

Affordable Housing Comparison Study

December 2022

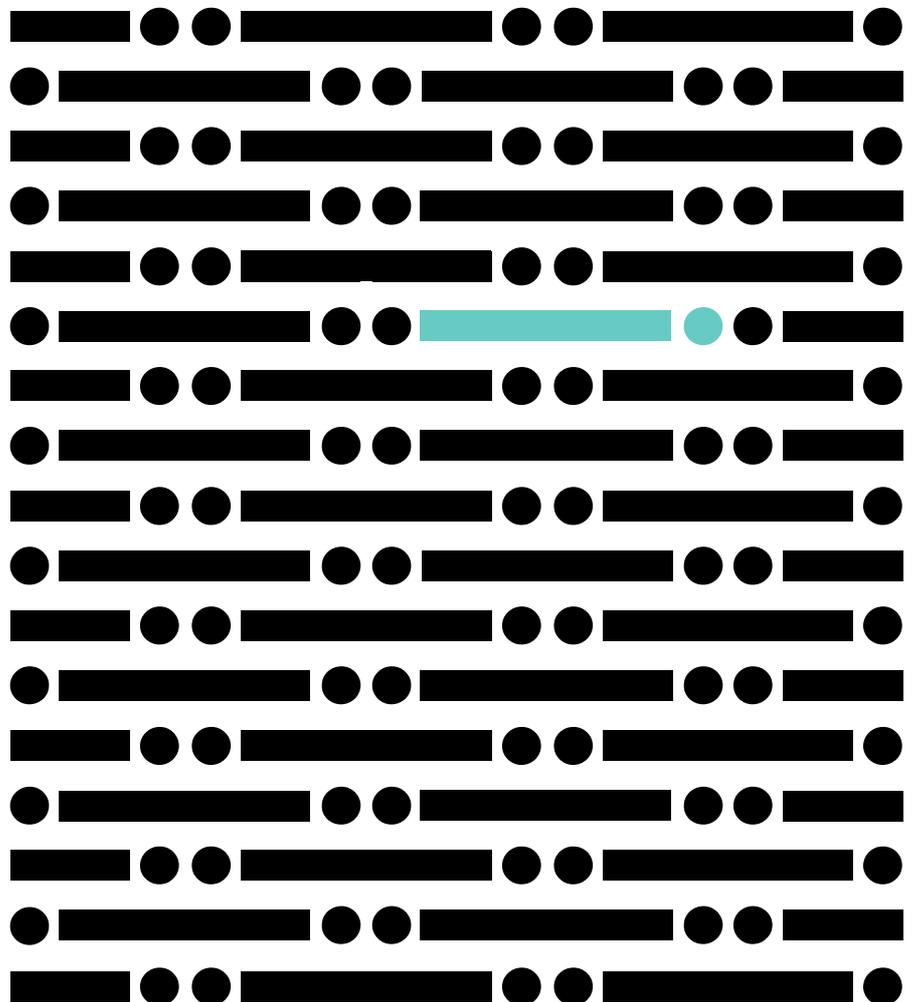


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Disclaimer: The information compiled in this document has been gathered by AWA through online desktop research, brochures, and via email or phone. Prices are indicative, and information should be confirmed with the company before any final decisions are made to ensure accuracy of specifications. The specifications and information gathered are dated December 2022.

Affordable Housing

This document identifies affordable housing options in Aotearoa New Zealand. It contains a list of affordable housing companies, their prices, images and floorplans of select houses, as well as a comparative summary table.

The companies researched are listed below and can accessed via the accompanying website:

1. Clearvision Homes (website in development)
2. EasyBuild www.easybuild.co.nz
3. FirstBuild www.firstbuild.co.nz
4. Unit2Go www.unit2go.co.nz
5. Māori Modular Housing (MMH) <https://toa.net.nz/work/mmh/>

As non-traditional methods of construction are used for these affordable building options, the following sections explore these methods and outline their advantages.

House Builds

Modular Houses

Modular homes are built in a factory – prefabricated – in a system of predetermined sizes or modules. Modules typically have a particular purpose such as a kitchen, bathroom, bedroom or family area. Essentially a home can be designed as a series of modules joined together, and in many cases, stacked on top of each other to make a two storey home.

Modular production is a way to build a house. It's not the house itself. Building a house using modular technology is a more efficient and cost effective way of building. The three main advantages are speed, cost and quality. There are many advantages in building with a modular factory-based system. Modular homes, built in a specialised manufacturing plant, offer major advantages over traditional

building methods. Faster build times, lower cost and higher quality are the major advantages.

Advantages

a. Faster Production

Being constructed in a factory where the environment is controlled, modular homes are not subject to the usual problems building outdoors. Building is undertaken in a systematic way. This ensures that construction is undertaken faster, there is a higher quality of product, and building materials are far less likely to be damaged.

At the same time that modules are being manufactured in the factory, siteworks and piles can be undertaken. This parallel work significantly reduces the overall delivery time compared to traditional building methods.

b. Lower Cost

Manufacturing in a factory with a controlled environment has inherent advantages. The combination of a faster build time, more efficient transportation of materials, and a factory environment all serve to drive the cost of manufacture down.

This results in direct savings to customers because they can take possession of their home therefore reducing any debt servicing and/or rent costs.

c. Safer Production Environment

The controlled methods of Modular construction mean that there is a safer environment in the factory. In New Zealand a significant number of accidents in construction environments are caused by falls from a height, mainly because of the way in which traditional construction sites are arranged. A controlled factory allows for a safer work environment.

d. More Reliable Timetables

Because the building time can be predicted with far more certainty than a traditional build time, the onsite delivery dates are far more accurate.

e. Indoor Weatherproof Construction

In a factory environment assembly is independent of weather, which can increase work efficiency and avoids damaged building material. As the factory is essentially a production line, processes such as quality control and precision cutting of materials ensure the quality of the product is very high and consistently produced.

f. Less Waste

Because of the design dimensions of modules, materials are often used efficiently. There are very few offcuts and there is a low level of wasted materials. This is good for the overall cost of the house and the environment. Waste at the building sites is also minimised, further helping to reduce any adverse effect on the environment.

g. Less Disruption

Most of the building activity associated with modular construction happens in a factory away from the building site. There's far less noise, pollution, and mess to be endured by neighbours and the local community.

h. Cost Effective

The combination of a faster build time, more efficient transportation of materials, and a factory environment, all serve to drive down the cost of manufacture. Because you can take possession of your home faster, loan servicing and/or rent costs are reduced.

i. Sustainable

Because modules are designed to be lightweight, the environmental impact on transportation is far less than that of traditional building methods. Often modules are built with very efficient insulation materials and are far more thermally efficient. This results in lower energy costs and lower CO2 emissions. Modular homes are able to be deconstructed at the end of their life and recycled or reused with minimal impact on landfill.

j. Quality

A far higher level of quality is achievable in a manufacturing environment. A manufacturing system lends itself to higher quality output and a product with higher precision tolerances. This is because a controlled environment allows is precisely that – controlled. Items, that will cause issues with quality and timing, are not present in a manufacturing environment.

In addition, raw materials are stored in such a way that that they are closer to the point at which they are needed and are far less vulnerable to damage.

Structural Insulated Panel Houses

What is it

Structural insulated panels (SIPs) are a high-performance building system for residential and light commercial construction. The panels consist of an insulating foam core sandwiched between two structural facings, typically oriented strand board (OSB). SIPs are manufactured under factory controlled conditions and can be fabricated to fit nearly any building design. The result is a building system that is extremely strong, energy-efficient and cost-effective.

Advantages

a. Exceptional Thermal Performance

Once installed, SIP panels deliver unrivaled insulation and airtightness, which reduces energy costs over the building's lifetime. SIPs are known to be about 50% more energy-efficient than traditional timber framing. A SIP building envelope has minimal thermal bridging and delivers excellent airtightness, which lends itself ideally to LEED and net-zero-ready building standards.

b. Healthier Indoor Air Quality

A SIP home allows better control over indoor air quality because the airtight building envelope limits incoming air to controlled ventilation which filters out contaminants and allergens. The SIP envelope doesn't have the voids or thermal bridging of conventional stick framing that can cause condensation leading to potentially hazardous mould, mildew or rot.

c. Sustainability Credentials

SIPs are highly energy-efficient and therefore contribute positively to the environment by reducing CO2 levels. They also use significantly less energy during the manufacturing process compared to traditional construction methods and have lower embodied energy than traditional construction materials, such as steel, concrete and masonry.

d. Faster Construction with Less Labour

SIP walls and roofs are designed and precisely manufactured offsite. This allows the building to be assembled onsite quickly and made watertight in a matter of days. This reduces costs such as project management, scaffolding, framing labor and much more. A BASF time-motion study confirmed that SIP panels reduce jobsite labor needs by 55%.

e. Creative Design

SIPs can be engineered and fabricated to suit any building design, allowing architects and owners the flexibility and creative freedom to develop aesthetically pleasing spaces.



Clearvision

Clearvision provides a 2-bedroom and 3-bedroom house option of structural insulated panel (SIP) homes, ranging from 92m² to 102m². Images, floor plan and prices are shown in the images below

Clearvision 2 Bedroom House



Floor Plan - consent plan may vary



*Gable Option
\$316,400.00 (gst Incl)*



*Monopitch Option
\$320,000.00 (gst Incl)*

Clearvision 3 Bedroom House



Floor Plan - consent plan may vary



*Gable Option
\$348,500.00 (gst incl)*



*Monopitch Option
\$352,000.00 (gst incl)*



EasyBuild

EasyBuild provides more than 25 high quality modular and multi-unit home designs, designed and manufactured in New Zealand for tough conditions that will stand the test of time.

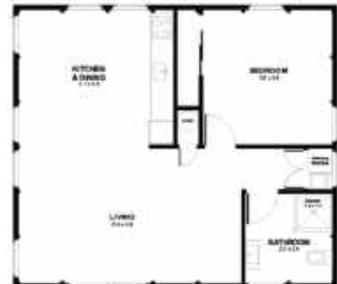
Homes are manufactured and partially constructed in their Upper Hutt based factory, before being transported in a shipping container to anywhere in Aotearoa New Zealand and completed on site.

The customer has the option to buy the full-build or the pack where an independent builder is sourced. The full-build prices start from \$184,610 and the pack only house price from \$95,570. The build can be confirmed with a \$30,000 deposit and the rest of the payment is made once the container arrives on site.

Some EasyBuild houses and specifications are listed in the table below, followed by the house images and floorplans.

Build Type	Bedrooms	Building Name	Size	Full Build Price	House Pack Only Price	Bathrooms	Garage	Veranda
SIP House	1	Tekapo	55.2 m ²	\$214,400	\$108,020	1	Not Available	Available
SIP House	1	Cambridge	64.3 m ²	\$227,280	\$112,520	1	Not Available	Available
SIP House	2	Raglan	73.3 m ²	\$265,080	\$135,300	1	Available	Not Available
SIP House	2	Wanaka	73.3 m ²	\$258,980	\$132,800	1	Available	Available
SIP House	3	Riversdale	109.5 m ²	\$343,720	\$171,630	1	Available	Available
SIP House	3	Havelock	109.5 m ²	\$334,390	\$167,460	1	Available	Available
SIP House	4	Kerikeri	127.5 m ²	\$389,210	\$191,430	2	Available	Not Available
SIP House	4	Kingsford	119.2 m ²	\$392,250	\$188,500	2	Not Available	Available

<p>SIP Standard Duplexes / Multi-unit</p>	<p>Mix and match any 1-4 bedroom home designs</p>	<p>Prices vary and are available on the website or upon request.</p>
<p>SIP Garage and Hall</p>		





Wanaka
Size: 73.3m²



Riversdale
Size: 109.5m²



Havelock
Size: 105.5m²



Kerikeri
Size: 127.5m²



Kingsford
Size: 119.2m²





Standard Duplexes

Size: Multi-Unit





FirstBuild

FirstBuild provides a choice of 1 to 6 bedroom modular houses ranging from 24 sqm to 180 sqm. All homes come with a 3kW solar power system diverting electricity to the hot water heating system to further reduce running costs. Rapid build times and a higher quality home production are achieved by constructing houses in a factory controlled environment and transporting it to the site.

FirstBuild will arrange for a site survey as well as a Geotech investigation. Their draftsman will put together the first set of plans for the client's approval and put together a full set of drawings for the build agreement and consent process.

FirstBuild undertake the siteworks – any earthworks and retaining walls are undertaken and the piles and foundations are laid.

Some FirstBuild houses and specifications are listed in the table below, followed by the house images and floorplans.

Build Type	Bedrooms	Building Name	Size	Price	Bathroom/laundry	Solar System	Deck
Modular House	1	Onesie 48	48 m2	\$192,000	1	Y	12 m2
Modular House	2	Couple 48	48 m2	\$192,000	1	Y	12 m2
Modular House	2	Couple 60 A	60 m2	\$240,000	1	Y	12 m2
Modular House	3	Family 73	73 m2	\$292,999	1	Y	12 m2
Modular House	3	Family 84	84 m2	\$336,000	2	Y	12 m2
Modular House	4	Family 133 A	133 m2	\$532,000	4	Y	12 m2

Onesie 48



1 Queen Bedroom | 1 Kitchen/Living | 1 Bathroom/Laundry | 3 kW Solar System | 4 m x 12 m Ft

Couple 60 A - single level



2 Queen Bedrooms | 1 Kitchen/Living | 1 Bathroom/Laundry | 3 kW Solar System | 4 m x 15 m Footprint + 12 sqm Deck

Family 73 - 3 bed



3 Queen Bedrooms | 1 Kitchen/Living | 1 Bathroom/Laundry | 3 kW Solar System | 4 m x 18 m Footprint + 12 sqm Deck

Family 84 - 3 bed



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Further information:

Land Pre-assessment	Draft Preliminary Design	Consent Delivery	Capacity	Build Price	Deposit
Can be provided	Can be provided	Can be provided	<p>Factory is booked out for 2023, can build 40-50 houses in 2024</p> <p>For large scale manufacturing, can set up a factory on the site to deliver to scale (takes approx. 1 month to set up)</p> <p>Iwi lead design for Papakāinga development can be provided</p>	\$4,500/sqm	20% per house

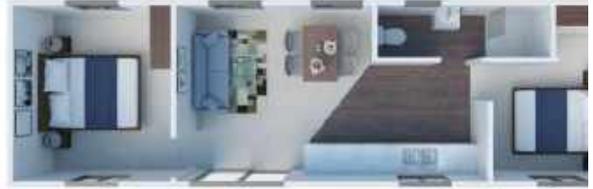


Unit2Go offer high quality, affordable tiny homes and transportable cabins. They deliver using their own specialist transport team, truck and trailer, and can set up homes anywhere in the North Island on blocks or piles.

There is usually no site prep needed if the site is reasonably flat. If the site is uneven or sloped the client may need to pay for a digger to level the site prior to delivery.

Build Type	Bedrooms	Building Name	Size	Price	Bathrooms
Tiny House	2	Tiny House	43.2 m2	\$110,900	1
Tiny House	2 or 3	Large Tiny House	50 m2	\$119,600	1
Transportable House	2 or 3	Transportable House	60 m2	\$141,900	1
Transportable House	2 or 3	Large Transportable House	65 m2	\$149,900	1
Premium Tiny Home	2 or 3	Premium Tiny Home Deluxe	64 m2	\$171,000	1

Tiny House (12m x 3.6m)



Large Tiny House (12.6m x 3.9m)



Transportable House (12m x 5m)



Large Transportable House (13m x 5m)



Premium Tiny Home Deluxe (13m x 5m)



Māori Modular Housing

Māori Modular House (MMH) is a collaboration between TOA Architects and build partner Mike Greer Architectural who have a collective vision to deliver 1,000 modular houses in Aotearoa by the end of 2020. The use of off-site panelised construction and cross laminated timber technology will result in streamlined consenting and swift onsite assembly meaning Māori Modular Houses will be ready to live in in a fraction of time it takes to build a conventional house. Off-site construction has helped the team realise its vision of creating housing opportunities for all New Zealanders that are quick to construct, quality, sustainable, warm, safe, cost effective and designs with wairua.

Three MMH designs for homes under 100m² are ready for orders to go into production, Tuhunga-a-Ruru (2 bedroom - 65 m²), Raupeka (2 bedroom - 87 m²) and Akatoki (3 Bedroom - 98 m²). All are designed with quality materials including douglas fir weatherboards, double glazed windows, designer kitchen with Bosch appliances and acrylic benchtops all standard. Larger 3 and 4 bedroom MMH's are also in development, but for now the focus remains on a scale of home that can maximise the potential of infill, irregular shaped, steep and smaller lots – sites that are more likely to be affordable to regular New Zealanders. MMH's are equally suited as a kiwi bach, beside the beach, lake, bush or mountain.

Build Type	Bedrooms	Building Name	Size	Price	Bathroom/laundry	Deck
Modular House	2	Tūhunga-a-Ruru	65m ²	n/a	2	12m ²
Modular House	2	Raupeka	87m ²	n/a	2	12m ²
Modular House	3	Akatoki	98m ²	Estimated between \$470,000 - \$520,000	2	12m ²

Tūhanga-a-Ruru

Features:

- 2 Bedroom, 2 bathroom - 65 m² + 12 m² deck
- New Zealand douglas fir vertical cladding.
- Interior walls feature European manufactured oriented strand board and plywood.
- Double glazed architectural series joinery and Metalcraft roofing panels combine to produce high thermal insulation.
- Modern and efficient planning ensures the open plan kitchen, dining and living space are cleverly separated from the bedrooms and bathrooms.
- The master bedroom suite contains its own ensuite
- The kitchen features one of the highest specifications of fittings available within this segment of the market, with Smeg and Bosch appliances – your toughest decision will be whether you choose a stainless steel or black sink!



Raupeka

Features:

- 2 bedrooms, 2 bathrooms - 87 m² + 12 m² deck
- optimal orientation on the smallest of land parcels
- strong visual form to the streetscape.
- designed to suit a broad range of modern living arrangements, from small families to multi-generational house mates.
- 2 queen-sized bedrooms
- open plan kitchen, dining and living space of over 40m², featuring raking ceilings.
- a panoramic opening from the kitchen out onto the 12m² deck area
- formal entry
- 3.1m long kitchen island (with a solid timber partition screen)
- in-built study desk and ample storage (including a coat cupboard) that has been carefully considered.
- laundry facilities are contained within a wet area.
- solid cross laminated timber floor structure
- Metalcraft insulated roofing panels help to regulate internal temperatures
- chemical-free douglas fir cladding provide worry-free protection from Aotearoa's elements



Aratoki

Features:

- 3 Bedrooms, 2 bathrooms – 98m² + 12m² deck
- Bold asymmetrical roof form
- Clever floor planning
- Distinctive façade screen
- Sustainable grown New Zealand douglas fir vertical cladding
- Interior walls feature European manufactured oriented strand board and plywood
- Double glazed architectural series joinery
- Metalcraft roofing panels
- High thermal insulation
- Recessed covered deck that allows uninterrupted outdoor entertaining Throughout many climatic conditions.
- Slatted timber bridge links the deck area to the living room, while carefully framing a specimen planting courtyard
- The living space has been designed to assist acoustic privacy from the other spaces within the home
- 3 queen-size bedrooms, although the third bedroom easily lends itself to a media room, home office or playroom
- The master bedroom suite contains its own ensuite
- Second bathroom for guests that also contains the laundry
- The kitchen features Smeg and Bosch appliances along with soft close drawers and hinges



Market Comparison Table

Features	Clearvision Homes	EasyBuild	FirstBuild	Unit2Go	Māori Modular Housing
SIP	✓				
Modular		✓	✓	?	✓
Transportable Cabins				✓	
Studio			✓	✓	
1 bedroom		✓	✓	✓	
2 bedroom	✓	✓	✓	✓	✓
3 bedroom	✓	✓	✓	✓	✓
4 bedroom		✓	✓		
Multi Units	?	✓	✓	✓	
Halls		✓			
Garages		Additional	Additional		
Sleepout				✓	
Veranda		Additional			
Balcony			✓		
Deck	✓	Additional	✓	decking/steps are an optional extra	✓
Building Consent	✓		Up to \$7000	?	
Plans	✓	✓	✓	?	✓
Building Warranty	?	10-year master build guarantee (as confirmed)	10 years	Aftercare service 10-year watertightness	?

	with your builder)		and structural warranty	
Construction Insurance	✓			?
Surveying, Geotech report and specific engineering		✓		?
Site Work	Soil Tests and House Site Scrape	?	✓	✓
In ground services (drainage, power, gas, telecommunications)			Water connection fee (up to \$12,000)	✓✓
Foundation	Subfloor Pile Foundation	RibRaft or concrete slab foundation	Pile infrastructure and infrastructure on a flat section	Blocks or piles
				Timber piles and bearers
Delivery	Freight included	Included in full-build pricing (up to \$3,450). Pack Only, \$3,450 - \$11,500	Within 200kms	Minimum fee of \$750
Water detention tank			Up to \$5000	
Heating	?		Heat pump	Heat pump optional extra
Water Heating System	Electric Hot Water Heating	Hot water cylinder	3kW solar power system diverted to the hot water cylinder	Electric hot water cylinder (gas – optional extra)
				?

			Stainless steel water heater connected to the heater		
Windows	?	Double glazed	Double glazed	Standard (double glazing optional extra)	Double glazed
Kitchen Appliances		✓	✓	Optional extras	Smeg and Bosch appliances
Bathroom Fittings	✓	✓	✓	✓	✓
Kitchen fittings	✓	✓	✓	✓	✓
Floor	Carpet to Bedrooms	Carpet and Vinyl	Carpet and Vinyl	Carpet and Vinyl (dependant on house)	Cross laminated timber floor panels
Light Fittings	✓		LED lighting	LED lights (interior and exterior)	?
Blinds, curtains, drapes				?	?
Plumbing	Plumbing pipe-out and plumber fit-off	✓			✓
Wardrobes	✓	✓		?	✓