It has only really been since modern architects stopped denying and instead began to question the role of the bathroom within architecture, that true explorations of the bathroom have been conducted. Again, Colomina and Wigley explain that "to talk about architecture without talking about toilets is to operate in denial of a whole array of sexual, psychological, and moral economies"¹¹⁷. It could be argued this is not only because of its traditionally taboo subject matter but because of a functional need to collate activities which involve the exposure of wetness.

Because of this, the local climate assigned to the 'Bathe' space is *wet*. Due to its more personal and contemplative component it has been attributed the architectural element of the floor. Through these codification decisions the aim of the 'Bathe' space is enable both interaction and separation with the surrounding house, , yet adhere to its reflective, private needs and qualities. Continuing from this, within the modelling phase, explorations questioned how the space could physically interrupt the house without revealing itself wholly. Aspects of the 'Bathe' space were elongated, reduced etc to consider how this may conceptually be established. It should be noted here that this ideology was particularly influenced by the idea of the relationship of 'Bathe' space to 'Cook' space. For obvious reasons this cannot be achieved within a small space. It was therefore necessary to investigate conceptually, creating a separation which predominantly implemented verticality. In short, the character of the 'Bathe' space aimed to acknowledge and celebrate both the wholly private and contrastingly undeniably required aspects of the rituals involved within.

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Fig/53 Bathroom Sweet- FAT

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Fig//54 *Villa Savoya Bathroom* - Le Corbusier 1929

Fig//55 *House for Essex* - FAT 2014

Ideas taken from these examples investigate the privacy of the bathroom and its innate occupance within the household. How can the bathe space enable its users and nonusers to acknowledge it whilst maintaining privacy?

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how can...

*... the space assert itself
investigation of how levels and depth define other
spaces whilst maintaining its own privacy*

how can...

*...the space assert itself
investigation of how levels and depth define other
spaces whilst maintaining its own privacy*

how can...

*...its use define its arrangement
investigation of what ergonomic space is re-
quired for different acts within the bathe space
+ how they may infiltrate the house as a whole*

- 1 // storage of books and personals
- 2 // clothing storage
- 3 // printer
- 4 // wall space for pictures etc
- 5 // retractable bed
- 6 // desk with computer

floor area: 8.58m²

DOMESTIC SPACE

Occupational analysis of the client's 'Sleep' space indicated a need for adaptability, space for personal items and a relationship with the outside. The space was then attributed the times of day *morning* and *night*.

Conceptually, to sleep is to relax. It is to be protected within both the physical and mental realms. The philosophical intimacy of sleep and consequent, unconsciousness has arguably been taken for granted¹¹⁸. Henry W Johnstone's rationale on the philosophy of sleep shows the inherent and explicit relationship between unconsciousness and consciousness. One must have their consciousness interrupted (being in a state of unconsciousness) to recognise their own consciousness¹¹⁹. Without one, the other cannot be recognised. Therefore, in his argument, Johnstone allows the notion that the 'Sleep' space allows an intimacy other space does not. Thus, it is conceivable that the 'Sleep' space is the most sacred of spaces for the user. The darkness (unconsciousness) must be acknowledged to allow the light (consciousness).

Through this avenue the sleep space has been attributed the local climate of *darkness* and the architectural element of the corner. These form the idea of protection. As Bachelard suggests, "... every corner in a house, every angle in a room, every inch of secluded space in which we like to hide, or withdraw into ourselves, is a symbol of solitude for the imagination; that is to say, it is the germ of a room, or of a house"¹²⁰. To protect the dreamer is the most important duty of the house. For this reason, exploration through modelling considered the notion of protection as a concept with the physical. This included experimentation of how the idea of weight might produce ideas of protection. The modelling also considered how the ability to look up might allow a sense of both protection *and* freedom.

In conclusion the essence of the 'Sleep' space is one of inherent intimacy and protection.

how can...

*...the notion of protection be crafted
investigation of what elements can create the
idea of weight as oppose to the reality of weight*

how can...

*...the notion of protection be crafted
investigation of the house as a container for the dreamer*

DOMESTIC SPACE FRAMEWORK

CONCLUSION + DEVELOPMENT

Design Investigation #2 outlined the client's needs and consequential character of separate architectural spaces. As a result, the question 'how can' was explored through modelling. This enabled a reduction of reliance on the preconceived 'tiny house' as object, focusing rather on special qualities which depict an overall spatial character. Following Design Investigation #2, development of design will be conducted.

Essentially, the development phase required all distinct aspects of exploration to converge. Pragmatic qualities such as client need, trailer dimensions and regulation restrictions had to meet poetic distinctions such as light, depth, adjacency and character. Initially drawings were conducted which consolidated the concept of each architectural space resulting in a conceptual focus. A clear requirement of roofline was established and explored here before a final concept was reached.

DEVELOPMENT

technical

EAT + PLAY

SLEEP

BATHE

Paul Oliver

New Zealand prolific architects who's built works somewhat embody vernacular architecture, their forms (particularly 'Group architects' and 'Athfield') have loosely influence the beginnings of design.

Group Architects

"...We know there is another way of living in which a house is logically contrived for peace and comfort, where the sun brings life without faded carpets...Because we want this in New Zealand, overseas solutions will not do. New Zealand must have its own architecture, its own sense of what is beautiful and appropriate to our climate

Fig/56 *Conceptual drawings of spaces*

DEVELOPMENT

IRISH TV
SPACES "INCREDIBLE PLANTS"

stand up.
 techniques.
 TRENDY ARCHITECTURE
 PRESENTATION
 PERSONALITY
 ART.
 CONCEPT.
 → ANALYZE
 NE

Fig//57 Conceptual model of spaces + roofline

Exploration of the use of the plan in design of small space. Upon reflection, somewhat reductive, further investigation must include section and detail.

Who discusses the hand and craft within architecture?

Are the two separate?

Fig//58 Conceptual model of spaces

FULL
HEIGHT.

ENTRANCE.

Fig//59 View points, circulation + stationary areas

FINAL MODEL

Fig//60 View through 'cook' space window

Fig//61 View into 'Eat & Play' space

Fig//62 View into 'Cook' space

Fig//63 View from 'site'

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PART 2.0

INTRODUCTION

It seems nothing, or very little would be achieved if not for daydreaming. It is a contradictory necessity to action. Clearly visualising a specific scene -rather than simply imagining- and playing it over and over again. Taking the time to recognise the smells of that scene, the temperature of the air. How that scene makes one feel emotionally. The scene I began to construct started with a coffee:

Listening to the pop of the percolator grow louder and louder before rolling over and getting up. Getting up inside something I had myself built. I then walk down the stairs I had conjured to fit within the tiny space I had decided it would be placed. I then glance out of the large window in the kitchen which I had myself flashed and fitted, over at my sister's humble white house before turning back to retrieve two mugs from the shelves I had attempted at welding together. Coffee in hand I place a drowsy hand on the cool handle -my first attempt at hardware installation- and pry open the front door, bare sunlight streaming in. I would take a few steps across the moist lawn before turning back to look at what I had created.

If it were not for this performance I had conceived and consequentially cultivated to become all-consuming, I highly doubt this somewhat mad idea would have left the ground. Introducing his notable text 'The Poetics of Space', Gaston Bachelard suggested that "...the reader of poems is asked to consider an image not as an object and even less as the substitute for an object, but to seize its specific reality"¹²¹. Only through an understanding and ownership of the specific reality of my dream was I able to progress. The next section of this thesis is the exploration of how I transcribed my poem.

Transforming an idea into reality begins with a commitment. A irreversible, non-negotiable commitment. The kind David Pye touches on within his 'Workmanship of Risk' analysis¹²². A Professor of Furniture Design at the Royal College of Art, Pye was both a craftsman (wood-turner and carver) and academic, his notable works being 'The Nature of Design' and 'The Nature of Art and workmanship' -the latter introducing his most notable concept, the 'workmanship of risk'. A reaction to what he denotes as 'the workmanship of certainty', it is the notion of a commitment to something one is unsure the outcome of which consequently allows for its development as an idea¹²³. It's the concept that "...at any moment...the workman is liable to ruin the job"¹²⁴. It is the thrill of the unknown which drives the project.

My commitment was to buy a trailer. A trailer whose dimensions, I was committed (5mX2.5m). The first in a whole sting of concrete decisions I would be making. The ordeal of securing the right one has already been discussed, however to pick the trailer up was another adventure.

For many reasons, (particularly with respect to the pandemic which occupied our lives for most of the year 2020), the trailer I purchased was made in Silverdale, Auckland by a company called Aakron Xpress. Because of its length, Solomon and I had to drive a friend Matt's Ute to pick it up. Firstly, we had to navigate our way to Silverdale to meet Lloyd, the man I had been emailing. The drive there was winding and narrow, causing both me and Solomon to wonder about the difficulty of towing the trailer back to Solomon's parents house. After an hour or so of driving we finally arrived at number 124 Messenger Road, an iron gate on which looked like a sub-tropical orchard. I called Lloyd to let him know we had arrived and he promptly appeared from a nearby driveway and showed us to the trailer. He then proceeded to explain how the lock and tow ball worked and how to attach and unhitch the emergency brake. Barely inquiring into whether or not we had paid, he gave us the keys and we set off. Unfortunately, because of the trailers larger than usual width, getting back out of the iron gates proved difficult. I watched as Solomon manoeuvred the trailer out of the gate. Difficult. Allowing me to once again question the ideology of the tiny house movement. The notion of 'here today gone tomorrow' it perpetuates seemingly idealist if not unrealistic. Nevertheless, somewhat anticlimactic, the trailer acquisition ran particularly smoothly on reflection.

The next day Solomon and I constructed the floor for the trailer. This was to enable us to pick up a few six-meter-tall palm trees in Tauranga on the way back to Wellington.

We began by taking a trip to one of the few hardware shops which stocked 2700mm X 1200mm sheets of 19mm plywood. A difficulty due to its *non-standard* size. *Non-standard*, as the *standard* size for sheets are 1200X2400 due to the New Zealand building code regulation of framing 'centres'¹²⁵. A piece of knowledge I had never fully considered.

Typically, tiny homes are built at 2400mm wide by multiples of 1200mm to avoid the obvious wastage involved in cutting down 2700mm sheets, however the maximum legal load width allowed in New Zealand is 2550mm¹²⁶. Although I knew about standard sizing, I did not quite realise its effect on the building process. This was the first of many realisations.

Shaking this off, we continued to pick up the things we needed to build the floor. Along with the ply we purchased three sheets of polycarbonate insulation, glue, drill bits, a chalk line, paint, self-tapping screws and a craft knife. Another

FOUNDATIONS

stark realisation at this point was the fact that building something real, outside of architecture school is expensive. Considering, representation is perhaps a less expensive form of realisation, I began to understand perhaps the need for representation. Before this, the maximum I had spent was approximately \$300 which consisted of materials and laser cutting time. This first shop, essentially to get the building 'out of the ground' cost \$1380. Luckily at this point the tools we needed, we had thanks to Solomon.

Taking our materials back to Solomon's parents' house north of Auckland we began. The next steps were seemingly straightforward, in the sense that each task happened sequentially and Solomon brought an understanding of everything we needed to do. We began by cutting the 2700mm long plywood sheets down to 2500mm (the trailer width) before painting the downward face with primer. Whilst the primer dried I cut the insulation with a craft knife to fit tightly between the trailer's joists. Lastly, and perhaps most challenging, was securing each piece of plywood to the trailer ensuring each tongue aligned and fit tightly with each groove of the plywood edge. Beginning at one end, we glued the section of the trailer's frame the ply would sit on. We then carefully placed the ply wood on top, and secured it with a self-tapping screw in each corner. Each subsequent sheet then followed, with the added intricacy of tapping the tongue edge of the sheet into the groove of the previously laid sheet. Although this sequence of tasks may sound relatively simple (I have before stuck wood to things) it became clear early on that had I not been clearly shown and directed, things would have become quite chaotic quite quickly.

This led me to acknowledge the amount of intelligence a builder acquires over their apprenticeship. An intelligence which enables them to see the bigger picture, to know when or where they must be exactly precise and when it doesn't matter so much. When I frustratedly asked how Solomon knows so much, or how he can do this or do that, I am always greeted with the same response; "Its because I've been doing it for eight years, you've never done this before". Disregarding the annoyance aimed at myself for never doing *this* before, I began to understand the importance of time in relation to skill, and the role of *experience vs imagination/theory*. Richard Sennett said "the slowness of craft time serves as a source of satisfaction; practice beds in, making the skill one's own"¹²⁷. Time cannot be cheated. The experience of drilling thousands of 150mm screws into steel is arguably the purest form of gaining the knowledge of how to carry out that particular task.

Having completed what was to one day become the floor of a home, there was an immediately a recognisable space to occupy. This was not 1:100 scale, or even 1:10, this was 1:1. Real life, I could relate my own body to it. We were able to walk around what would one day be the 'Cook' space, imagine a sink, in front of which stood Mt Taranaki framed by a window. At this stage one has not only inevitably reached a point of no return, but opened the project up for discussion. The possibility or impossibility of a concept may be considered. John Walsh said, "As soon as a design is done- lets -presume it's an admirable scheme- the battle to preserve its integrity begins"¹²⁸. Once something is 'real', outside of one's head, the design may be prodded and questioned as a stable outcome, no longer protected by the dreamer.

Fig//64 Progression of building floor

+ 90mm steel screws

+ 19mm plywood

+ foam insulation

+ trailer

With the floor complete we were ready for our journey back to Wellington. Attaching the trailer, we ensured the emergency brake was on and handbrake was off. We then loaded our things, ourselves and a dog into the cab. By 1pm we had reached Tauranga where we were to collect our final and largest load of the trip. Five palm trees. As I have often found, some of the most optimistic and can-do attitude people I have met are those with particularly difficult jobs. Hiab drivers are one of these people. Lifting 400-kilogram palms into the air and laying them flat on the back of a soon-to-be tiny house trailer may seem challenging, however for James, not only was it a smooth operation, it was done with a smile and a laugh. Once we stopped down our added two tonne weight we were on the road again. A long drive with a large load allowed me to again consider the possibility of frequently moving the tiny house around. Considering the palms to be a good test of the trailer I had just invested, it seemed the journey was not one to be doing every weekend. Reflecting on this somewhat strained journey back to Wellington forced me to think upon a tiny house I had seen on tiny house advocate Bryce Langston's YouTube show which documents "unique and interesting small homes", 'Living Big in a Tiny House'¹²⁹.

Weighing only 500-kilograms, Tagami Haruhiko, a Japanese master-craftsman designed and built a tiny house with the purpose of being 'on the road'¹³⁰. 'Baske-T', measuring just four meters by one and a half, is designed to be able to reshape itself, allowing it to be both office, sleep space, cook space, eat space etc. Yet I suppose one of the major components the designing of such a small space grapples with is its *usability*. Tatjana Schneider and Jeremy Till wrote that "inflexibility must be designed out" of residential architecture¹³¹. Specifically, that one may be able to move from one space to the next and carry out each individual task without the need to reconfigure the space. This conundrum seems to play a role in many of the tiny house's I have explored throughout this endeavour. The ability to move freely within a space whilst also allowing it to be adaptable and maximise its spatial potential. Tiny houses are in a sense, products. Because of their size the ability to definitively change it is predominantly impossible, therefore to counter this, the spaces are designed to fold out, slide in and stack.

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Fig/66 *Baske-T* - Tagami Haruhiko

Fig//67 Palm trees on Ute

Fig//68 Journey

The natural progression from purchasing and collecting the trailer was to overcome what many tiny house projects are confronted with. *Site*. The notion of *site* within architecture is well discussed and theorised, from site as self, to the meaning of context within architecture. Ruskin famously linked memory with site, he wrote, of architecture, “We may live without her, and worship without her, but we cannot remember without her”¹³². Architecture as site, an inherent character which allows one to bring forth memory. Japanese architect Jun Aoki suggest “making the site is not just a physical condition, but also a mental one”¹³³. Within the same vein, Tadao Ando wrote “the presence of architecture -regardless of its self-contained character- inevitably creates a new landscape. It implies the necessity of discovering the architecture which the site itself is seeking”¹³⁴. He explains his architecture is composed of a places inherent logic he seeks. Yet what happens when an architecture has no specific place, how can an architecture be created through transient characters of site?

However, currently, my site predicament was somewhat a more pragmatic need.

I needed a space which I could build. I decided it would be best to construct the dwelling outside my own home which had access to a garage with power. This imposed a slight issue when it came to the moving of the structure once it was built as the carport access led onto a steep corner of a relatively busy road. I accepted, this would be fronted at a later stage.

MATERIAL + TECHNICAL DECISIONS // aesthetics

Before framing were to commence, a consideration of the materials, and their consequential technical applications needed to begin. Consisting of a predominantly formal experiment thus far, I had naively neglected the very real problem of detail. Mike Austin and Jeremy Treadwell wrote that “Tectonic issues are often neglected, but the instability of architectural origins becomes immediately apparent to anyone trying to build even the most primitive of huts”¹³⁵. I had deceived myself. Not considered the very real complex of how every material, every method would carry with it its own dimensions, own perceived quality, and most importantly its own ramifications. Further from these decisions was the need to order specific things in time, which, on reflection I was far out of my depth having predominantly only bought sheets of card off the shelf for 1:100 models. However this arose far later.

Material choice, particularly with respect to non-site-specific architectures, occupy a somewhat awkward space within architectural language. The notion of a relationship with surrounding is arguably left redundant as the relatable surrounding is *ideologically transient*. Therefore, the elements of consideration I was left with was, the client, her preference, obviously price and, unconventionally, weight (as the legal towing weight for the trailer was three tonnes¹³⁶). Due to my clients favouring of technological over aesthetic decisions, material authority was assumed by me. For example, she often had extremely detailed queries as to where the steel for the trailer was sourced or the maximum capacity for her solar batteries but the *big picture* concept did not interest her. Her response to me asking her advice over this particular period was simply, “you’re an architect, you know better than me!” of which I would be quite quick to respond with, “no I’m not I don’t know anything!”. Nevertheless, the task became of me to decide the structures external material, technical and formal qualities.

Therefore, to acknowledge and test a variety of options that would fit my limited criteria upon the design’s form, I began experimenting with relatively crude photomontage (photos) in conjunction with research into Fujimori’s material use. Aiming to stray away from the previously discussed tiny house aesthetic, I investigated material combinations which could work within the context of New Zealand (as broad as that alludes to).

Fig//69 *Lamune Onsen* - Terunobu Fujimori 2004

Fig//70 *Ichiya-Tei* - Terunobu Fujimori 2003

Fig//71 *Student Dormitory (Kumamoto Agricultural College)* - Terunobu Fujimori 2000

It would be an understatement to suggest this process was difficult. Where does one draw the line with exploration? Or decision making? Throughout my architectural education, arguably because of its representational quality, nothing has ever truly had to end. Nothing has been made concrete. Of course, there have been deadlines, but nothing to wholly commit to. It was at this point I compelled myself to return to a phrase Jeremy Till coined: “phony ethics of aesthetics”¹³⁷. Within his work ‘Architecture Depends’, Till’s critique on the traditional architect delves into the association architects have created between aesthetics and ethics, which they are stringently committed. This association, he implores, is fundamentally flawed. Allowing that through materialising ideas as objects, or rather, converting ethical qualities into aesthetic form, ethics is ultimately abstracted from its definition¹³⁸. Ethical qualities arrive through architectural action/reaction rather than aesthetic symbolism. Till advises, “By all means craft the building, compose the elevation, worry over the detail, but at the same time see these as just some tasks in service to another. The key ethical responsibility of the architect lies not in the refinement of the object as static visual product, but as a contributor to the creation of empowering spatial, and hence social, relationships in the name of others”¹³⁹. That is, actual not imagined, relations. Within this, Till highlights the social aspect of architecture, the importance of the user and in doing so somewhat alleviated this decision process.

Concluding this exploration, a decision was made based on average prices, installation technique, weight and compatibility. Through investigation into Fujimori’s work it became clear the ability to play with scale derived from not only his roof forms but also their application. Many of his works implement hand rolled copper sheets which allow the roof a variant quality, enabling their large surface areas to have a quality of unrefined movement. He specifically said of his ‘Chashitsu Tetsu’ tea house that “if I use hand-rolled copper sheet with bumpy surface, I have an interesting effect of being old and new at the same time”¹⁴⁰. It is this juxtaposition Fujimori continuously adopts which allows chaos to be controlled. Robert Venturi wrote in ‘Complexity and Contradiction in Architecture’, that “Complexity must be constraint in architecture. It must correspond in form and function”¹⁴¹. Complexity must be equated with simplicity. Because of the intention with which Fujimori’s copper roof is crafted, the complexity of its form is balanced. I reasoned this could be emulated through cedar shingles as the varying widths create an irregular pattern similar to that of Fujimori’s copper roofs, their application being both refined yet natural at once. *This conveniently allowed me to fulfil another dream of mine which was to work with cedar shingles.*

With respect to cladding, explorations acknowledged that verticality could be used to again play with the scale of the dwelling. Therefore, to somewhat relate back to the notion of the New Zealand bach, or rather simply traditional New Zealand construction technique, board and batten would make up the port and Starboard walls whilst vertical shiplap weatherboards would make up the Stern and Bow.

Comforted by resolution, by the reduction of elements in consideration, I was ready to begin framing up.

Fig//72 *Chashitsu Tetsu*- Terunobu Fujimori 2005

MATERIAL EXPLORATION

Flat Panel Aluminium - Vertical Profile

BEGINNING BUILDING

Securely parked on the carport, handbrake and wheel lock on, we were ready to begin. We began by taking what was to be another, expensive trip the local hardware shop. Because of the grey area of regulation, the 'tiny house' occupies, the timber we could use for the framing did not need to fulfil the usual requirement outlined by NZ3604¹⁴². Therefore, to reduce the overall weight and consequently allow for a slightly increased internal floor area, we purchased 20 lengths of 45X75 mm H1.2 timber. Along with the H1.2 we also purchased four lengths of H3.2 timber which would be used to construct the bottom plates and four lengths of LVL beams for the lintels.

In a somewhat hopeful leap into my building dream, the week previously I had purchased a drop-saw which I promptly set up on the carpark upon returning to *site*. Running leads to multi boxes, loading up my apron and, most importantly retrieving the radio -tasks I had been directed needed to be setup *correctly* to 'avoid chaos'- and we were ready to begin. Rather than producing a document set of drawings, specifying all details of construction and dimensions, I had drawn the basic elevations to establish each faces height and a section that would enable us to determine how they might meet. However, this research's aim was to quickly move away from the representational and into the physicality of building. As Louise Wallis -a senior Lecturer of *Learning by Making* at the University of Tasmania (UTas)- acknowledged, to "...extend students' design skills by making a stronger link with material experimentation and construction" ¹⁴³. Within her analysis of the *Learning by Making* curriculum at UTas, Wallis observed the value of implementing physical making as a way of working through design as opposed to the two terms separated¹⁴⁴.

Fig//73 Progression of site

CHANGES

I began by cutting the timber we knew the lengths of. These were the top and bottom plates of the port and Starboard faces, along with their subsequent studs. However, after cutting the initial stud for what would make up the Starboard face, Solomon explained that because of various pieces of framing that would need to be inserted to hold the window and the windows architrave depth, the opening I had envisioned as sitting central to eye level would actually have to sit far lower. To refrain this from happening, the pitch of the roof would need to be lessened. This was the first major conflict I faced. Up until then the exchange between the poetics and the pragmatics had been predominantly worked through on paper. On paper, one is able to swap, cut, reduce enlarge etc in a far less destructive way than what I had felt that afternoon. Stuck in a conundrum, Solomon and I discussed the trade-off for both options. The window I had found on 'Trade Me' which ultimately dictated the pitch of the roof, would not be able to be used if we were to decrease the pitch. *I had envisioned the view from the entrance door at the opposite end of the dwelling, stained sunlight drowning the cook space in a softened green hue.* This one-of-a-kind heritage window would be left redundant if we were to change the roof pitch. However, if we were to retain the window and thus roof pitch, what would be left would be a compensated space with an awkwardly placed window. Pragmatics and poetics in conflict. Solomon and I discussed options for some time. In the end there was no way around it, the window had to go. I couldn't compromise my client's livelihood for a window I simply thought was beautiful. Decreasing the roof pitch we agreed would not stray from the formal roofline I had so conscientiously considered yet would significantly increase the internal spatial qualities of the dwelling.

Jeremy Till allowed that "The process of design cannot be subjected to method, the process of briefing cannot be fully rationalised (clients are hardly simple beings), the process of building is open to continual uncertainty, and the occupation of architecture is unpredictable."¹⁴⁵ Within this Till argues, traditional architecture is solicited as rational and stable when in fact it is bound by contingency. Architecture is continuously acted upon by external forces, be it client, environment, policy or economy. Through an embrace of these contingent realities the design process was able to continue. On reflection, the ability to resolve in real-time, physically experience the internal special quality and discuss alternatives and additions, was a process I realised I had never experienced before. Although taxing at the time, the ability to embrace/accept contingency in fact allowed a new imagination and inventiveness not traditionally permitted within the architecture.

Fig//74 *Diagram of roof change*

Fig//75 *Lost window*

Continuing on we then began framing out the *new* Starboard face. Again, by not specifying *exact* dimensions we had the ability to decide on-site. The Starboard face took the most time. Both windows proportionally had to work with both one another, its surrounding façade and its relation to the whole. Due to the distinct separation of ‘Cook’ and ‘Eat + Play’ spaces through the 400mm high change, we decided that centring both windows within their separate domains would complement the overall façade, allowing a distinct character to each space. Considering architraves and purpose of the ‘Cook’ space window (to open outward) we then established the minimum distance from the exterior edge should be 300mm. The vertical placement of the window was ultimately dictated by bench height, maximising window area. Once we had established the sliding window it became very clear the ‘Cook + Play’ window needed to be centred vertically as well as horizontally. These factors ultimately influenced the windows final dimensions.

Having arrived at a plan, we pressed on, placing studs at 400 centres from the end and introducing ‘jack studs’ and lintels where the windows were located. To further secure the Starboard face we then inserted purlin screws into each stud to tie the top and bottom plates. This process we then continued with the Port face. Comparative of the time we had spent making decisions, it seemed as though no time had passed before both frames had been constructed. *Nothing is more fun than shooting 90mm nails into timber framing.*

Neatly stacked on top of one another on the trailer -being relatively pressed for space- we then encountered the logistically challenging task of standing each frame vertical and tying them together. Fortunately, I had some very willing neighbours who agreed to lend their hands. We began with the Starboard face, then the Port. We then promptly braced the outer faces before determining the Bow and Stern walls. We did this by first working through each space individually, ensuring each space allowed for the human body. It was the ‘Bathe’ space however, which ultimately dictated surrounding spaces. Much easier to acknowledge in real life than on paper or screen, we simply used the chalk line to draw a floorplan at 1:1. Acting out the movements one might carry out within the ‘Bathe’ space, washing hands, showering etc to visualise the minimum dimensions the space could occupy. We decided the width could be no less than 840mm but concluded that the internal width would be 900mm. Minimum did not mean *comfortable*.

It is important to note here the distinction I discovered between building on land and building on a trailer, or boat, or truck, or anything movable. Whereas land-based building can be done using levels, a trailer moves, therefore levels are untrustworthy and everything must be measured exact. Observations such as these were somewhat pivotal within my approach to moveable architecture and allowed me to consider aspects of architecture I possibly would have never otherwise. Like Brian MacKay-Lyons said, “We learn best when we need to know”¹⁴⁶.

Fig//77 Frames up

Fundamentally, the design was to visually 'break' at the point of the 'Bathe' space, splitting the roofline in two. Therefore, we began with the bathroom dimensions (Bow wall) and placed a stud that would act as the 'break' at 1050mm from the end stud. To work out the lesser angle we simply, or not so simply, held a piece of 2X3 between the end stud and newly placed 'break' stud, and drew the angle. 9 degrees. Repeating this step on the steeper angle we found it was 33 degrees. Because these angles would be mimicked on the Stern wall, the rest became relatively quick work, and with them in place, the whole structure could hold itself up. With all walls now vertical it was really beginning to look like something. It almost looked like architecture perhaps. It looked like something I had dreamt up but it was real.

The subsequent days I spent strengthening the framing by inserting *dwangs*.

Dwangs -I knew of and knew their purpose but somehow always confused with studs- are the horizontal framing elements that sit between the studs. Parallel to its construction definition, I have also recently found out another use of the term which is to describe a female who 'pretends to be stupid or dumb to get into a group or be accepted'¹⁴⁷. Although I was certainly not explicitly trying to be ignorant and ill-informed, I was definitely attempting to be accepted within the *tradie* community. I pondered this as I mis-fired and occasionally split timber whilst inserting the *dwangs*.

Fig//78 View out at 'sink'

bottom plate-H3.2

400
C

top plate-H3.2

port

starboard

bow

stern

- SLEEP
- BATHE
- COOK
- EAT+PLAY

Fig//79 *Diagram of frames + spaces (opposite)*

Fig//80 View of 'Bow' face

Because of the nature of trailer, or moveable based building, the roof, I found out would essentially allow the structure to work as one. It braces the walls to one another. Rather than being purely supported by the walls, the two work together to resist tension and compression from both vertical and horizontal forces. The day we assembled the roof was in some way an act of release. The structure could, in theory, be released into the world and hold itself together. We began, as always, with a trip to the hardware shop. We purchased more H1.2 framing, a more refined – ‘clear, defect free pine’- and deeper -45X180mm- piece of timber to use as the main ridge beam, and most importantly, a ladder. With every exercise such as this I became more aware of just how expensive building is, and began to acknowledge its inevitability.

We began by nailing the ridge beam to the Stern and Bow walls before securing it with three purlin screws at each vertical stud. This immediately allowed the strength of each opposing end to counter balance one another. Similar to the studs, we measured and placed the rafters at 400 centres from the internal wall at each end. However, because of the top plate-rafter intersection, to allow a seamless fall, each rafter needed to be *skillion* cut. This we did by again holding up a rafter and marking where the cut needed to be made, thus creating a template of which all the others could be cut. In the same manner as the windows, we framed out the skylight and once the upper rafters were placed and secured, the skeleton of the structure was well and truly *one whole*. It was completing this stage which truly held me. My two hands had executed one task after another, which, although not perfection, had resulted in a structure which made a shadow. With the exception of high school art projects and renders, this was the first time I had achieved this and it was extremely humbling. Similar to the feeling one gets when apricating their own shadow, a conscious, self-knowledge. Bachelard allowed that “...as soon as art becomes autonomous, it makes a fresh start”¹⁴⁸. Although I was in no position to suggest that what I had created was art, I did gain a certain sense that this *thing* had become separate from *me*.

It was at this point I was able to order the joinery. Originally, I had hoped to source a portion of the windows and doors second hand. (I say portion as often second-hand windows can be very heavy, yet if they were special enough, the weight could be accommodated). In fact, the purchasing of a large heritage angled stain glass window was, in part the reason for the design’s roofline. However, a week after I had paid for the window, given my address and had confirmation it had been sent, it had not arrived. I call the sender (a company in Christchurch specialising in second hand joinery) who sounded confused when I asked where it was. “I definitely sent it” followed by, “I’ll have to follow it up”. I recalled the decision Solomon and I had made previously to decrease the pitch of the roof to increase the kitchen height and thought “good job we didn’t compromise the kitchen for a window that someone has lost...”. Without hearing back from the sender, I sent him a message, inquiring into whether or not it had been found. A week later he responded, saying he could not find it and that he would refund me. Inquiring into how much it would cost to instead commission the joinery I found that all together ‘Wilson Joinery’ would do it for just over \$9,000, a sum which would only be slightly higher had I sourced them second hand. Knowing this would take some time, I sent him the dimensions and details before continuing with the build.

Fig/81 *Diagram of roof framing*

Fig//82 Progress - ridge beam and rafters

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ROOFING

Perhaps the most primal elements of the structure of architecture, the roof is (usually) the first skin attached to the skeleton of structure. 'Shelter' explains that once man began to seek shelter, it was in the form of caves, huts and tents¹⁴⁹. These early forms of shelter were arguably large, easy to construct roofs. The roof has since developed to become not only a form of pragmatics, but symbolic. Roofs can be used to make statements, conform or blend into the landscape. Frank Lloyd Wright wrote that "his roof was not only his shelter, it was his dignity, as well as his sense of home"¹⁵⁰. With this in mind, I began the process of building a roof for shelter and for symbol.

The decision I had made earlier to cover the roof in cedar shingles meant plywood needed to be applied to the rafters before roofing. To allow a greater feeling of space internally, I wanted the rafters to be left exposed. This meant the exterior applied plywood needed to be a higher graded ply as it would be seen. Again, somewhat unaware of how much these things should cost and what the tell-tale signs of a bad sheet of ply were (I am actually quite partial to a knotty piece of timber), a friend Skip said he would help me obtain some CD grade 12mm plywood. Although recognising the difference between a sheet of ply dotted with knots and one respectively less so, or simply devoid, the term 'clears' with respect to timber had no significance to me. The various letters attached to these timbers having even less significance. The grading of timber, I found out, is used in both a strength and aesthetic association. Both denote the percentage or tightness of the timber's knots and all have a specific purpose, as outlined in NZS 3602¹⁵¹. Therefore, in this instance, because the roof would be exposed but not high highly detailed, and the opposite face was not of concern, a CD grade was bought, one face 'C' the other, 'D'.

We began by driving to the closest hardware shop which we found had a small amount of DD grade sheets but no CD. We drove on to the second shop which although had plenty in stock -as Skip had informed me- the price was far too high. He suggested we would be much better off driving out of town to get some of the right grade at the right price. Thankfully at the third stop we were in luck. We stopped eight sheets down on the Ute, paid and left.

I firstly worked out that at 400 centres one sheet would cover four bays of rafters. I began by cutting down the sheets so that they comfortably overhung the framed walls -somewhat of an insurance policy- as they would be cut in place later. To enable the plywood to be flush with the vertical studs, I angled the circular saw to suit the various roof angles. Once done, I cut the plywood pieces that did not make up a whole sheet.

I found this straight-line skill particularly difficult. Once all the pieces had been cut, I then primed them and began attempting to screw them down. Another step I had neglected to fully comprehend the extensive physicality of. Attempting to lift a 1200X2200 sheet of ply alone was doable but uncomfortable. Trying to sit it on top of a steeply angled roof three meters up was next to impossible. In this came the realisation that not only did I not know very much, but that even knowing more than I did could not help me. I needed another pair of hands. It was one thing to *know* how to exercise a task I had read about, been advised on, or watched, but to appreciate the physicality of it is to come to the realisation that *willing something does not make it so*.

With another pair of hands, we securely fastened the ply to the rafters.

We did this the afternoon prior to the development of a large storm and with the ply attached, the structure was able to essentially act as a sail in high winds. Which, over the course of the evening progressed into 120km NW gusts. Perfect. *I do confess to getting up at 2am to brace the whole thing to the fence due to my nervousness whilst assuring myself this kind of situation would not arise often in architectural practice.*

Fig//84 Shadows of framing

Fig//85 *Priming the plywood*

Fig//87 The first rain the roof held off (the afternoon before the storm)

MATERIAL CONCLUSIONS

Having previously concluded that the cladding would be a combination of board & batten, and vertical shiplap weatherboard, the next step was to order it. Front up and pay for something I had chosen, as, up until then I had only purchased items which were essentially *non-negotiable*.

This commitment gave a similar sensation as buying the trailer. However before committing a large amount of money (or lesser depending on the decision) I first had to research exactly what I needed. I began with figuring out the board & batten, as predominantly the suppliers I was calling only had one option. Early on I decided I would need between a 45mm-55mm batten which was the only real decision I could make. Straightforward. The vertical shiplap proved slightly more laborious as certain profiles would take longer or induce an extra set up cost, not to mention the *types* of timber which could be used. I then found out, rather than timber costing a certain amount per meter, prices were given based on how many boards of each specific length I would need. Therefore, because of the desire to assemble continuous lengths, before I was able to receive any indication of prices I first had to work out how many of each length I would need. Subsequent to measuring this I began the search for a fair price and a good product that would be delivered on time.

This process required multiple days of back and forth communications with numerous suppliers until eventually Solomon suggested I call his 'rep' Lauren to obtain the material for me. I proceeded to provide her with the shiplap profile I wanted and the batten size and away she went. Within a few hours she had approximate prices, turnaround times and the ability to make it happen. Eager to get the ball rolling I promptly made some considerable decisions, such as changing the profile of shiplap for something that would be quicker and cheaper, and confirming that I would need 45mm battens. Decisions such as these always left me consider whether I was *trading* my design for something. Was I compromising the architectural character I had formulated? Christian Norberg-Schulz wrote that "the character is determined by the material and formal constitution of place"¹⁵². The line between important and unimportant was difficult to grasp.

Nevertheless, the next day it was ordered. Having predominantly only purchased card and glue off the shelf to envision my architectural creations the notion of time I expected for materials to be obtained was relatively naïve. It allowed me a great appreciation and respect for project managers whom must continuously maintain a steady supply of material. I could not fully fathom the amount of multi-tasking and forward thinking needed.

SHIPLAP.

RKS8.

53.

7-10.

J121 vertical 180 X 17

LINEAL
METERS.

lengths: 6 x 2.1
6 x 3.2
5 x 3

7 x 3.3 107.1
10 x 8.8 LM

BOARD + BATTEN.

grooves to allow
water out...

RKA 121/123.

J58 no standard.
J53. ← No SET. up.
30 sq m. + 20% wastage.

65 X 18 ← 123

Set up.
\$500.

40 X 18.

PLYWOOD.

RM → 2440 X 1220.

Fig//88 Calculating material quantities

TODAY PART 1

- PRECEDENTS ^{to note}
- 'THEORY'
- TIDY UP DOCUMENT
- FIND PICTURES
- RES
- REFER
- ENCE

TRIMMING
TIMELINE
- 8 MONTHS
REPORT

TEST
SIZE

organise

- ADMINISTRATIVE
- PLACE
- REFERENCE?
- LOUNGE
- BATHROOM
- INTERVIEW
- SANITARY
- DRAWINGS
- TO EXPAN

[EMPOWERMENT.]

- VINE
- SINK
- SHOWER
- STAIRS
- BOOKSHELVES

SERIOUSLY

OUTSIDE

- SKYLIGHT
- FINISH SHINGLES
- BOARD + BATTEN
- CH PLANT

INSIDE

- LINE
- INSULATE
- KITCHEN
- BEDROOM

THE WEEK THAT FOLLOWED

non-visual progress

The inner working technologies of the 'tiny house' were not the first hurdles of this process to bring me to tears but they were certainly the most deplorable. It began with the obvious need to establish a clear plan for the electrics and plumbing. Plumbing was addressed through a process of elimination. Off-grid equals storage tank, rainwater collection and a composting toilet, I knew I would need a sink, and shower. In some ways the off-grid requirement in fact simplified plumbing issues. On the other hand, it did not simplify the electronic conundrum. It began with a discussion with a *sparkie* friend who said he thought it would be simpler and cheaper to run the whole dwelling on a 12-volt system, very similar to his boat. Many of the items needed he told me could be purchased from the local electronic or boat shop. Fitting. Consequently, I talked with my client about *what I believed to be* the two different options, 12-volt, or 240-volt. *However, in hindsight I may have explained the plan for a 12-volt system without properly acknowledging the 240-volt plan due to my own lack of knowledge. A simple regurgitation.* The conversation ended vaguely, however, I followed up to confirm the decision of a 12-volt system via phone call a few days later. "Yes, that would be fine" she said. Great. My next step was to then enlist another *sparkie* friend to help out with the wiring, talk through lights, inverters (which would be needed to convert the 12-volt into 240-volt for plugs), plugs etc. before we applied the shingles to the roof. Because of the preconceived exposed rafters, to enable a ceiling light, all of the cable had either, to be run exposed along with the rafters, or on the topside of the attached roof ply and drilled through. For this reason, we decided to implement wall lights in the bedroom, bathroom and kitchen, and downlights under the mezzanine, resulting in only one hanging pendant in the kitchen. This would allow for less holes to be drilled through the roof, hopefully resulting in less confusion, less mess and more of a chance of being water tight.

This was the time within construction which seemed to be going smoothly. Decisions had been made, everyone happy. It was not until the phone call with my client a few days later that everything went downhill. I had actually called to ask if she wanted me to drop her some eggs later. However, after replying "yes we're down to two" she then proceeded to ask about the build and tell me things about 240-volt systems she had found online; "did you know they sell 'tiny house' solar kits". I replied plainly that I had "literally just wired the house out for a 12-volt system like we discussed". Not terribly good at screening my frustration and desolation, I explained the situation before suggesting we discuss 'on site' later. Agreed. After an emotionally turbulent next few hours I concluded that was all part of the process and things would be better for it.

The Monday that followed my client visited the site to go over what she actually wanted from the electrics.

Bachelard makes remarks upon the house as a form of stability within the contingency of the world¹⁵³. I considered, this stability was reflected in the electrics of the dwelling. The home is meant to be stable, comfortable and reliable (wired for 240V) whereas the boat or the caravan are seen as transient or unpredictable (wired for 12V). Therefore, perhaps it was the right decision to bring an element of stability or status to this 'tiny house'.

Fig/89 Original electrical plan

SHINGLES

A week earlier I had ordered my cedar shingles from an importer in Auckland. To pick them up I had to borrow a friend's Ute. Before applying them, I first had to stain each one. Both faces and all the sides. Eight packs. Even more painstaking however, I needed to decide which stain to use. To move away from the cedar gingerbread house aesthetic, I wanted something darker. However, the decision became much harder after testing the various stains a nice salesman gave me. There was 'Midnight' (too heartless, 'clear' (too saturated) 'beech' (too yellow) 'elm' (too undecided) etc. Finally, I decided to 'Dark Oak' - dark enough to be obviously defiant, yet not too dark to hide the grain of the cedar. All of this was just the beginning of the laborious process to follow.

In total the process took approximately 18 hours, used almost exactly 20 litres of stain and caused one major hand cramp for a week. (However, this hand cramp was absolutely nothing compared to the repetitive strain injuries endured due to photoshop rendering before a big hand-in).

Once I completed the staining and with every inch of garage space lined with drying shingles it was time to prepare for their application. For this I enlisted the help of two extremely clever builder friends of mine, Solomon and Tom Wilson. We began the morning by borrowing a scaffold from another friend's job. This we set up on the Port face (or, largest fall). At this point in time, because there is such a thing as too many cooks in the kitchen (or people on top of a five-meter-high scaffold) Solomon and Tom set themselves up whilst I began cutting the battens that would go perpendicular to the rafters. As I cut, using a stapler, they applied the builders *wrap* to the first roof before applying the battens at 170mm centres from the edge of the ply. Precariously balanced, I then began hoisting boxes of shingles on to the scaffold which Solomon and Tom began to lay. Once this was done again there was little I could do, I therefore proceeded with the task of tying down the framing to the trailer. This began badly.

After realising the drill-bit I needed (8mm) would not go so deep as the trailer I went to buy one, only to discover on arrival back at site that it was in fact a masonry drill bit and would not drill through steel. Having learnt my lesson, I then confidently asked an employee to point me in the direction of the steel drill bits. Great. Third attempt back on site, the drill went in and came out the other side. However, the 140mm long galvanised bolt I had bought the week before did not. I was sure I had asked for an 8mm bolt but alas it was in fact 10mm. Trying not to give up I went back to the shop to find a 10mm steel drill bit longer than 140mm. Again, I was out of luck. The did not stock one. However, I then remembered the shop where I had purchased these specialised bolts sold all kinds of things. I decided this would be my final attempt and if it failed I would have to surrender for the day. Thankfully then did indeed have a 10mm steel drill bit longer than 140mm. Not getting my hopes up I raced home to try it out. Marking 22 mm from the edge of the bottom plate I carefully drilled down. Remarkably it fit perfectly. I then proceed to drill and fit bolts at precisely 1000mm centres and at the corners.

Whilst this ordeal had been unfolding Sol and Tom had made far more progress with the shingles. With two roofs on the Port side complete that was the end of their day.

Fig//90 *Picking up the shingles*

Fig/91 Stained shingles drying

Fig/92 Kerry helping stain shingles

+
Fig//93 *Diagram of roof sequence*

Fig/94 Solomon + Tom applying shingles

VISUAL PROGRESS

Since undertaking this project, I have come to recognise the importance of visual progress, rather, actual evidenced progress. A few occasions in which I would feel too beaten to stand up, Solomon would suggest “put all the dwangs in” or “prep the interior rafters”. In essence, start the day by doing something ‘easy’, something you know how to do confidently and, once complete, are able to see a change *visually*.

At this particular stage I was continuously reminded of the fact that nothing dramatic had visually changed in quite some time and it was beginning to have a negative effect, not only with respect to my productivity, but also mentally, the whole project became blocked. The physicality of the build had become secondary, and for that I felt less involved. The separation between myself and my material task was causing me to, as Sennett analysed; overlook the material¹⁵⁴. Therefore, once the cedar plywood and shiplap arrived I was more than ready to go. Because, I had already figured out plywood sheets are awkward to lift, Solomon allowed me to ‘borrow’ his worker Quinn for a few days to help me attach a *skin* onto my dormant skeleton.

On Monday morning we began by purchasing a roll of ‘Thermakraft Watertight Plus’ building wrap and a ‘Rapid R23 Pro Steel’ stapler with yellow trim. *Another thing I found useful within this process was to begin a large new task on a Monday, not only setting the tone for the week but also being able to reflect on Friday about the week as a whole.* Whilst I took care of ensuring all the faces of the structure were free from skewed nails and other irregularities which could warp the applied skin, Quinn placed additional dwangs where the plywood sheets would be screwed. Once completed, Quinn and I, carefully (beginning at the bottom) wrapped and secured with staples, the Port face of the structure.

Before leaving us to it in the morning, Solomon had suggested we place a block on the wall at the height the first sheet of ply would sit. This would make it easier to place the sheets. So, before we began, we worked out where the first sheet would sit (directly between the break of the structure) and attached a piece of 3X2. However, either Quinn or I had slightly mis-measured the length and where the sheet met the roof there was a 5mm gap. (At times like I wished for the knowledge and experience of Solomon to decide whether or not this was an important mistake). Repositioning the block 5mm higher, we found that now the sheet would not fit. After re-placing the block multiple times Quinn and I agreed to reject the block suggestion and proceeded to *wing it*. Or, implement a method of, Learning by Making¹⁵⁵. Wallis acknowledges the importance of experimental learning, explaining that “...group work forces members to reassess their established frameworks of developing knowledge, problem solving and personal beliefs”¹⁵⁶.

Fig/95 *Inserted dwangs*

Rejecting the block method was much easier said than done. Solomon was right that the block made securing the sheets far easier as without it both Quinn and I had to lift it up into position before one of us held it up and the other used the pin gun to hold it in place. Awkward, time consuming and tiring.

Eventually we secured the first sheet to the structure, only to look back at our work and realise something was wrong. Either the cut made in the sheet was not straight, or the sheet was not straight, or, fundamentally worse, the studs were out. Frustrated and definitely not stimulated by visual progress, it was 5 o'clock Quinn packed up, leaving me to debate if it was better to start again, or compensate for whatever was not quite straight. After deciding that surely, I would have start again, Solomon came home and confirmed that "yeah it's a good idea. But lets just do it now!". The cut was slightly off but that it would not matter and could be compensated for. After working this out, we attached all of the sheets to the structure and it was confirmed; the block trick does work. Visual progress had been made. Things were happening and it allowed me, perhaps not to see the light at the end of the tunnel, but definitely begin visualising what that light might look like. Pallasmaa identifies that the true satisfaction of this, visually evident progression, realm of work is when the visual is balanced with the mental. Or rather when a challenging problem solving task is evidenced through the visual¹⁵⁷.

Following on from the completion of the Port wall, I alone began to work on the Bow and Stern faces which would be clad in vertical shiplap. I was extremely impressed with the cedar when it first arrived not just for its aesthetic quality and incredible lightness, but also for the illusion it could create vertically. (The idea I have envisioned, it seemed, may work).

Fig/96 Diagram of 'block' trick

Fig//97 Progression of cladding stain

I began by staining the front and back of each board with a sandy colour by 'Cabot's'. Because of the cedar's original colour, I went with 'weathered cedar' which in all honesty did not transform the natural colour of the cedar, simply protected it. Once completing this and wrapping the Bow face I began methodically attaching the boards. For the first board I measured the length from the shortest point of the roof to 130mm below the trailer before cutting on the angle of the roof that length. Then, using a pin gun, secured the board down the right-hand edge which would be hidden by the subsequent board. To ensure the board was vertical, I measured the bottom of the board to the end of the wall and measured the top of the board to the end of the wall. This definitely slowed the process down and if not on a trailer could have been done using a level, but it at least gave me peace of mind. Each board after the first I would measure from the longest point of the previous board and subtract 15mm to account for the overlap, giving me the shortest length of the next board. Secure, check and repeat. This was by far my favourite task thus far, visually stimulating yet complex enough to be satisfied with the problem, it was rhythmic. Sennett said "...all skills, even the most abstract, begin as bodily practices"¹⁵⁸. With every board, I was training my body. Gaining physical knowledge of the weight of the board, the rough and smooth faces of the board, each repetitive action becoming more efficient. Although it indeed took a whole day to complete something which maybe should have taken a few hours, by the time I reached the far-right edge I was (for once) very satisfied with what I had achieved. Two walls, up two to go but first I needed to stain the exposed plywood sheets already up on the Port face before the rain came in.

This decision proved slightly harder as I was very aware of the need to renounce from the 'gingerbread' romantic ideology and the cedar was tinged with a slight pink. Unsure of how to counter the pink tinge whilst maintaining the grain integrity and side skirting anything close to 'gingerbread' I bought ten litres of 'Auburn' which, with the help of some keen friends, covered the Port face with.

Because of the way the shiplap was attached to the Bow face, I next had to properly secure the boards with nails. Before being left to my own devices I had been warned “don’t miss the nail” as any ‘half-moons’ could not be sanded out because of the boards ban-sawn finish. *This terrified me.* I began by purchasing a box of ‘silicon bronze rose head nails’ before marking out and drilling where the nails would be hammered. I then began the nerve-racking task of hammering in these 90mm nails without once hitting the perfect boards behind it. I was so aware of not ‘half-mooning’ I placed my hand in as sacrifice which resulted in an inflated thumb and a whole day spent nailing one wall. Definitely worth it when a passer-by shouted “love your work!”.

Fuelled by the desire for more visual reinforcement, the next day I decided to skin the Stern wall. Starting on the right, I followed the same method I had executed for the Bow face. However, the further I progressed, the more apparent it became that I was running low on boards. By the time I was halfway above the door it became clear; I was going to run out of cedar before I reached the end. I had mis-ordered. I used up what I did have before calling Lauren, the woman I had ordered the boards of previously. I ordered only six more boards, along with the facia board I knew I needed and more battens for the Port and Starboard faces. I reasoned that if I was going to put another order in I may as well do it all at once. I explained my predicament and she assured me it would not be a problem and the boards would be at the depot within ten working days. (In the meantime, I still had to nail the boards I had already attached, finish the final face, stain...)

I waited for the cedar. I worked on nailing the boards I had already attached, finishing the final face, stain everything, prepping the rafters, framing the two break sections I decided to clad instead of window, and sawing the bottom plate of the entrance door. Ten days turned into a month, which then turned into two. Unable to contact Lauren all I could really do was take an early Christmas holiday and wait Lauren out.

Fig/98 Various notation on 'site'

Working at different scales simultaneously. On reflection the process of actualization is one of continuous switching. In one sense, the whole must be considered, but at the same time, the parts to make that whole must be considered and ordered

ELECTRICITY

(2X) 150 WATT FLEXIBLE PANELS. ← JAYCAR

(2X) BATTERIES (CAVITY 400 LMM X 200 WIDE X 200 TALL)

200 AMP POWER POOL CYCLE

HELLA DOWNLIGHTS 75%

DOMETIC

ALI EXPRESS SWITCHBOARD.

(50M) ROBL 12 VOLT CAP 2.5 TINNED FLEXIBLE CABLE ←

HEAT

MAX AMPERES

HOT WATER

↑ GAS SHOWER PRESSURE PUMP.

FRIDGE

← 12 VOLT + GAS COMBO.

OPENINGS

80mm EITHER SIDE

2850.
2350 - 1700.
300 +
650.
1300.
2850.
2260.
+1050

SYSTEMATICALLY
FRANTIC.

AFTER A BREAK

Being back on site after a break was both exciting and slightly demoralising. Although the cedar still hadn't arrived Solomon and his worker Julian were able to help me install the joinery and finish up the jobs I had only a vague, *visual* idea of how to carry out. There is something far more comforting when a few people are working together, it seems as though things move faster, or less time is wasted, plus there is the added bonus of being able to check whether or not something is correct. The time aspect of making is not reduced, but the ability to collectively make allows a fluid workflow.

To begin the week, we began by "having a big clean up" – a reset. Julian then set to work on finishing the ends of the already clad walls whilst Solomon and I fitted the joinery. We measured the large window opening before cutting the copper flashing to fit. We made a 45-degree cut to allow for the copper to bend over the opening before securing it with two clout nails at either end. Carrying the window to the external side of the opening which, because of the site is somewhat harder said than done, we carefully lifted it up into position. Snugly in its framed hole, Solomon secured it from the inside with purlin screws. However, not all the joinery was so simple, the doors for example needed quite a substantial amount of attention as not only were they were approximately 40mm too short for the opening, the sill was too wide and deep. This complication was far beyond me; Julian however, had trained as a carpenter and therefore very accustomed to this kind of task.

By the end of the day all of the joinery was in except for the two 'break' windows I still hadn't quite ordered or decided upon. It was at times such as these in which I would wish I had specified the whole build before beginning. Till's discussion of contingency within architecture suggests that architects have become an interior focused profession, maintaining control, disregarding the unpredictable¹⁵⁹. However, the projects general lack of specificity, was arguably not allowing me to better deal with contingency in so much as it was adding the contingent aspects to deal with. The opposite of architecture, as, Le Corbusier declared within 'Précisions' "to create architecture is to put into order"¹⁶⁰. Where did this proclamation leave my project?

Once in, to seal the new windows and doors I prepped (sand, fill, sand, fill) and painted. A task which although fairly straightforward, requires a lot of time and attention to ensure its outcome. Whilst I worked on the outside, Solomon and Julian fixed the mezzanine, as to install the door, one of the LVL beams had to be ripped out, which subsequently prompted a constructional reshuffle. This comprised of us then ripping all of the joists out, which, as was usually the case, resulted in the timber splitting. Like dominos this eventually led to the whole mezzanine structure to be taken down. Purchasing more LVL lengths (and reusing the intact lengths we had) we proceeded to reconstruct the mezzanine. The reconstruction made apparent a 5mm warp I had forced, so revising the mezzanine actually saved what would have otherwise been a mammoth task.

Fig/99 Tool used to apply contract filler

COLOUR DILEMMA

Once finished, I set about finishing the prep work. One final sand and they were ready to be top coated, the only issue was I needed to choose between 'YinYang' (a light green), 'half coriander' (a slightly darker, light green), 'Ecstasy' – (a red my client showed interest in) and 'Sweetcorn' (a pale yellow, just for a range). Buying a small test pot of each I painted a small section of each on the interior of the tall angular window in the cook space and made lunch to mull it over. Coming back to *site* I began to clear up, to subconsciously observe the colours as I walked around. However, aware of the fact that, one: the colour really did not matter in the grand scheme of the things, two: I could always change it, and three: I had so many other things to do than to waste time with this decision. I went to the paint shop and impulsively picked up a one litre container of 'waterborne enamel' in 'YinYang' for the sashes and 'Half Pearl Lustre' (an off white) for the frame. Somewhat impressed with my ability to make quick decisions I went back to *site* and began my clockwise painting exercise, first a round of 'Half Pearl Lustre' for the frames, then a first round of 'YinYang' for the sashes. I looked back on the 'YinYang' and thought, "yeah it works".

Because of the time it took me to do a full loop, and the heat, by the time I got back to my staring point I was ready to sand before painting a second coat. I stepped away from the wall to collect the sand paper before glancing at the windows I had just painted and thought, "Nope. Only a dated 70's batch could pull that colour off, I have to change it". Stalled for a moment I reasoned that I should at least see it through to check the second coat didn't 'wow' me. I sanded, before repeating my previous loop. With such internal conflict occurring throughout this process, by the time I was done, the day was over and I could at last stop looking at my paint job. It was probably the light anyway.

ELECTRICIANS

The following morning the electricians, Jamie and Josh arrived to do the pre-wire before I lined the interior. Before they began I showed Jamie where I wanted all the lights placed and where I wanted sockets and switches, marking on the framing with my pencil so I could remember. He then asked which switches controlled which spaces and which were separate circuit and which were combined. Although it should not have, this threw me. Thinking it through logically, I suggested the switch at the entrance should be able to control all the separate circuits besides the bedroom lights. There should definitely be a switch for the kitchen, at the opposite wall in the kitchen, and the pendant in the kitchen should be able to be on without the over bench light. This problem solving, I enjoyed as it allowed me to visualise a person, my mum even, living in the space. Moving past the design and into the reality was something I had never properly experienced, or truly envisioned experiencing. Kartsen Harries wrote "...architecture is on the one hand a product of human activity while on the other its helps to create the environment which gives shape to man's activities"¹⁶¹. However, this interaction was the first time I would be able to *actually* experience the latter.

The next question to do with batteries for the solar panels and switchboards were not so poetic and required me to consult my notes. Never the less the electricians got on with it whilst I, not able to carry out any of the small tasks I had to do in the same space, looked into the preparations my sister would need to begin to undertake to park the house.

Fig/100 New electrical plan

CONTINGENCY

But first, I had to ensure she and my client had decided on a '*parking spot*'¹⁶². Her response was, "Well what do you think?". I proceeded to call my client who expanded, "somewhere next to the veggie patch but do you have any ideas? They have some ideas about moving the driveway and then building another shed by the sheep...". These back-and-forth, non-committal conversations spanned the next few weeks. Till wrote "one might think that an abstract world can be ordered, beautified, and perfected, but in the end the real will come back to bite you"¹⁶³. Leaving Wellington towing a 'tiny house' and having nowhere to park it was something I definitely did not want to be bitten by, so I ensured we did this with plenty of time to spare. It seemed one needed to be proficient not so much with predicting these sorts of user focused aspects of architecture, but accounting for, and embracing them. Although ideally this process would not have taken so long, the conversation of the driveway, the sheep and trees all allowed for a further potential for the space. At some point though we had to make a concrete decision and prepare the ground for the dwelling's arrival. I received video walk thoughts, my client set up markers, we called, we sent photo and eventually we decided the dwelling would sit angled -15° of North, with its closest corner to the main house three meters from the tree line.

The next step was to arrange for the site to be prepared. To understand what would need to be done and advise both my client and sister I phoned a selection of 'tiny house manufacturers'. I received varying responses between very little preparation, and major earthworks, however overall it was suggested that the site would at least need to be levelled, scraping off the top soil, and placing down some kind of hardfill. The significance of the material world within the discussion of architecture, memory and place is decisive¹⁶⁴. However, the material in respect to the transient architecture of the 'tiny house' is also transient, or at least suspect to change. The movable architecture cannot be dictated or influenced by site.

I suggested we hire a digger and driver locally to do the work, something she should perhaps enquire about. She responded with "well how much will it be?". I said I had no idea and that she should just call around to get an idea, *a skill I had grown accustomed throughout the build*. "Actually, do you think it would be cheaper to hire a digger and get a friend to do it?" she pursued.

At what point was the responsibility of this project given over? Where was the line? I reasoned that it was my sister's boundary line and that this coordination lay with her, or at least, not me. The following day I received a message; "in classic Ōkato fashion neither company answered their phone. I left messages" followed by, "managed to talk to someone who will have a look and do a quote". Do they not realise it is an actual thing now and cannot, *not* be 'parked'?

Fig/101 Drawings discussing placement

MATERIAL ARRIVAL

The following week I received a message affirming that the cedar had *finally* arrived at the depot. I made arrangements to pick it up promptly. This was the same day the plumbers Rodger and Tim, had agreed to fit out the bathroom and kitchen. I met them in the early morning, talked over what needed to be done. Adamant that no I would not need a toilet plumbed out “just in case” my client changed her mind about composting toilets. I instructed them on the placement for the vanity, shower and kitchen sink and where to place the pipes to the gas infinity, gave them my number and left them to it.

Because of its length, the cedar delivery would not fit on a standard Ute so I had to use a tipper truck, (otherwise known as the biggest truck you can legally drive on a standard car license). Arriving at the yard, I was met with confusion: small girl, big truck, something that for one reason or another is not often encountered. It felt monumental and slightly surreal to be collecting the materials I had waited almost three months for. Having given the collection details to a yard worker, (who looked slightly confused at to where it was and why the date was from so long ago). I waited as he trawled down isles of packets of timber before reappearing looking pleased. “Here it is!” he said, dropping off a much smaller packet than I would have guessed. Not intending to go home without *everything* I had ordered I questioned: “really? The 40X18 J101 battens, the bandsaw (BSF) faced shiplap, the 130X18 fascia board and the 90X18 box corners boards? I ordered almost 300 lineal meters of material”. “yes yes, see here, this is your order number, it says one packet so its all in here” he tried again pointing to the plastic wrapped packet. Conflicted by the inclination not to be pushy, and the desire to have materials to work with the following day, I asked if we could have a look to check. Cutting into the plastic it was obvious this packet was only the vertical shiplap. “Ah, sorry, yes, I will try and find the rest”. Unsure of how long it would take I began researching composting toilets and vinyl for the bathroom. After approximately 35 minutes a much larger, much longer packet of timber came around the corner on a forklift. Success? We cut into it again to check, Fascia, check. Box corner board, check. Battens, dressed rather than bandsawn. I decided the error, although annoying, would not distract me from leaving with it.

Stropping down the load, I thanked the men who had helped me and slowly drive home to drop it off. By this time, the day was almost over, and, although I had indeed had a huge win, I felt as though all I had done was prod, and question people and sit in a car. To counter this feeling, I examined what the plumbers had done. Whilst I was absent, they had fully plumbed everything extremely cleanly giving life to the frames of the walls. I returned to staining battens, which was a job I needed to do, but relatively less involved than other tasks. A new skill I had learnt the hard way, (never start a complicated or elongated job at five o'clock in the evening).

Fig//102 Plumbing diagram

Fig//103 Plumbing

Fig/104 Unwrapping + using material

FLASHINGS

The week prior, Solomon and I had worked out the flashings we still needed to order. Apron flashings, barge capping and head flashings. I found this overwhelming as I worked through each detail whilst Solomon explained each rule and its corresponding angle, depth or width. However, once ordered, they arrived only a few days before the cedar. Picking them up I was instructed on how to carry the flashings without irreversibly warping them and was surprised at how heavy they were. Or rather, aware of the fact that I had never particularly considered the weight of a flashing. Using snips, we trimmed the flashings to suit each window and door and, similarly to the sill flashings, and secured with clout nails inside and outside.

Fig/105 Working out flashings

Fig//106 *Flashing roof intersects*

MATERIAL APPLICATION + INSULATION

With the flashings and staining done, and the flatness of the ply faced Starboard and Port faces beginning to become overwhelmingly imposing, the application of facia and box corner boarding began. I secured the last of the vertical shiplap boards I had not been able to complete almost three months ago. Finally, no builders wrap was exposed and all faces had a relationship with one another. The diversity between the short and longer sides becoming immediately apparent. Lastly the battens were secured with brads before carefully nailing them off every 400mm with bronze rose head nails. This allowed not only both faces a depth, but also a verticality similar to the shiplap clad faces.

With the envelope finally complete, the insulation could be installed. Originally, I had discussed using a foam insulation which is slightly lighter than traditional insulation. However, as one of the *sparkie*'s warned, most foam insulation was not fire rated for the kind of wire they used. Therefore, after researching, and weighting up the cost, time and weight of 'fire rated foam board', I decided to browse the local hardware shop to see just how much heavier the insulation would be if I did not order it elsewhere. By chance, I spotted a 'special' board with ceiling and wall insulation rolls made of recycled glass which was only 7.5 kilograms per roll. I quickly approximated the area of insulation I would need and arrived at the conclusion that I would need a maximum of four rolls for the walls and ceiling. Although I had not yet calculated the weight of the structure I knew that the difference between 30 kilograms and 20 kilograms would not hinder the overall weight significantly enough not to buy this. Before leaving, I also bought more staples and a roll of strapping that I would use to secure the insulation in the ceiling.

Knife, measuring tape and metal ruler in hand I was ready to begin. The marble coloured roll felt soft to the touch but quickly became itchy and impossible to wipe off as I progressed. Although time consuming, ultimately the task was straightforward and visually rewarding. I roll out the insulation before slicing through its thickness with the satisfaction of wet sand, into rectangles and squares of varying sizes and slotting them into place. With the offcuts I would slice and squeeze them into awkward places so that every space was filled.

Fig/107 Before and after insulation

FLESHING OUT WEIGHT

To complete (or not complete) the next phase of the build I needed to know how heavy the 'tiny house' was and formulate a method of determining the overall weight of the structure so far. A job I had been putting off. To ensure absolutely everything was calculated I diagrammed the structure and, beginning at the roof, worked my way through until I reached the trailer at the bottom.

I measured all of the various lengths of timber that made up the frame, all the 3X2, LVL etc. I then calculated the areas of the plywood floor, plywood roof and exterior cladding (ensuring I distinguished between 12mm plywood, 19mm plywood, cedar faced plywood and the shiplap). Next, I measured the fascia, box corners and battens as all have differing dimensions. Finally, I measured the flashings before weighing each material to work out its kilogram per meter (kg/m) or kilogram per square meter (kg/sqm). Other aspects of the structure such as the insulation, shingles, skylight, joinery and trailer I worked out previously. Once all the weights were noted, all I had to do was multiply each material's lineal or square meterage by its kg/m or kg/sqm. Although this process indeed took the good part of a day, in short, the final calculation came to approximately 1791.56 kilograms. Which, although for many calculations I in fact rounded up, allows the structure to be well within the 3.5 tonne restriction. Calculating this not only helped me sleep that night, as I had been told by a few people that it would never be light enough using a timber frame, but also allowed me to progress with plans for lining and moving the dwelling. The added stress the weight of a movable structure carries, bears no issue within traditional architecture. The ground is stable, the foundations carry that weight, however essentially the 'tiny house' structure is left to fend for itself and hold itself up.

MOVING DAY

With small sections on the roof needing to be touched up and a few additions to make in places we could not reach, we decided to move the structure before its final completion. A generous friend Niall suggested we moved it to his workshop in town and suggested we use his Ute to do it. The following day we (Solomon, Niall and I) assembled on *site* and began working out a strategy for driving it off. Confident that the trailer would not break under the weight, because of my previous calculations, the main issue was the angle at which the structure would be at when driving onto the road.

Because of this we decided it would need some kind of ramp to level it, enabling a straighter drive up the hill and into town. Somewhat concerned with the whole structure tipping downhill and colliding with the road, I began to empty the structure of everything not screwed, nailed or bolted down, whilst Solomon and Niall bought framing and thick plywood. We then framed out a ramp which essentially substituted the severely steep angle of the car-port floor for a moderate angle that would decrease the angle at which the structure would be taken off at. The frame of the ramp was then bolted into the concrete of the road and car-port to ensure it did not twist and fall away under the pressure of the weight.

After screwing down the sheets of plywood and feeling as confident as we could, we began to shift the trailer by hand into position (it was on the far-left hand side of the car-port whereas for a straight line it had to be on the right). Once in position we devised a plan, “okay so I’ll stop traffic and then follow you guys to the workshop?” I suggested. “Can I drive!?” Niall piped up, which of course Solomon and I agreed to because not only was it his Ute, there was no way we wanted to be in charge of that. Without anything else to talk about it was time to attempt this terrifying undertaking. “If this works, dinners on me” I said, feeling as though this ten-month process could all be over in less than ten seconds. “*If* this works? You mean *when* this works” Niall said with the confidence I could not find. Till wrote that “...the metaphor of architecture as a stable authority is powerful, as to make one believe that it is also the reality of architecture”¹⁶⁵. But at this moment, there was no chance of believing that metaphor.

In position, Niall in the driver’s seat, Solomon behind the trailer, and I on the road, we proceeded, very slowly to move the trailer. From my vantage point I could quite clearly see the angle at which the structure was at and, although indeed it was not flat, I could have been worse. Slowly and with much effort and noise from the Ute, the structure began to be pulled off the car-port and up the road.

I couldn’t believe it had worked.

CONCLUSION

Concluding 'On Adams House in Paradise' Joseph Rykwert wrote:

"...in the present rethinking of why we build and what we build for, the primitive hut will, I suggest, retain its validity as a reminder of the original and therefore essential meaning of all building for people: that is, of architecture"¹⁶⁶.

The primitive hut carries with its memory the fundamental notion of people. Built architecture is for people. Throughout this research my fundamental concern and thus experience has been attributed with the primal needs of people in all senses.

The 'tiny house' /small-scale architecture blurs the line between object and architecture. It could be argued these elements of architectural language occupy a different realm to that of architectural space, an 'anti-architecture', or that they disregard the role of the architect. However, the 'tiny house' addresses all the same issues as architecture. Although not physical, the 'tiny house' maintains the ability to ground the user and relate to site, it is simply a transient, or changeable relation. I believe the 'tiny house' offers an mode of considering architecture that

This thesis has aimed simply to explore what by own body can do and what knowledge (architectural or other) this develops. Although perhaps unconventional, the act of learning by making allowed real time decisions to be made and alternative routes of problem solving and finding to be sought. The ability to do this consequently allowed me to develop fundamentally unpredictable solutions. Although this process was not smooth (in all senses of the word), the encountered imperfections allowed me as a maker/designer to gain a direct experience and consequentially, knowledge of that particular task/decision/sequence. Similar to the concept of 'prehension' discussed earlier, the process, rather than linear was circular and thus reflective¹⁶⁷. The development of this process would enable the establishment a sequence

Letting go of control is something which arguably architects do not do often. However, in conducting this research, I was in a constant state of uncontrollable control. Perhaps unintentionally conceived as organised chaos? The build itself once physically visible, was able to evolve and divulge from my preconceived notions of the project; simply framing up allowed a different perspective and consequential different opinion of the architecture to be posed. To look at something outside of one's head at a scale of 1:1 is something I found not only empowering, but also exceptionally conducive for further design work in the sense that both unknown problems and solutions could arise. For example, the ability to stand within the kitchen and consider the roof angle, before reducing it enabled an omittance of preconception. Problems could be solved impartially.

I found through the development of my own hands' movement, a greater knowledge and understanding of architecture was developed. Not simply *how to build a building*, but fundamentally I was able to *consider* the architecture. Recognise the weight of material, the implication of 10mm and 5mm, acknowledge the very real aspect of space, the list continues⁴⁸. This experience I believe can be found not solely in *building a building*, but through an experiential understanding of craft. This could be through sculpture, painting, pottery etc. it is simply the ability to have a tactile relationship within making. In conclusion the ability that physical making allows in gaining tactile knowledge and understanding has a multitude of benefits within architectural practice. Rykwert said "...a "primitive" who's humble ways, whose daily contact with the soil, with animals, guaranteed him a more instinctive, a "truer" view of things"⁴⁹. It is this acknowledgement which I believe architecture can embrace further.

THINGS I LEARN'T

THINGS I HAVE LEARN'T

IN NO PARTICULAR ORDER. &

+ BEING BODY TIRED BECAUSE OF MANUAL LABOUR IS REWARDING
+ COMPARTMENTALISE.

+ HOW TO FIX A NAIL GUN + BRADA

+ THE WEIGHT OF ¹⁰⁰⁰ PLYWOOD SHEETS ARE AN AWKWARD SIZE TO CARRY ALONE.

+ THE DIFFERENCE BETWEEN A GOOD PAINT GUN & BAD ONE

+ AIM FOR THE NAIL! + GET A RHYTHM.

+ SATISFYING DRIVING 10MM NAIL INTO TIMBER (BT HAND OR NAIL GUN).

+ TIMBER GRADING.

+ LABOUR TAKES TIME.

+ WHEN PUTTING IN DWANGS - SKEW 3 NAILS INTO THE BOTTOM + 2 INTO THE TOP.

+ SOMETIMES ITS USEFUL TO BE RUSHY.

+ 'JACK STUD' THE NAME FOR THE LVL WHICH IS THE LINTEL

+ DRILL BITS!! THERE ARE DIFFERENT DRILL BITS DEPENDING ON WHAT YOU ARE DRILLING THROUGH.

+ THE SAFE WAY TO RIP A PIECE OF 4X2 TO 3X2.

+ THE VISUAL DIFFERENCE BETWEEN STAINLESS STEEL & GALVANISED.

+ HOW TO APPLY SHIPLIFT WEATHER BOARD

+ START WITH SOMETHING YOU KNOW HOW TO DO - IT WILL MAKE

+ ONE PART IN FRONT OF THE OTHER

+ HOW TO FLASH A WINDOW GETS THINGS DONE

+ EVEN SIMPLE THINGS GET COMPLEX WHEN YOU TRY TO BUILD THEM.

+ START A NEW TASK ON A NEW DAY

+ ALWAYS BE AWARE OF WHAT COULD GO WRONG TO ~~REDUCE~~ REDUCE

THE FACT IT MIGHT

+ SOME DECISIONS TAKE TIME (BUT) SOME SHOULD NOT.

+ CUTTING STRAIGHT IS EASIER SAID THAN DONE.

+ THINGS CAN CHANGE

+ VISUAL PROGRESS IS AN ELIXIR.

+ WEAR GLOVES WHILE HANDLING SHINGLES - THEIR SPLINTERS ARE BAD FOR YOU.

+ WEAR GLOVES WHILE STAINING - ALSO BAD FOR YOU.

+ PRACTICE MIGHT NOT MAKE PERFECT BUT IT DOES MAKE BETTER

+ MEASURE TWICE.

+ ALWAYS LEAVE LOTS OF TIME.

+ NEVER MEASURE ~~AND~~ MULTIPLE THINGS AT ONCE ON THE SAME
PIECE OF TIMBER - THE DROP SAW ALWAYS STEALS SOME MM.

YOU FEEL GOOD!

+ BEING BODY TIRED BECAUSE OF MANUAL LABOUR IS REWARDING
+ COMPARTMENTALISE.

+ HOW TO FIX A NAIL GUN. + BRADA

+ THE WEIGHT OF COPPER
+ PLYWOOD SHEETS ARE AN AWKWARD SIZE TO CARRY ALONE.

+ THE DIFFERENCE BETWEEN A GOOD PAINT BRUSH & BAD ONE

+ AIM FOR THE NAIL! + GET A RHYTHM.

+ SATISFYING DRIVING 30MM NAIL INTO TIMBER (BY HAND OR
NAIL GUN).

+ TIMBER GRADING.

+ LABOUR TAKES TIME.

+ WHEN PUTTING IN DWANGS - SKEW 8 NAILS INTO THE BOTTOM +
2 INTO THE TOP. →

+ SOMETIMES ITS USEFUL TO BE RUSHY.

+ 'JACK STUD' THE NAME FOR THE LVL WHICH IS THE LINTEL

+ DRILL BITS!! THERE ARE DIFFERENT DRILL BITS DEPENDING ON WHAT
YOU ARE DRILLING THROUGH.

+ THE SAFE WAY TO RIP A PEICE OF 4X2 TO 3X2.

+ THE VISUAL DIFFERENCE BETWEEN STAINLESS STEEL & GALVANISED.

+ HOW TO APPLY SHIPLAP WEATHER BOARD

+ START WITH SOMETHING YOU KNOW HOW TO DO - IT WILL MAKE

+ ONE FOOT

YOU FEEL GOOD!

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get reference for the book!!

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73 *Progression of site*

74 Diagram of roof change

75 Lost window

76 Proportions of Starboard face diagram

77 Frames up

78 View out at 'sink'

79 Diagram of frames + spaces (opposite)

80 View of 'Bow' face

81 Diagram of roof framing

82 Progress - ridge beam and rafters

83 Caves, huts + tents - taken from 'Shelter'

84 Shadows of framing

85 Priming the plywood

86 Diagram of roofing

87 The first rain the roof held off (the afternoon before the storm)

88. Calculating material quantities

89 Original electrical plan

90 Picking up the shingles

91 Stained shingles drying

92 Kerry helping stain shingles

93 Diagram of roof sequence

94 Solomon + Tom applying shingles

95 Inserted dwangs

96 Diagram of 'block' trick

97 Progression of cladding stain

98. Various notation on 'site

99 Tool used to apply contract filler

100 New electrical plan

101 Drawings discussing placement

102 Plumbing diagram

103 Plumbing

104 Unwrapping + using material

105 Working out flashings

106 Flashing roof intersects

107. Before and after insulation

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