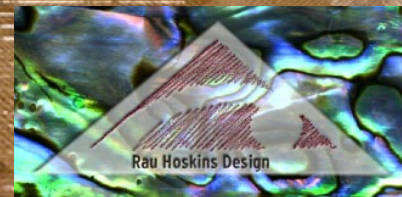


Ki te Hau Kainga

New Perspectives on Māori Housing Solutions

A Design Guide prepared for
Housing New Zealand Corporation



Rau Hoskins, Rihī Te Nana, Peter Rhodes,
Philip Guy, Chris Sage

August 2002

rau@designtribe.co.nz



“He tangata i akona ki te kainga, tunga ki te marae, tau ana”

A person trained at home will stand on the Marae with dignity

ACKNOWLEDGEMENTS

He mihi kau ana ki a koutou katoa i tautoko mai i tenei mahi rangahau “Ki te Hau Kainga.” Na tenei rangahau kua mohio tatou katoa ki etahi o nga hua o tenei kaupapa.

No reira tena koutou katoa.

The researchers would like to thank everyone who has contributed to the compilation of this report. In particular we would like to thank:

Reference Group Members:

Haare Tukariri, Hokimate Williams, Wayne Knox, Josephine Parahi, Moana Pohe, Sam Paniora, Moeawa and George Masina, James Webster, Devianne Hall

Peer Reviewers:

George Clarke, Anthony Ward, Maurits Kelderman, Robert Vale, James Webster.

Housing New Zealand Corporation:

Logan Rodda, John Tocker, Lucy Ullrich



*Cover image: Stevens House, Lake Tarawera, 2000
Architect: Fred Stevens, Photo: Patrick Reynolds*

GLOSSARY OF MAORI WORDS

Hui	Formal meeting
Kaimoana	Seafood
Kaumatua	Elder, elderly person
Ki te Hau Kainga	To return to, or aspire to one's true home
Mahau	Porch
Manuhiri	Visitor
Noa	Profane, common
Papakainga	Communally owned Māori land block or village
Papatuanuku	Earth Mother
Tamariki	Children
Tangihanga	Funeral
Tapu	Sacred, prohibited
Tupuna	Ancestor
Whanau	Family - generally extended
Whare paku	Toilet
Whare tapiri	Connected bedroom wing or sleepout



Contact Period Papakainga:
Te Pa o Titari - Taiaimai, Bay of Islands, 1841



Post Contact Papakainga: Parihaka 1880's

TABLE OF CONTENTS

1.0	Proposed Housing Patterns	4	3.08	Mezzanine Multi-Purpose Area	12
1.01	New Māori Housing Solutions	4	3.09	Kitchen And Whanau Dining	13
1.02	Papakainga Development	5	3.10	Outdoor Kitchen And Dining	13
2.0	General Planning Principles.....	7	3.11	Whare Tapiri and Connected Wings	14
2.01	Siting Of Dwellings and Living Environments	7	3.12	Bathrooms	15
2.03	Communal Orientation	7	3.13	Whare Paku and Toilet Facilities	15
2.02	Master Planning	7	3.14	Hallways	15
2.04	Flexibility	8	3.15	Back Porch and Carport	15
2.05	Manuhiri Zones	8	3.16	Laundry and Linen Cupboards	15
2.06	Indoor and Outdoor Flow	8	3.17	Tamariki and Young Children	16
2.07	Tapu and Noa and Cultural Sensitivities	9	3.18	Teenagers	16
2.08	Tapu and Noa Planning Matrix	9	3.19	Kaumatua	16
3.0	Specific Design Issues.....	10	3.20	Fencing and Privacy	17
3.01	Entry and Street Presence	10	3.21	Food Gardens and Permaculture	17
3.02	Mahau - Indoor and Outdoor Zone	10	3.22	Energy Efficient Design	18
3.03	Living and Whanau Room	11	3.23	Materials	18
3.04	Manuhiri and Tangihanga	11	4.0	Design Concepts	20
3.05	Fire Safety	11	4.01	Design Concept # 1 Whanau Whare With Whare Tapiri	19
3.06	Marae Style Sleeping	11	4.02	Design Concept # 2 - Extended Whanau Whare	20
3.07	Bedrooms	12	4.03	Existing Dwellings	21
			4.04	Case Study - Auckland Extension	21



1930's shanty



Marae-based Papakainga: Mourea, Rotoiti 1953



Stevens House, Lake Tarawera, 2000
Architect: Fred Stevens

1 PROPOSED HOUSING PATTERNS

1.01 NEW MĀORI HOUSING SOLUTIONS

New housing solutions tailored to the specific needs of Māori communities are fundamental to Māori social, cultural and economic aspirations of the 21st century. The following housing patterns are considered the most appropriate options for Māori housing solutions:

- **Urban / suburban whanau houses** - individual houses which are planned to allow for the range of cultural and social dynamics within urban Māori society.
- **Urban / suburban Papakainga** - infill or new housing developments with shared communal facilities while preserving the privacy of individual dwellings.



Mangatangi Marae development - group design sessions using a scale model as a design and communication tool

- **Rural whanau houses** - multiple buildings on larger planned sites catering for extended rural Māori whanau.
- **Rural Papakainga** - new or redeveloped Papakainga sites which provide appropriate design solutions for rural environments.

In all cases, it is essential that Māori housing solutions are conceived, planned and delivered with the Māori community.

Where necessary, masterplan the long-term development of key amenities within or adjoining the development site.

Designers should be skilled in cultural and community design processes. The use of physical models is highly recommended for facilitated community design workshops.



Earthsong eco neighbourhood, Ranui, Waitakere City
<http://www.cohousing.pl.net>



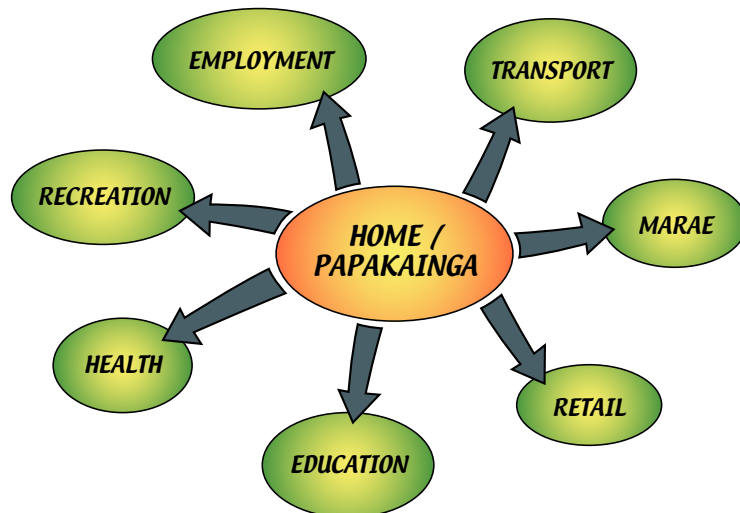
1.02 PAPAKAINGA DEVELOPMENT

Look Local

When planning rural Māori housing developments, use as many local physical and skill resources as possible. Make an inventory of local skill and physical resources at the outset of each project.

Location

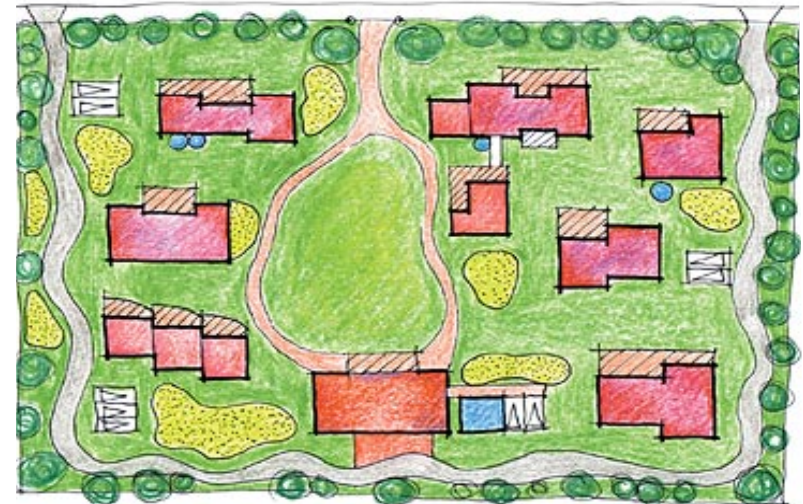
Access to transport, educational, retail, health, employment, recreational, cultural and whanau support systems must be considered.



Papakainga must be developed with a wide focus on whanau, hapu and iwi requirements.

Māori housing must be developed as an integral part of a holistic approach to Māori economic, cultural, educational, social and environmental development.

In keeping with historical precedents, Māori whanau generally prefer low density residential developments which allow for good opportunities for outdoor living, communal gatherings, gardens and tamariki play space.



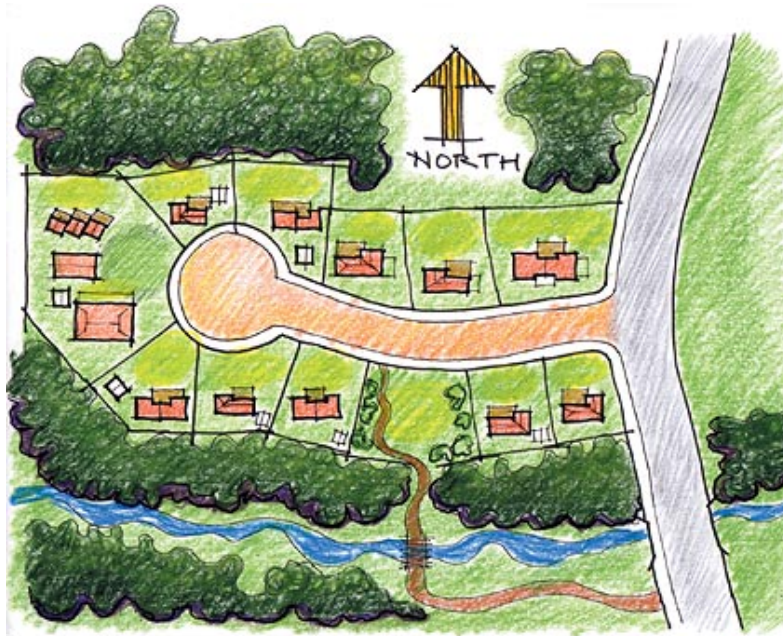
Suburban Papakainga - incorporating a variety of home sizes and types with a focal communal building and common space.

1 PROPOSED HOUSING PATTERNS

Cul-de-sac Papakainga

Though perhaps not appropriate in highly urbanised environments, the stable nature of the cul-de-sac street layout encourages positive support systems, security and a strong sense of community.

The cul-de-sac Papakainga, with up to 20 homes, has the potential to encourage social stability, whanau and community support for Māori housing developments.



Cul-de-sac Papakainga showing Marae facilities to the far left and a central reserve area. Note that all houses have large north-facing outdoor areas

The recommended process to follow when embarking on a Papakainga design on rural Māori land is set out in the Rural Section of the Development Guide.



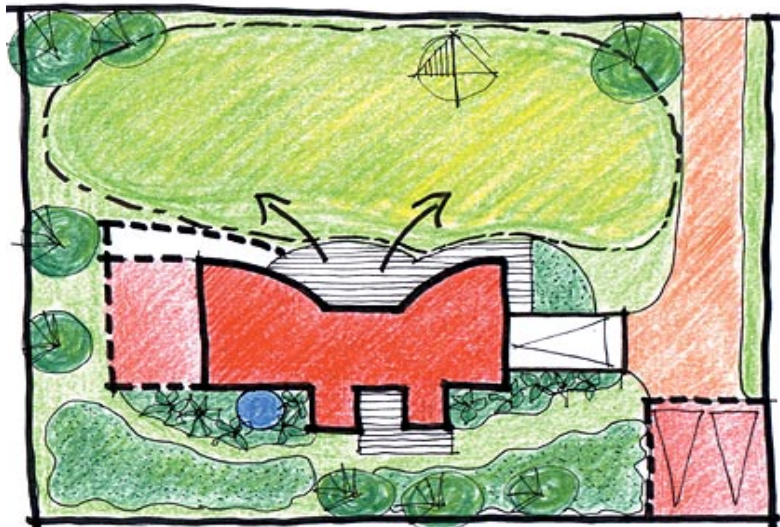
Mokai Marae Papakainga Proposal - including 28 whanau homes, 2 restored historic homes, communal administration centre, communal laundry and safe pedestrian network

2 GENERAL PLANNING PRINCIPLES

2.01 SITING OF DWELLINGS/LIVING ENVIRONMENTS

Generally the following rules apply:

- the length of building is oriented to the north.
- maximum open, accessible space to the north of the site.
- dwellings to have grounded and accessible connection to the site.
- outdoor living spaces to be sheltered from prevailing and cold winds.
- master planning to allow for extensions and additional dwelling buildings.



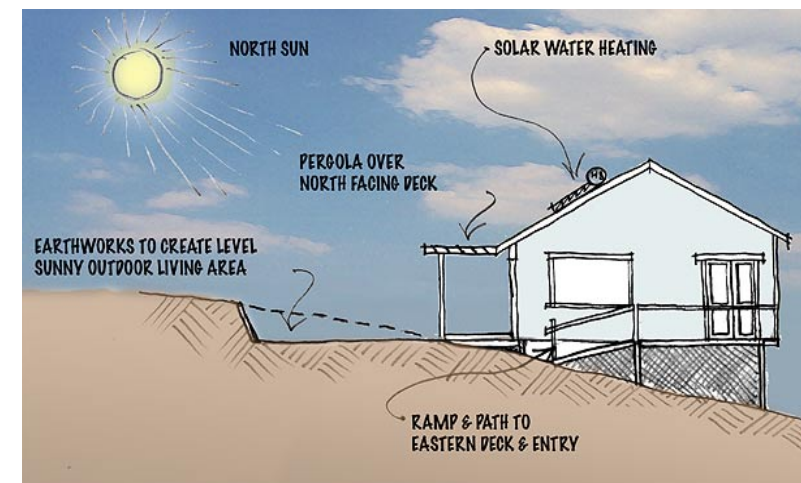
Sample sketch plan of single dwelling showing water tank and private garden to the rear, and garage and extra living area shown hatched

2.02 MASTER PLANNING

Positioning of the house on the site should be carefully considered and allow for future modifications, extensions and additional buildings such as a garage, wing addition or kaumatua flat, to accommodate the changing needs of Māori whanau.

2.03 COMMUNAL ORIENTATION

The siting of whanau houses need to acknowledge communal spaces and other buildings within the same papakainga. This also enhances the security of these communal spaces and allows easy supervision of children.



Sketch showing methods to deal with sloping and south-facing sites

2 GENERAL PLANNING PRINCIPLES

2.04 FLEXIBILITY

Houses designed for Māori whanau need to be flexible to adapt to residents' changing needs and fluctuating occupancies. The most efficient approach is to ensure that bedrooms are generously sized, allowing for greater occupancies when required. A removable wall between the living room and bedroom can also be desirable. A sleepout or connected wing is also an option.

2.05 MANUHIRI ZONES

Providing space within the home for young children and teenagers is important. Designing spaces that can be closed off from each other yet maintaining easy access to toilet facilities will ensure that tamariki can continue their activities during adult occasions.

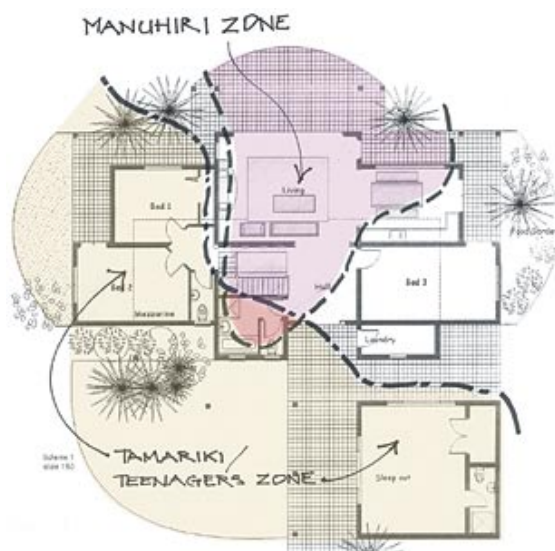


Diagram showing zones for manuhiri and tamariki / teenagers
Careful planning will allow for separate uses to occur simultaneously

2.06 INDOOR / OUTDOOR FLOW

Providing an indoor/outdoor living environment relieves pressure on internal areas and promotes healthy living. This can be created by providing concrete slab floors on grade or multiple decks to facilitate easy access to outdoor living areas.

Designs need to consider cultural practices. They should have open plan communal spaces which have simple, efficient access between kitchen, dining and living spaces. Larger open plan living areas increase the feeling of space and provide for greater flexibility of use as well as catering for larger whanau gatherings.



Māori Housing Design Concept showing an indoor / outdoor dining area with a timber pergola and clear roofing

2.07 TAPU AND NOA / CULTURAL SENSITIVITIES

In Māori society, certain household functions must be kept separate from others in order to preserve their tapu or noa nature. For example, all food related facilities must be separate from bathrooms, toilets and laundries.

Providing discrete entry points to various parts of the house (especially toilets) is important and can allow for plumbing services to be located in the same general area of the house.

Other functions have degrees of tapu and noa attached to them which also affect their desirable location within a dwelling as described by the following Table.

A cross represents a conflict between two functions and a tick represents a desirable relationship. The wave represents a neutral relationship.

Careful planning with due regard to issues of tapu and noa will ensure that Māori cultural practices are facilitated and maintained.

Tapu = Sacred or prohibited

Noa = Common or profane

2.08 TAPU AND NOA PLANNING MATRIX

	MAIN ENTRY	LAUNDRY	TOILET	BATHROOM	LIVING RM	DINING RM	KITCHEN
BEDROOM	✗	~	~	~	~	✗	✗
KITCHEN	~	✗	✗	✗	✓	✓	
DINING RM	~	✗	✗	✗	✓		
LIVING RM	✓	✗	✗	✗			
BATHROOM	✗	~	✗				
TOILET	✗	✗					
LAUNDRY	✗						

Table of Tapu and Noa relationships for various spaces in a house

3 SPECIFIC DESIGN ISSUES

3.01 ENTRY / STREET PRESENCE

The entries to Māori houses should be obvious, welcoming and with front and back entries clearly articulated. This will assist in positive interactions with manuhiri.

Where possible, the entry should be on the north side as this allows the occupants to monitor the arrival of visitors from the kitchen, dining or living areas. A large porch or verandah allows interaction with manuhiri before they enter the house.

If the entry is on the south side, the refuse, recycling and storage areas usually situated on this side of the house need to be screened from view.



*Outdoor covered area as welcoming entry and sunny outdoor dining area.
Pattison House - Architect: John Scott*

3.02 MAHAU - INDOOR / OUTDOOR ZONE

Verandahs, porches, patios and decks are key elements of Māori houses and provide essential transitional indoor/outdoor zones, connection to Papatuanuku and relieve pressure on internal spaces.

A north facing entry verandah directly off the living and dining areas can provide for a good welcoming/outdoor dining space.



*Traditional use of the mahau,
Ngati Haua - Matamata*

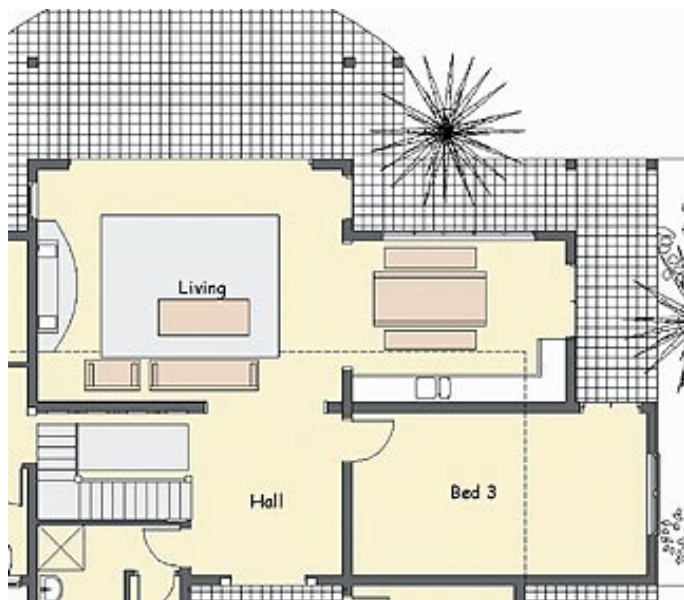


*Auckland Pilot Māori Housing Development,
Otara, August 2002*

3.03 LIVING / WHANAU ROOM

The living room is the heart of the Māori house and can be likened to a marae wharehui (meeting house), where visitors are received, welcomed and sleep, where meetings and celebrations are held, and sometimes where a tupapaku (deceased family member) will lie.

A passive solar or active slab heating system could be used to heat these large living spaces. Floor and wall surfaces need to be durable and easily cleaned. Timber or coloured concrete floors with carpet squares are suitable. The living room needs to be large enough (5m x 6m approximately) to accommodate a whanau gathering of up to 20 people.



A large living area with good north facing openings that act as a main entry as well as allowing for passive solar gain.

3.04 MANUHIRI / TANGIHANGA

A large or second living space, or a well equipped large garage provides space to accommodate the extra people in the home during a tangi.

It is also important for the kitchen to be able to be closed off from the main tangi activity.

3.05 FIRE SAFETY

- Ensure smoke detectors are installed in all new dwellings.
- Ensure multiple exit points from dwellings with large windows and french doors off communal sleeping areas.
- Avoid using materials and furnishings which give off toxic fumes in fires.

3.06 MARAE STYLE SLEEPING

Most Māori whanau accommodate manuhiri by converting the living room into a marae style sleeping area. This area should be large, warm, well ventilated with convenient access to toilet facilities.

If the main living area is used as a marae style sleeping area, a second living space is important in allowing younger members of the household to have some privacy. Such a secondary living space can also double as a spare bedroom for long term whanau stays.

3 SPECIFIC DESIGN ISSUES

3.07 BEDROOMS

Bedrooms need to be large enough to accommodate two or more children or two adults, and allow space to study.

The maximum number of bedrooms is largely determined by site constraints. In most cases, a single dwelling would have a maximum of five bedrooms. If further bedrooms are needed, they could be accommodated in a semi-detached sleepout with covered access to the house and toilet facilities.

While the number of bedrooms in whanau houses will vary, Kaumatua flats need two bedrooms so that a grandchild or caregiver can live in.

It is important for ground-level bedrooms in larger whanau homes to have large windows or french doors to allow for easy egress.

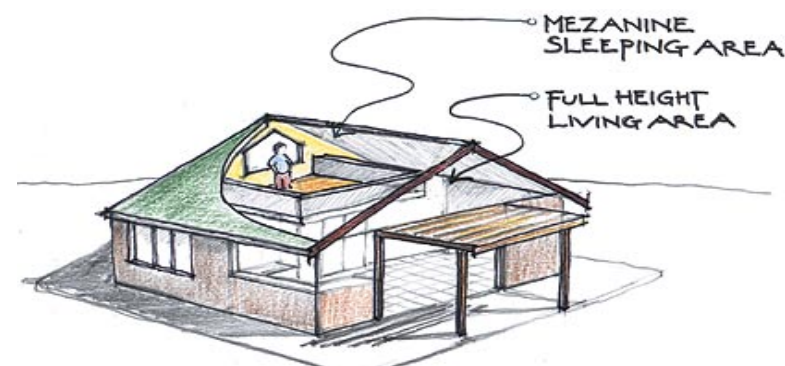


*Marae style sleeping / hui -
Hoani Waititi Marae*



3.08 MEZZANINE MULTI- PURPOSE AREA

Mezzanines in the roof space over services areas can have multiple uses such as marae style sleeping, dormitory sleeping for older children, office space or as a secondary living area.



*Cutaway showing mezzanine floor located above services areas and
looking down into living area*



Mezzanine in use for marae-style sleeping area

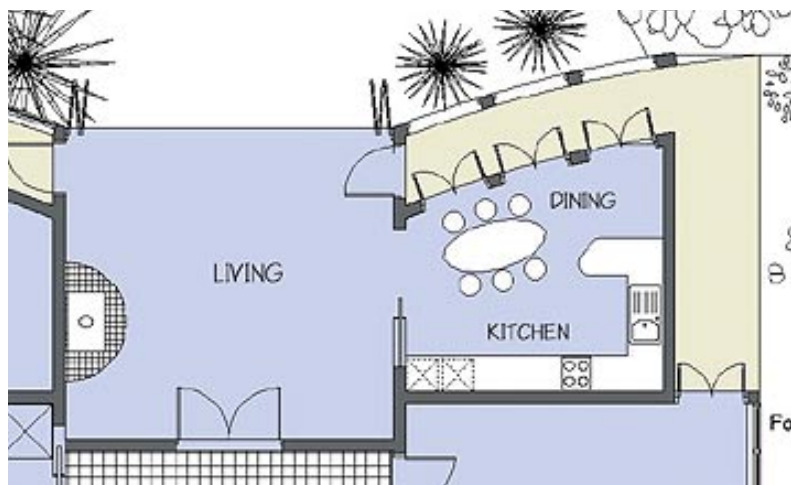
3.09 KITCHEN AND WHANAU DINING

Kitchens need to comfortably accommodate two or more people (especially when catering for gatherings). It is also important to be able to monitor children playing both inside and outside, from the kitchen.

Kitchen storage needs to allow for bulk foods and large pots.

A dining area is as an important social space. It needs to be large and connected to both the kitchen and lounge.

The dining room table is the nerve center for the house and needs to provide good visual access to both indoor and outdoor play areas.



Use of a cavity slider to separate Kitchen/dining and living areas

3.10 OUTDOOR KITCHEN AND DINING

Outdoor cooking and dining are part of Māori cultural heritage.

Outdoor food preparation, cooking and dining can be provided for in covered porch or carport areas. A preparation bench and a large washing trough for kaimoana and potwashing are important.

Allow for a hangi and outdoor preparation areas in accordance with Local Territorial Authority requirements.



Calendula Cottage, Waiuku

3 SPECIFIC DESIGN ISSUES

3.11 WHARE TAPIRI / CONNECTED WINGS

The double garage has become a “cultural icon” for many Māori whanau because it provides a valuable additional multi-purpose space.

However detached sleeping accommodation should be purpose-designed. A simple connected bedroom wing (whare tapiri) with its own bathroom facilities and covered access to the house can accommodate visiting relatives or independent whanau members.

- Allow for future whare tapiri in the master plan.
- Use whare tapiri to screen and contain outdoor spaces.

- Whare tapiri need covered access to main dwellings and facilities.
- Particularly in urban areas, to maintain house security the connected wing must have internal access to the main building.
- Locate garages to the rear of sites.
- Damp Proof Course (DPC) and insulation should be installed under garage slabs as well as proper window joinery to allow for future lining of these spaces.



*HNZC Pilot Māori Housing Project - Blenheim -
A Tawhiri Architects design for a Māori whanau with seven children*



*Blenheim Whare - Sketch design showing small internally
connected wing to the west*

3.12 BATHROOMS

Bathrooms require a shower, preferably separate from the bath tub. Wet area showers are favoured as they are easier to clean and allow easy access for the elderly and disabled. Toilets with wash hand basins should be separate from bathrooms.

The hotwater system needs to be efficient with gas heating or solar water heating as favoured options.

In larger whanau homes, a semi detached ablution block (located off a back porch) is desirable because it can accommodate large numbers of children as well as manuhiri during gatherings.

3.13 WHARE PAKU / TOILET FACILITIES

Two toilets are needed in larger whanau houses. The preferred location for a second toilet is on the back porch area with easy access from both inside and outside.

3.14 HALLWAYS

Where appropriate, provide access halls along the warm side of the house to create heat sinks and positive spaces for children's play.

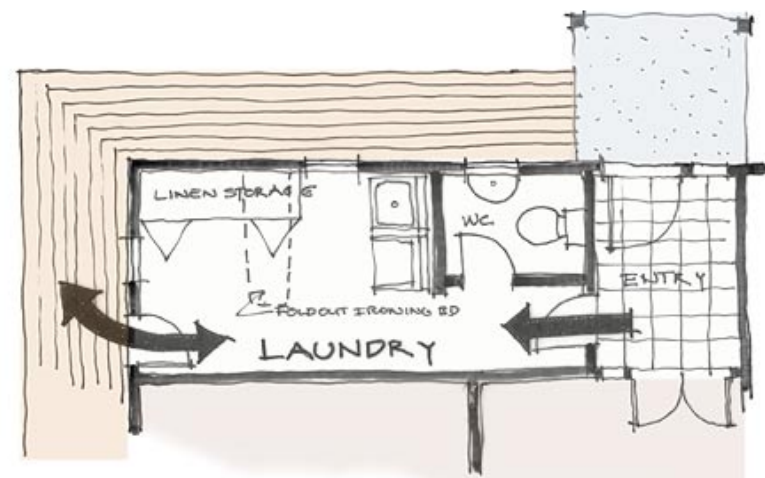
3.15 BACK PORCH / CARPORT

The rear carport or back porch can act as a multi-functional space for outdoor food preparation, as a drying place for clothes in wet weather, and as a link to a sleepout, laundry and/or bathroom.

3.16 LAUNDRY / LINEN CUPBOARDS

A separate well ventilated laundry room is preferred. It must be separate from the kitchen, and can be located off a back porch. The laundry is also suitable for storage of cleaning products, medicines on high level secure shelves.

Laundry and bathrooms should generally be kept separate. Linen cupboards in kitchens must be avoided - see Tapu - Noa Matrix



Laundry room with external and main entry access points

3 SPECIFIC DESIGN ISSUES

3.17 TAMARIKI / YOUNG CHILDREN

Young children require specific consideration in the design of Māori houses. It is important to:

- Ensure ease of indoor/outdoor flow with minimal level changes.
- Design kitchen and dining room to allow for the supervision of tamariki inside and outside.
- Provide multiple fire exits such as large low level windows or french doors in bedrooms and marae style sleeping areas.
- Provide covered outdoor space for wet weather play.
- Provide secure fencing so that tamariki can play safely within the section.
- Where possible provide communal play areas which are easily accessed and monitored by more than one whanau home.



3.18 TEENAGERS

- Provide private zones where teenagers can study.
- Ensure easy access to outside with security locks on windows.
- Allow for larger bedrooms.
- Allow for a second lounge area to which teenagers can retreat during whanau gatherings.

3.19 KAUMATUA

- Ensure ease of indoor/outdoor access with no steps.
- Allow for quiet semi-detached accommodation.
- Provide a safe, sufficient and economical heating system.
- Provide a wet area shower with additional grab rails.



Tamapahore Marae Kaumatua flats

3.20 FENCING AND PRIVACY

High and close-boarded fences are more appropriate to the rear of the house.

Fences on the street need to be lower to maintain visual connection with the street and wider community.

Where neighbours are on friendly terms, it is important for side and rear boundaries to be permeable or have a gate in the fence to allow easy interactions between neighbouring adults and children.



Connection between three rear yards through “permeable” fencing

3.21 FOOD GARDENS AND PERMACULTURE

Kaumatua are increasingly relied upon to maintain ancestral gardening skills on behalf of the whole whanau. Therefore it is important to provide a communal vegetable garden with smaller plots for individual whanau houses to promote healthy activity and eating as well as the sharing of these skills.

Permaculture or tupuna gardening is a design system for creating sustainable human environments. Permaculture embodies the use of ecology as the basis for designing integrated systems of food production, housing, appropriate technology, and community development. Therefore use permaculture principles in planning Papakainga.

Where possible, collect rain water for the garden, toilet and washing machine. Grey water can also be used for the garden.



Mrs Hokimate Williams’ vegetable garden - Te Atatu Peninsula

3 SPECIFIC DESIGN ISSUES

3.22 ENERGY EFFICIENT DESIGN

Energy-efficient designs that reduce ongoing energy costs over the life of the dwelling are desirable.

Such measures include:

- Super insulation – above code requirements for insulation.
- Greater thermal mass in building (up to 200mm floor slab thickness).
- Floor slab insulation (40mm polystyrene).
- Attention to north orientation and eave overhangs.
- Minimise south facing windows.
- Double glazing.
- Installation of solar hot water heating systems.

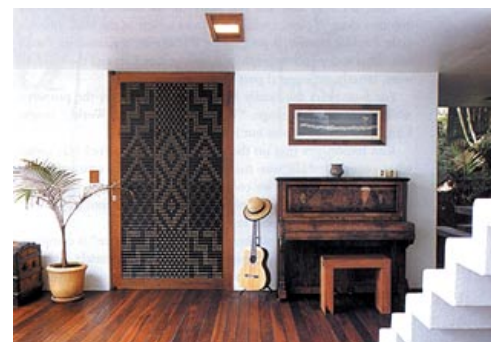


Earthsong eco houses showing use of energy efficient principles such as thermal mass in the lower storey, solar water heating, permeable pergolas for summer coverage by seasonal climbing plants, use of natural materials, opening skylight for light and ventilation.

3.23 MATERIALS

Ecologically sustainable materials are favoured because they:

- Do not have the unhealthy emissions of synthetic materials and non-water based paint systems.
- Show respect for the natural environment/atua.
- Have durability, for example solid timber is more durable than particle board floors.
- Have a natural look and feel.
- Contribute a sense of security and familiarity in a whanau-based house.

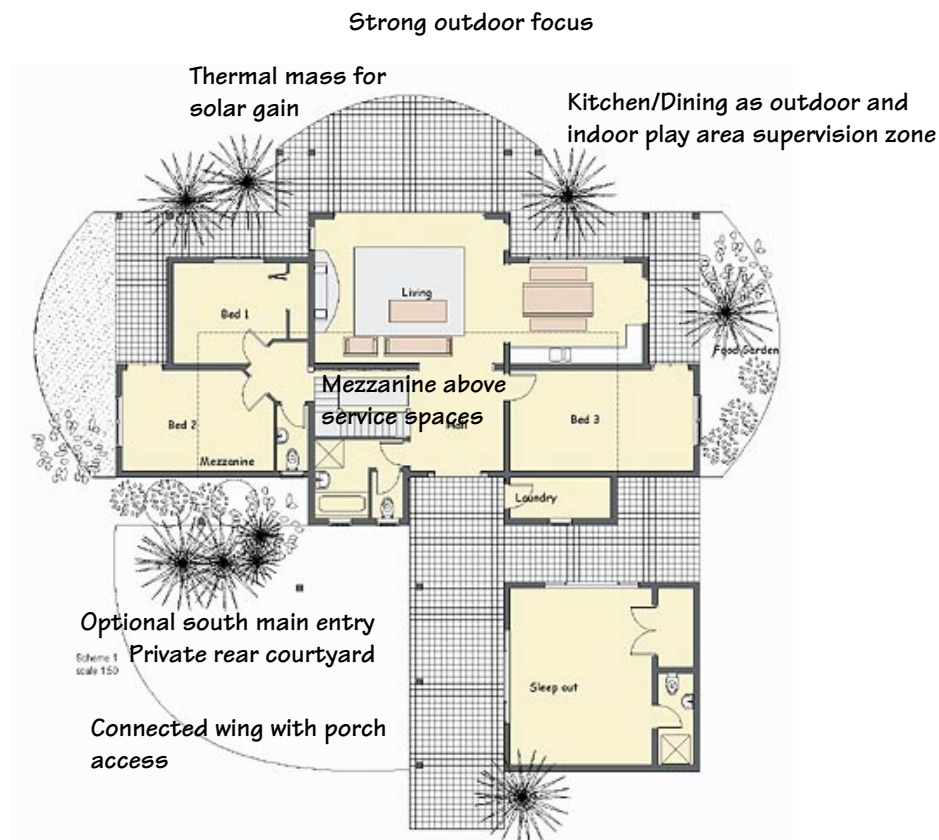


*Timber flooring - Stevens House, Lake Tarawera
Architect: Fred Stevens*

4 DESIGN CONCEPTS

The following design concepts have been developed to show how the design guidelines can be combined within the design of individual whanau whare.

4.01 DESIGN CONCEPT # 1 WHANAU WHARE WITH WHARE TAPIRI



Design Concept 1 - Plan view



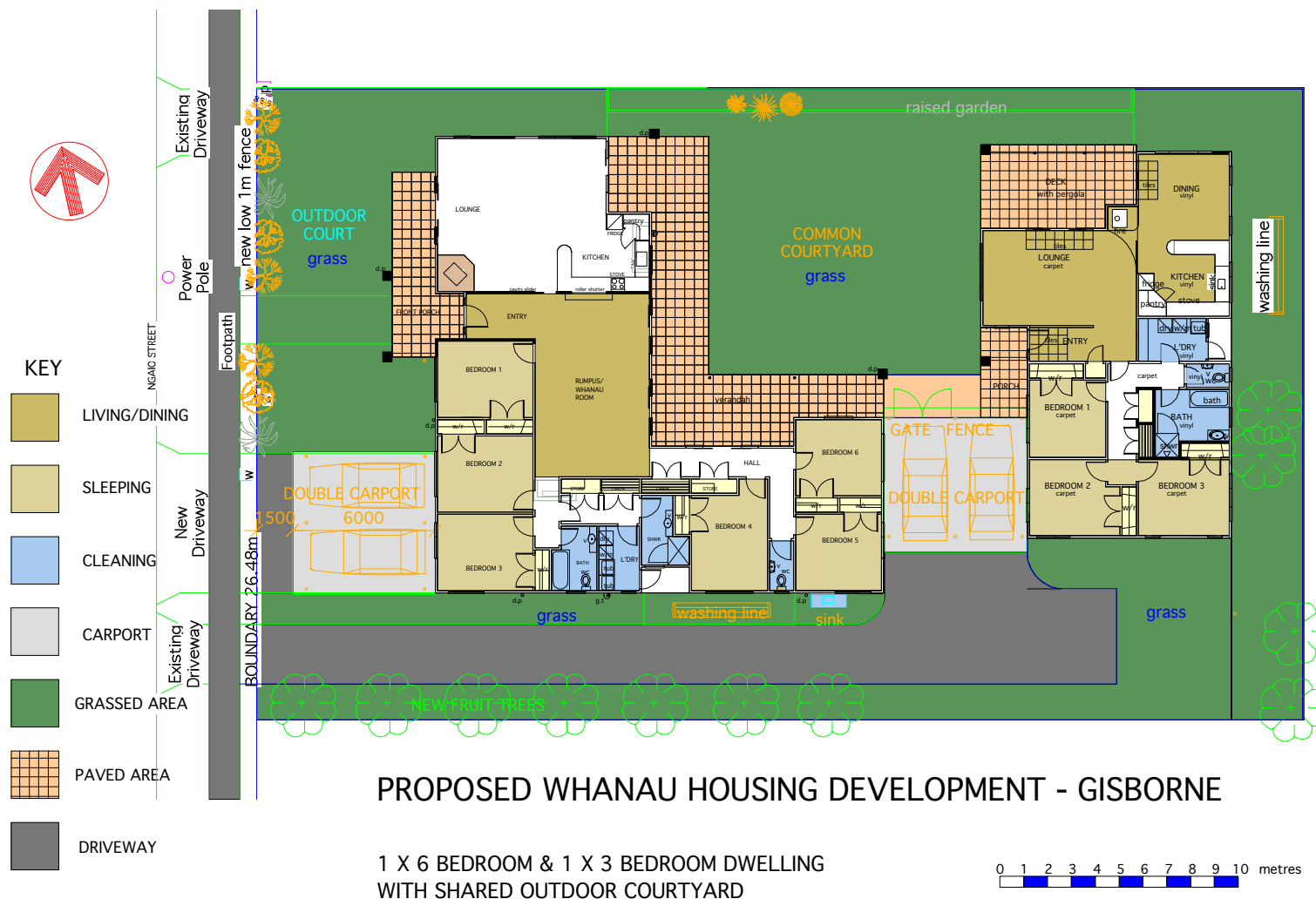
Design Concept 1 - extended whanau home with pergola over main entry patio



Design Concept 1 - extended whanau home with mezzanine and wing addition / whare tapiri to rear

4 DESIGN CONCEPTS

4.02 DESIGN CONCEPT # 2 - EXTENDED WHANAU WHARE



KEY DESIGN ISSUES

- Design for an extended whanau living in two dwellings connected through a shared open courtyard
- A large flat section provides the opportunity for a large north facing courtyard
- The three bedroom house is to be occupied by a grandmother and her two adult sons
- The six bedroom house is to be occupied by the grandmother's daughter, her husband and six children
- The six bedroom whare includes two living areas linked by a kitchen and dining area
- Both dwellings focus into the shared north facing courtyard with a paved wide paved area allowing easy access between the houses
- Carports have been kept to the south with an outdoor wash trough provided for kaimoana preparation

4.03 EXISTING DWELLINGS

- HNZN has a large number of State houses built before 1970.
- Many of these houses are due to be comprehensively upgraded.
- Although often poorly sited and oriented, these houses are basically sound and built of natural materials.

These houses are capable of providing cost-effective timely Māori housing solutions. The following steps indicate renovations required to convert a standard state house into a Whanau home.

- Resite dwellings within a planned Papakainga development including communal facilities.
- Upgrade or enhance the entry for good street presence.
- Upgrade kitchen and bathroom (relocate or enlarge where necessary).
- Plan for or build whare tapiri to provide extra bedroom space for adult family members.
- Site houses as close as possible to ground level and ensure multiple easy outdoor connections.
- Provide for enhanced connection to site through french doors onto pergola covered decks and porches.
- Add carports.
- Sand and polish existing timber floors.

4.04 CASE STUDY - AUCKLAND EXTENSION

This Auckland dwelling is occupied by a Māori whanau consisting of two adults and ten children between the ages of 23 years and six months. This provided an opportunity to trial the Draft Māori Housing Design Guide to better meet the needs of this whanau.

The four bedroom dwelling is made up of the southern half of a 1960s two storey duplex. Typical of the state houses of this era, the dwelling is located close to the street with little connection to the large rear section running east-west. All of the bedrooms were located on the upper floor with bathrooms on both levels.



Street / east elevation

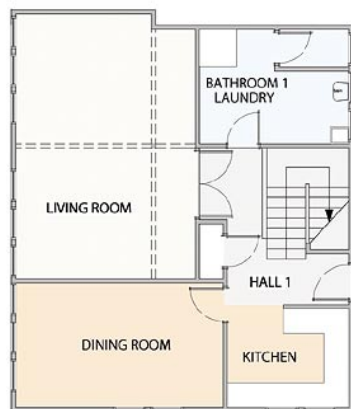


Rear yard / west elevation

Photographs taken prior to the renovation of 1960's duplex

4 DESIGN CONCEPTS

4.04 CASE STUDY CONTINUED



Original downstairs Floor Plan



Original Upstairs Floor Plan

Auckland Duplex Pilot Design Project

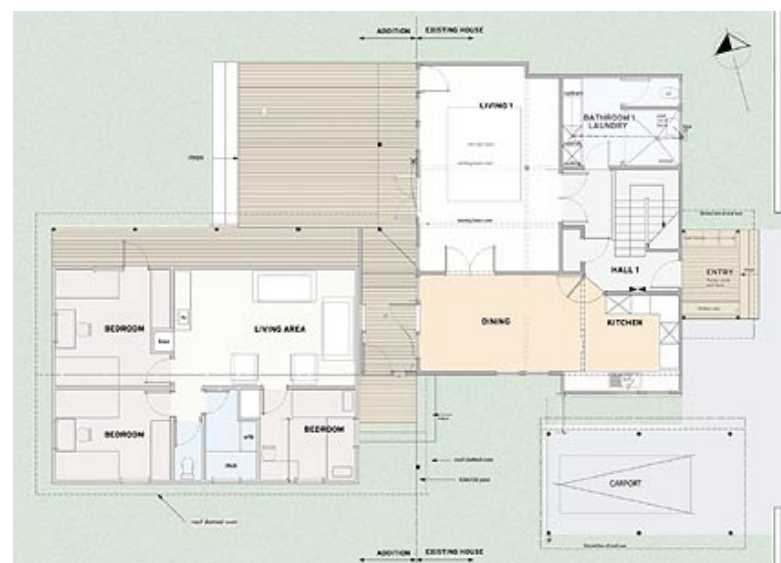


Street frontage - new mahau entry, carport and wing addition behind

REDEVELOPMENT

The redevelopment focused primarily on adding three extra bedrooms located in a south - west extension. The kitchen, dining and living areas were also reconfigured to relate to the new wing addition and large north-west facing deck. The new covered back porch provides a link between the existing and new parts of the house. A new carport is added to the south, and additional paths and driveways enhanced the external living areas.

The downstairs bathroom was modified to include an accessible shower. All other existing areas were stripped and repainted. Both the new and existing living areas are finished with a new dado of woven bamboo ply wall panelling.



New Floor plan showing connected wing to west, kitchen, dining and living room reorganisation and large connecting deck to the north.

4.04 CASE STUDY CONTINUED



Close up view of rear deck dining area showing the peach tree retained for Summer shade



View through new rear entry linking existing house with connected wing



View of new north-west facing verandah linking existing house with connected wing