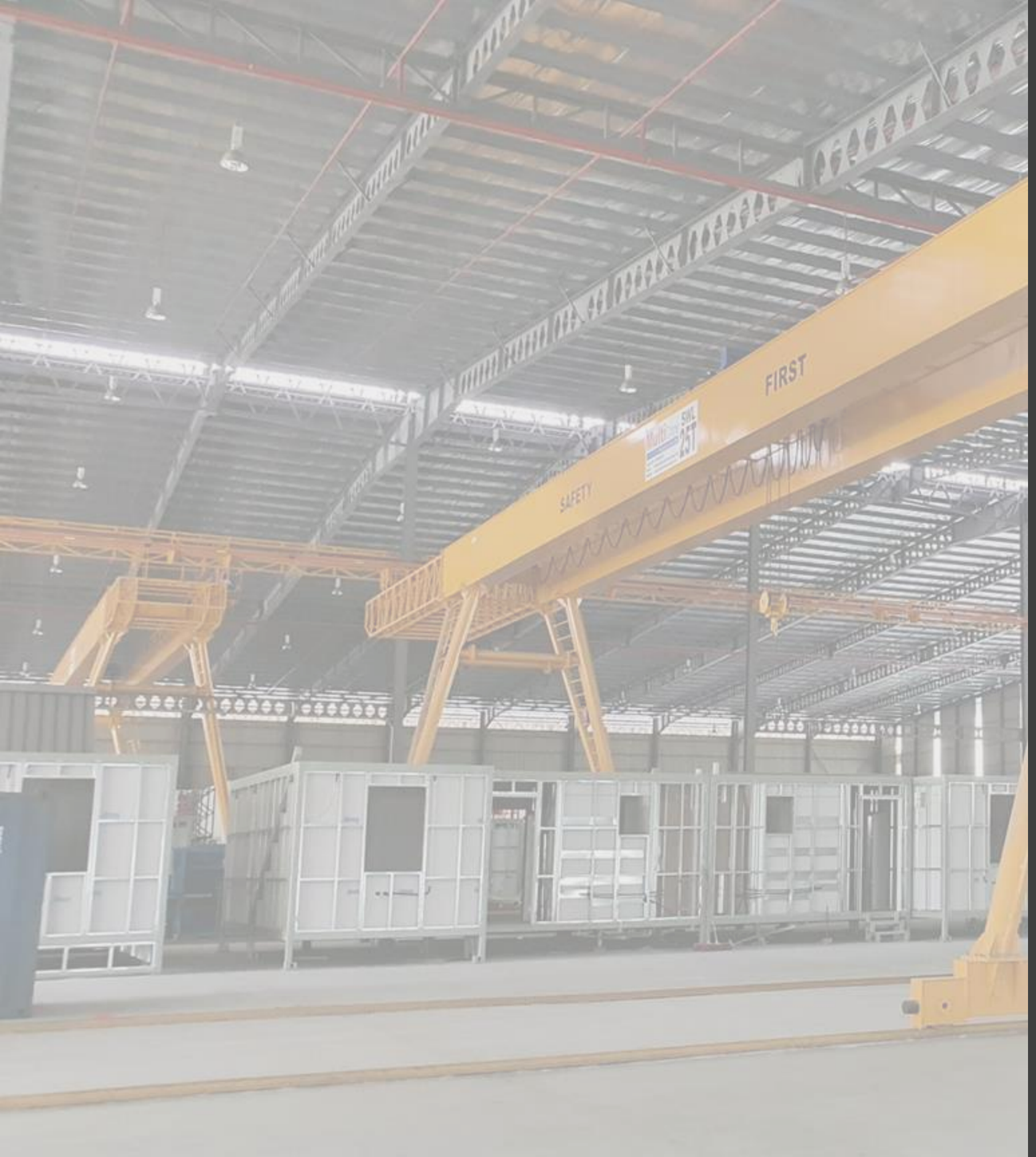


PETRA MODULAR

Corporate profile

Our capabilities for manufactured housing using modular and prefabricated construction

3 October 2023

Petra Modular’s factory, Telok Gong, Kuala Lumpur, Malaysia

Our focus

Who we are

Petra Modular is an established global manufacturer of modular homes with full service modular design and fabrication factories worldwide in Malaysia and Australia, with a manufacturing capacity of 3,000 modules per annum. For over 15 years, Petra Modular and its management has been delivering modules across four continents.

Durable and resilient

Simply put, we build homes that last.

Our homes are not only aesthetically pleasing but can withstand earthquakes of up to:

- Richter magnitude 8.0.
- Winds up to 320 kilometres per hour (88 metres per second).
- Snow loads of 2 metres in cold climates.
- Hot climates up to 50 degrees Celsius.

Social Capitalism

Petra Modular is a firm believer and advocate of social capitalism and sustainability. It is a belief that both society and business is served well by products and services that fill genuine needs of communities in the value chain sustainably.

Transparency and accountability are everything to us and we ensure that no component of the supply chain is left behind in its vision to realise a more equitable industry based on this principle.

Accreditation and certification

Petra Modular demonstrates its continued commitment to sustainability and higher standards of manufacturing through internationally recognised accreditations and ISO compliance management systems.

Global and local synergies

Establishing a local manufacturing base allows us to create jobs within the local community. Where possible, materials for our factories are locally sourced from suppliers within those markets.

Pop-up facilities for capacity expansion

We can respond quickly to high demand projects by establishing new manufacturing facilities close to the project site. Our factory know-how enables us to erect a minimum of a 1,000-module per annum production facility within three months.

Supply chain and logistics

Being an established manufacturer across Asia with long standing relationships with suppliers means we are able to ensure added certainty within the supply chain at competitive costs.

Benefits of volumetric modular buildings

Years of experience in modular building supply

Petra Modular is an established global manufacturer of modular homes with modular fabrication facilities in Malaysia and Australia, with a manufacturing capacity of 2,000 houses per annum.

Our team's experience covers architectural design, engineering (structural, mechanical, electrical, plumbing), manufacturing, construction, logistics and project delivery, with a focus on constantly learning and improving with:

- New technologies.
- New building materials.
- More efficient production methods.

We are always looking for smarter ways to deliver our clients' requirements.

How we outperform traditional construction

Strength

Simply because we have to build for transportation, our units are stronger and more resilient than traditional buildings and most other modular builders.

Up to 50% faster

The speed of build can be a game changer for increased profitability for commercial buildings:

- Earlier delivery and commissioning means earlier to first or occupation and revenue.
- Certainty of delivery and building operation avoids you having unhappy clients, and the possible late delivery costs for you.

This translates to a higher internal rate of return (IRR) for clients against traditional building techniques.

Cost certainty

With full 3D BIM modelling, accurate material take-offs and modules being finished 90% or more in a factory environment, Petra has a tight control on the cost of each module.

Complete visibility

Our clients know exactly the product they will receive, and its production and delivery status at all times through the project.

Streamlined construction

We leverage offsite building technologies including prefabrication and volumetric modular construction for a faster and more efficient production process:

- Rapid in-factory production;
- Easy transportation to the site; and
- Quick erection and assembly.

Generally, 90% of the building construction work is completed in the factory before the modules arrive at site.

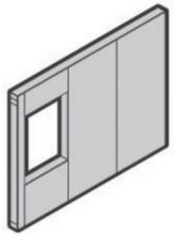
Factory controlled quality assurance

Today's technology enables quality solid form buildings finished to a greater quality standard than similar traditional construction methods.

Every step is designed to ensure compliance with our client's specifications. Petra's specialised of quality process ensures our clients get exactly what they expect with 117 production checklist steps throughout each stage of module manufacturing including:

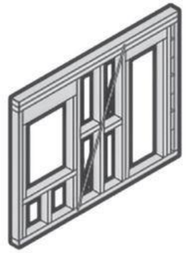
- 6 procurement control steps;
- 85 production control steps;
- 16 finishing control steps; and
- 10 logistics control steps.

Petra Modular’s technology



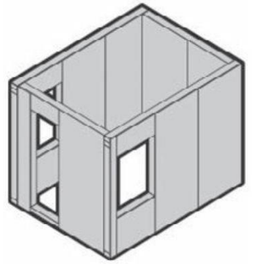
Panel

Wall and floor panels assembled on site.



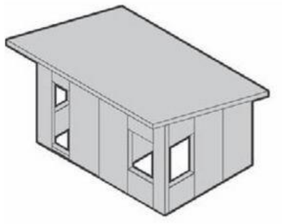
Component

Components such as windows, facades, stairs, and other fittings and joinery that is manufactured offsite for onsite assembly.



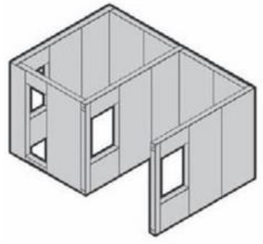
Volumetric

Modular parts (floors or rooms, for example bathroom pods) assembled to form the whole building



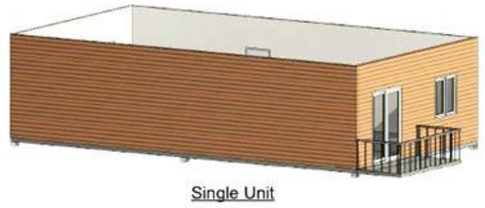
Transportable

An entire building transported to site.



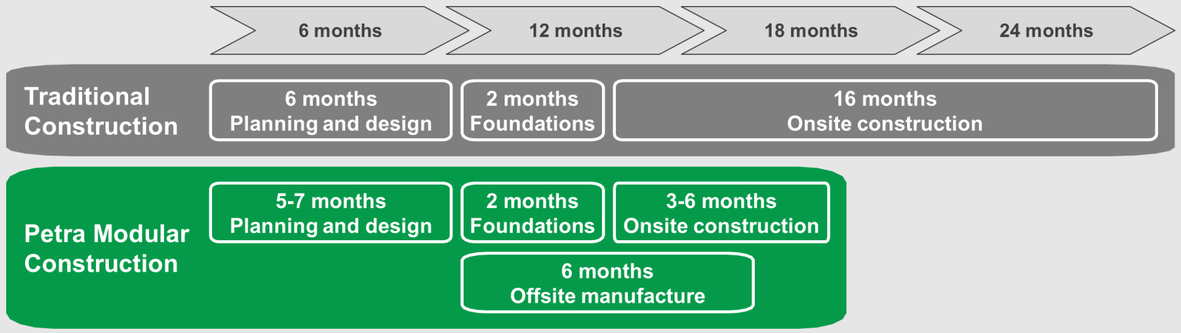
Hybrid

A combination of different offsite manufacturing solutions in one building, including cross laminated timber. Hybrid also refers to how offsite is combined with traditional onsite construction.



Transforming construction with modular buildings

On Site (Traditional)	Offsite (Modular)
Design can be partially completed when work begins, and adjustments can be made during the build.	The design is fully complete before procurement starts, with only minor adjustments made during the factory build process.
Building financing can be on a “drip feed” basis – many small steps can be funded throughout the Project.	Procurement for modular means that at least 50% of the entire spend is used in the first week after project award to ensure on time material deliveries and to gain maximum volume discounts.
Works can be delayed for weeks or even months due to materials, labour, weather, supply chain and other factors.	Offsite fabrication in a factory environment means that any delays (such as high wind for crane movements) are counted in the hours (not weeks), so there are no long periods of delay.
You can see progress day by day on site.	90% of the work occurs offsite in a factory environment, which is open for inspection by our clients.
Quality control is ad hoc. Until after the job is complete, you may not notice any shortcuts taken.	Detailed and documented quality control inspections occur at every stage of production.
Costs and time over runs can often be a surprise. You see work happening and without transparent and frequent communication, when problems arise, the client is usually the last to know.	You can see exactly where every module is in the production cycle, and we can match the production speed to the site installation requirements.



Benefits

Setting your expectations

Modular buildings have many benefits, but they also require a different strategy to traditional on-site construction, of which we ensure our clients are aware.

Significantly less time

Savings of 30% to 60% of overall schedule through a modular approach.

Lower labour costs

Potential for up to 25% on construction costs (depending on the target market).

Less waste

90% reduction in materials wastage can be achieved with modular building.

Environmental benefits

The offsite construction process uses less energy than traditional construction.

Bespoke design

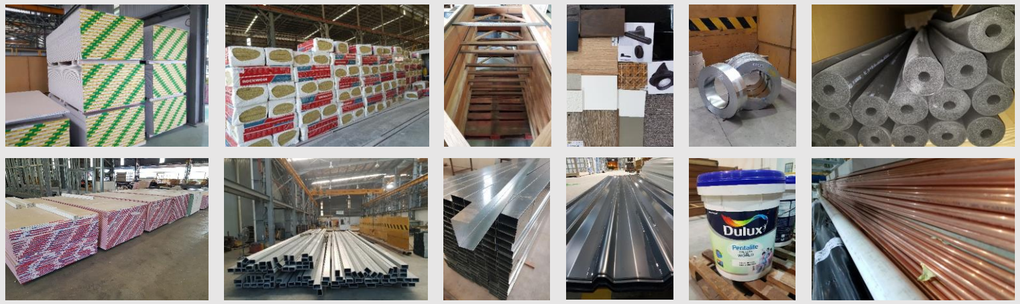
We design structures that are functional, on-brand and tailored to your needs.

Safer construction

Greater control in the factory and less exposure to safety hazards.

Our end-to-end process

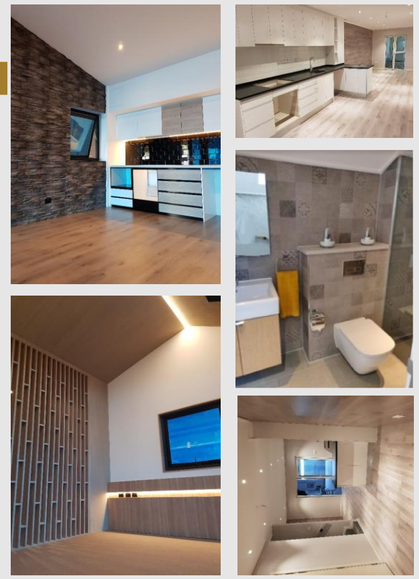
1 All building materials, fixtures, furniture and equipment bought in bulk



2 Delivered to the nominated factories

3 Structural steel frame & walls assembly

4 Complete all interior finishes & MEP



5 Protect, wrap, fumigate, lash and ship

6 Transport, lift, connect and final finishes for installation in any location worldwide

Design

Full 3D BIM modelling using Revit to produce an integrated model including all disciplines:

- Structural;
- Architectural; and
- Mechanical, electrical and plumbing.

Procurement

Driven from an accurate quantity take-off, our procurement leverages of supply from various countries to provide the best balance of:

- Speed of delivery;
- Compliance to the destination codes;
- Cost competitiveness; and
- Material warranty.

Production

ISO accredited fabrication and manufacturing processes ensure full traceability and a high-quality build.

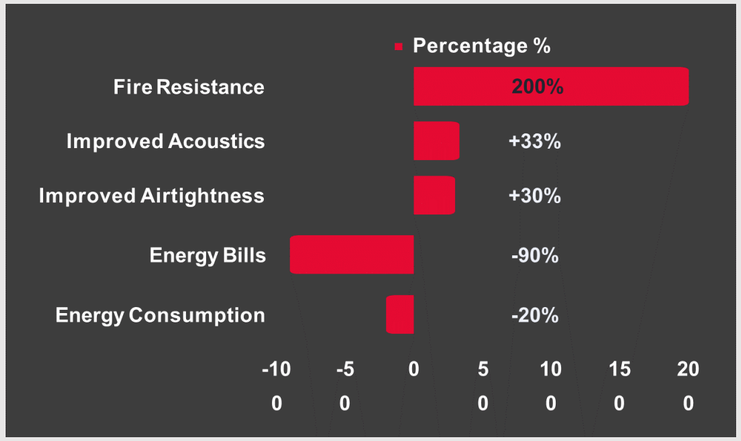
Logistics and installation

Our in-house logistics team ensures delivery anywhere in the world just-in-time for the site installation process. Finishing works and connections to services are completed for handover to the client.

Sustainable, compliant and full service

Environmentally friendly and durable homes

- **Fire resistance:** Consists of hot rolled steel and concrete (non- combustible).
- **Improved airtightness:** Airtight and super-insulated design improves air tightness by 30%.
- **Improved acoustics:** Provide unparalleled acoustic performance.
- **Sustainable construction:** Through efficient production and specialist materials selection.
- **Energy-efficient:** Through detailed design incorporating insulation and ventilation systems.
- **Resilient:** Structures designed and quality built for long-lasting buildings.



Meeting and exceeding Industry Standards

Building Codes are just a starting point. “Building to Code” is what every builder must do as a minimum, but upon client request, we go “beyond code” to ensure that their buildings perform to specific site requirements. Our approach means understanding your goals for the Project; whether it is for:

- Supply ex works or delivered to site
- Supply, delivery and install
- Build and sell (pre-sales or on completion)
- Build and hold to rent (short or long term).

Whatever your strategy, we make sure your buildings deliver for you by designing and manufacturing to the relevant international standards and local codes.

Our end-to-end solution

We offer a one-stop solution for building delivery from concept through to handover to the tenant or operator.

Petra Modular DESIGN | Petra Modular TECHNOLOGY | Petra Modular MANUFACTURING | Petra Modular DELIVERY

Design architecture

Leading and supporting the design work to optimize the building process.

Value engineering

Proprietary building systems and value engineering in site identification, evaluation and building planning.

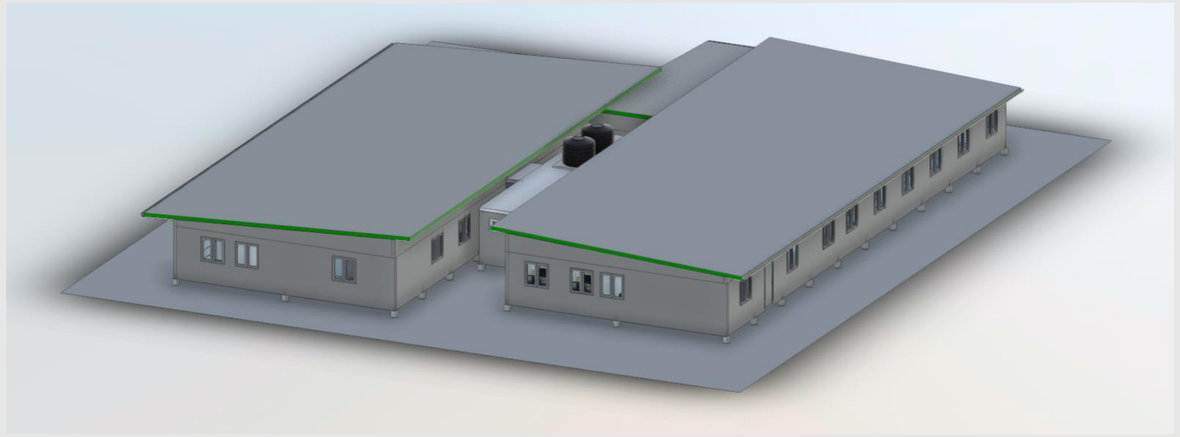
Precision engineered buildings

Offsite volumetric modular production with modern building technology.

Logistics and on-site installation

Completed modules delivered and installed on-site on turnkey basis.

Our design and masterplanning capabilities



Full 3D BIM modelling capabilities

Our in-house design and engineering team covers all disciplines required for modular construction:

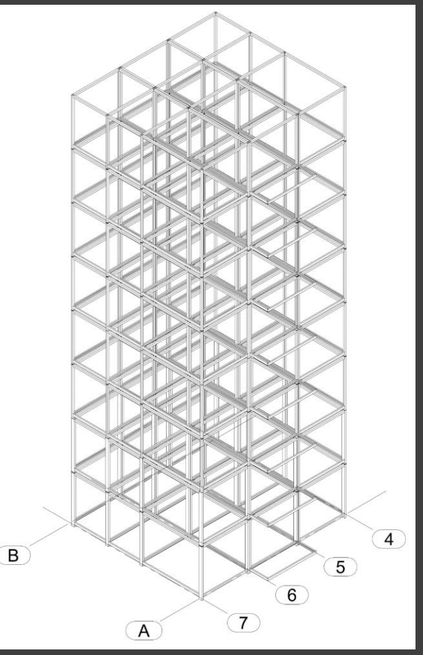
- Architectural;
- Structural, including light gauge steel framing; and
- Mechanical, electrical and plumbing (MEP).

We seek location-specific input from certified professionally for specialist reviews for fire, acoustics, MEP and building compliance certifiers.

Software

We use the following software packages:

- Autodesk AEC Collection:
  - AutoCAD for 2D architectural drafting;
  - Revit for 3D architectural drafting;
  - Advance Steel for structural detailing;
  - Navisworks for integrated design review.
- ETABS for structural engineering;
- PROCAD or FrameCAD for framing detailing; and
- Lumion for Revit rendering.



Customisation, value-adding and ESG

Tailoring modular buildings to your needs

We know that sometimes, your needs require some “out-of-the-box” thinking. Petra has the in-house expertise to make your vision a reality. Whether that’s for a one-off development or multiple sites, we can help design, build, deliver and install.

Value-adding options

We can provide various additional options, including:

Sustainable energy solutions

Integrating renewable energy systems like solar panels or wind turbines into the modular buildings, providing clients with energy-efficient and sustainable power sources, reducing their reliance on traditional energy grids.

Smart home integration

Offering advanced technology solutions, such as smart home automation systems, energy management systems, and IoT connectivity, to create a modern and convenient living experience.

Green roofing

Providing options for green roofs or rooftop gardens, which not only enhance the aesthetic appeal but also promote environmental sustainability, reduce energy consumption, and improve air quality.

If you need something else, talk to us.

Embedding Environmental, Social & Governance (ESG)

Environmental, Social and Governance Integration is vital. Due to the nature of the modular building process, we have much more control over our ESG outcomes than traditional constriction.

Ask us for our full ESG framework.

ESG area	Sector	Our strategy
Environmental	Renewable energy and energy efficiency	Design for renewable integration & energy efficiency
Environmental	Sustainable materials	Selection of sustainable and renewable materials
Environmental	Power and water management	In-factory monitoring and reduction
Social	Health and safety	Both in-factory and building design integration
Social	Comfort and wellbeing	Building design integration
Social	Accessibility and inclusivity	Building design integration
Governance	Transparent reporting	Open book policies
Governance	Building compliance	Building design integration
Governance	Worker welfare	Provision of quality accommodation units

Petra Modular’s factory, Telok Gong, Kuala Lumpur, Malaysia

Our manufacturing locations

Malaysia

Telok Gong, Kuala Lumpur

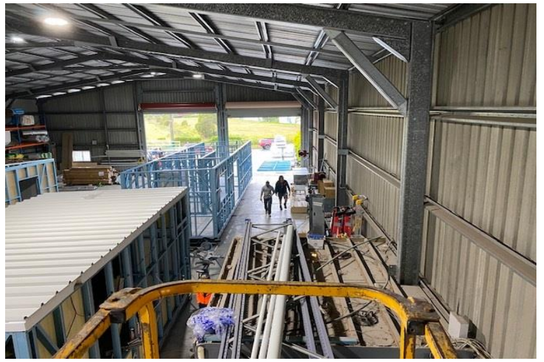
Size: 10,000 m^2
Capacity: Up to 1,000 modules per year




Australia

Crestmead, Queensland

Size: 2,000 m^2
Capacity: Up to 200 modules per year




Our expertise = Your team

Our team

Making your visions a reality with modular construction

Petra Modular has brought together a team of offsite prefabrication and modular building experts to provide end-to-end solutions for our clients:

Chairman:	Datuk (Dr) Vinod Sekhar
Executive Director	Dato’ Seri Shaik Aqmal Allaudin
Executive Director:	Luke Tingley
Managing Director and Legal Counsel:	Ben Constance
General Manager, Queensland:	Steven Gibson
General manager, Western Australia:	Dominic Sabatino
Operations Manager:	Matt Williams
Finance & Administration Manager:	Azli Izam
Business Development Manager:	Dennis McMahon
Design Manager:	Muhammad Ezwan
Senior Project Manager:	Yaw Fatt Chong
Production manager:	Kevinderjit Singh
Warehouse and Logistics Manager:	Mervin Aaron

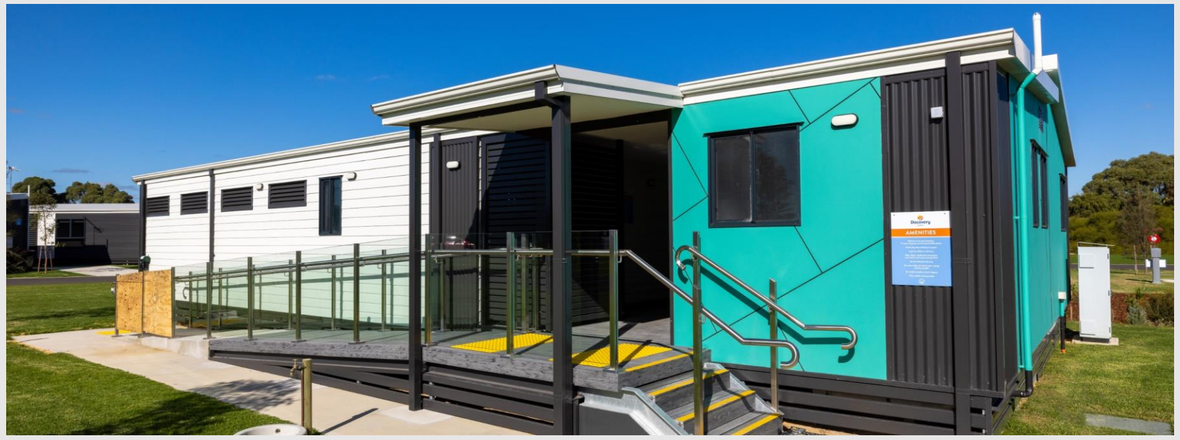
Engaging with developers and governments

- Open for partnerships with developers and government entities.
- Collaborative efforts to address your accommodation challenges and create a positive impact.
- Exploring opportunities for joint ventures and investment.

PETRA MODULAR

Projects and products

Past projects



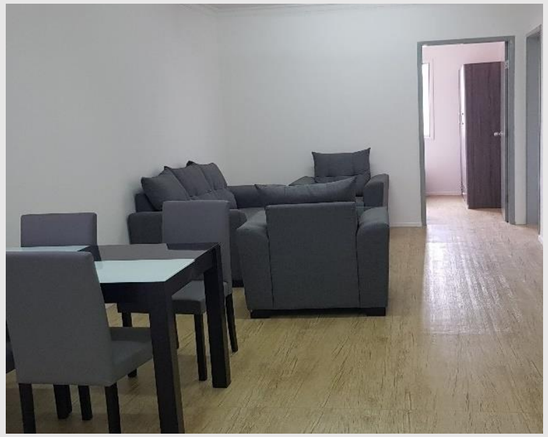
Wide range of successful projects

Petra Modular's management has completed projects across various countries, including the following:

- Holiday resort with 40 modules with 1-bedroom standalone, fully-equipped rooms for Broome, Western Australia.
- Affordable housing for Malaysia market: 10-storey in either 90 sqm layout for 3-bedroom families, or dormitory style for workers.
- Minesite accommodation modules with 40 rooms for Western Australia.
- Staff accommodation with five blocks of 5-storey walk-up apartments each of 100 sqm with 1,400 modules.
- Workers' accommodation for petrochemical project: 14,000 workers housed with 4,540 modules.
- Ultra-remote minesite village for 60 workers in Western Australia.

Images of these and other projects are on the following pages.

Project showcase



Affordable housing (10-storey), Kuala Lumpur, Malaysia

Social housing (terrace-style) United Kingdom

Staff accommodation quarters, (5-storey) Johor, Malaysia

Workers' camp (5-storey, 14,000 pax), Johor, Malaysia

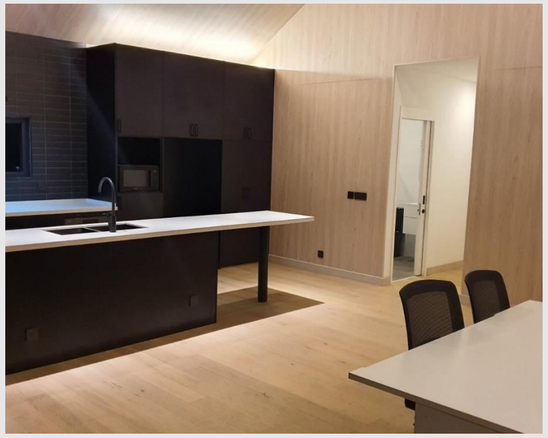
Project showcase

Ultra remote minesite village, Western Australia

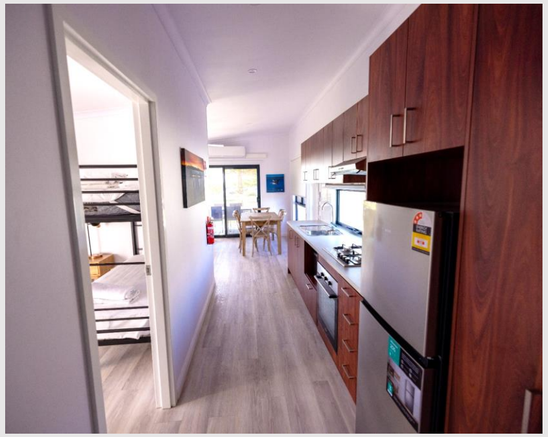
HUD housing development, Maine, USA

Remote holiday stay units, Western Australia

Tiny homes concept, USA



Project showcase



Holiday village, Bunbury, Western Australia

Farm workers accommodation, Swan Valley, Western Australia

Hope Downs Mining Ancillary Buildings, Western Australia

Ancillary minesite buildings for Queensland

Product overview

3- and 4-bed Single Person Quarters

Overview

Destination

Australia

Modules

Each module can have either 3 or 4 bedrooms each with ensuites.

- T3 (3-bed): 11.6m long x 3.3m wide
- T4_3.3 (4-bed): 14.4m long x 3.3m wide
- T4_4.2 (4-bed): 14.4m long x 4.2m wide
- 2.85m to top of roof, 2.5m from floor to ceiling

Specification

In accordance with Australian Standards and client-specified mine site requirements.

Current location

Delivered to various mining operations.

Mining Camps and Villages

Kimberley Metals Group Operations Village, Western Australia

Mining Camps and Villages

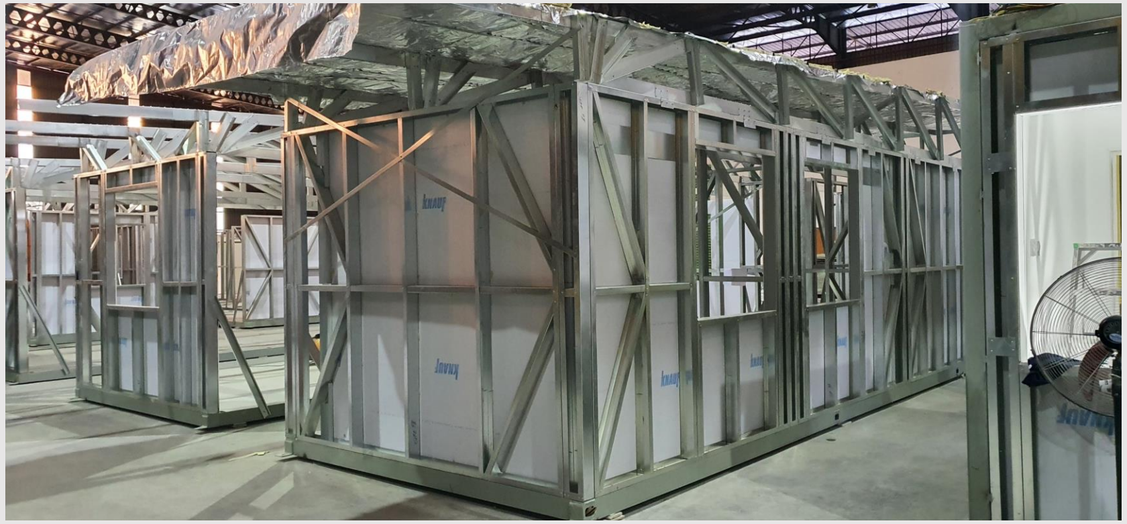
Kimberley Metals Group Operations Village, Western Australia

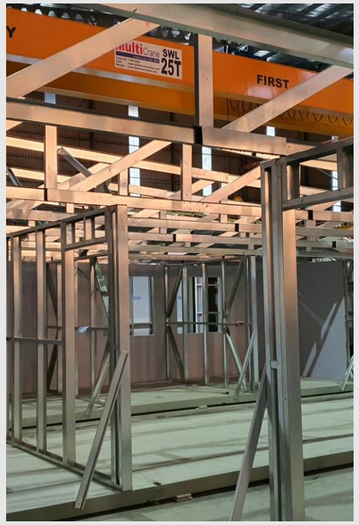
PETRA MODULAR

Offices and ancillary buildings

Leighton construction site office complex, Johor, Malaysia

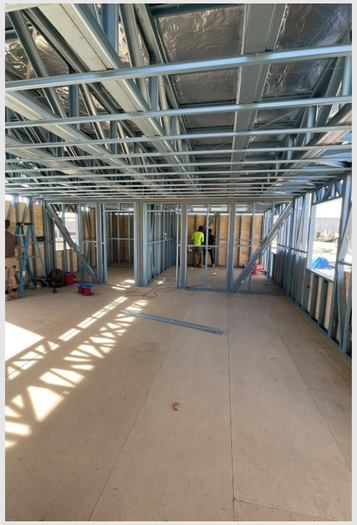
Offices and ancillary buildings





Leighton construction site office complex, Johor, Malaysia

Offices and ancillary buildings



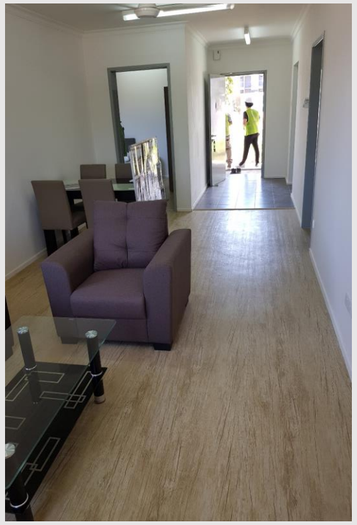
Hope Downs 1 and Hope Downs 4 ancillary buildings, Western Australia

PETRA MODULAR

Mid-rise apartments and accommodation

Desaru Coast staff housing complex, Johor, Malaysia

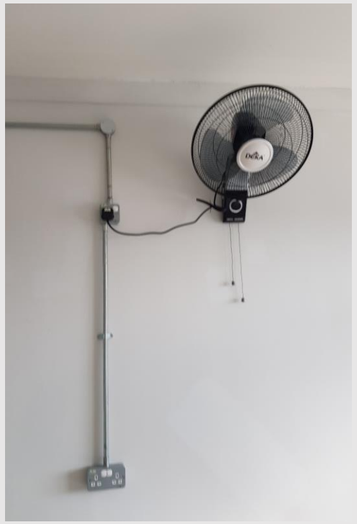
Mid-rise apartments and accommodation



Desaru Coast staff housing complex, Johor, Malaysia

Management and Workers Village Complex, Johor, Malaysia

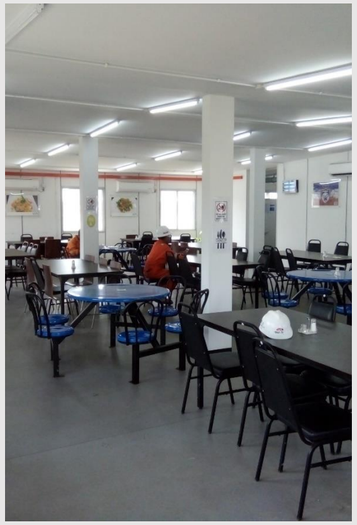
Mid-rise apartments and accommodation

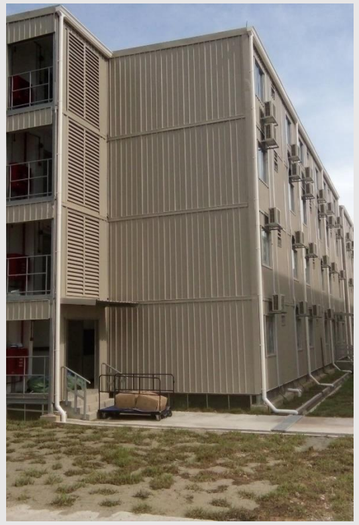


Management and Workers Village Complex, Johor, Malaysia

Pengerang RAPID Workers Accommodation, Johor, Malaysia

Mid-rise apartments and accommodation





Pengerang RAPID Workers Accommodation, Johor, Malaysia

Product overview

Hotels and resorts (from budget to luxury)

The issues

In hospitality, Time = Money:

- Fast build time.
- Long design life.
- Designed for easy maintenance and refurbishment.
- Scalable.

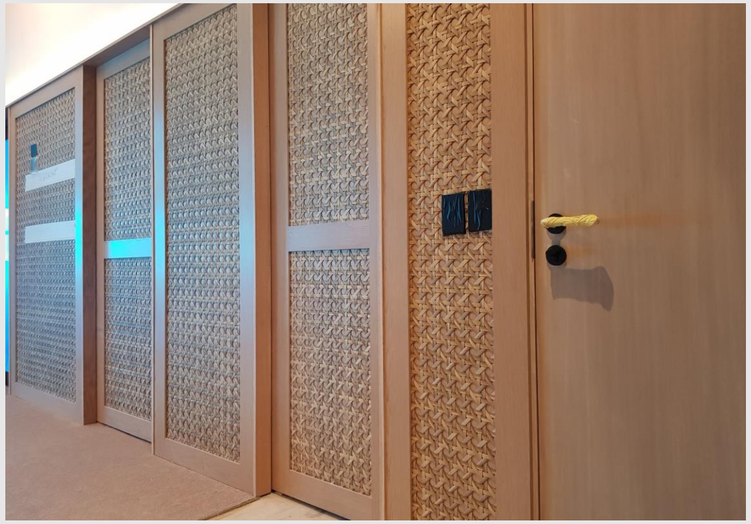
Our solution

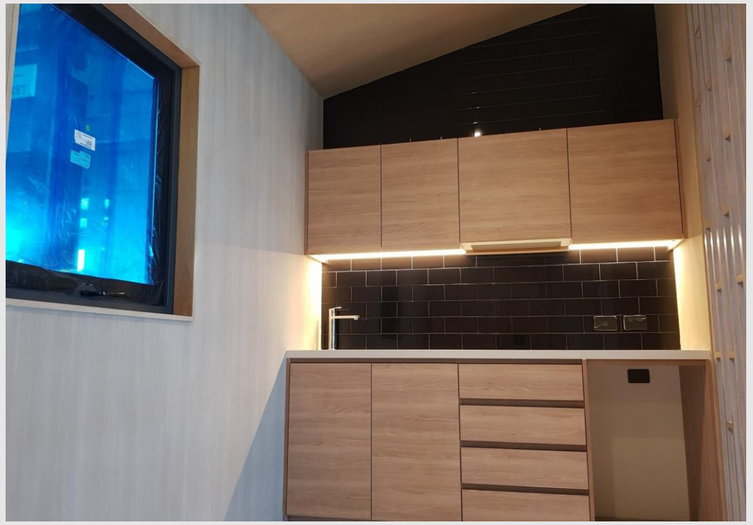
The HOT-100 package provides for flexibility in the number of keys and includes:

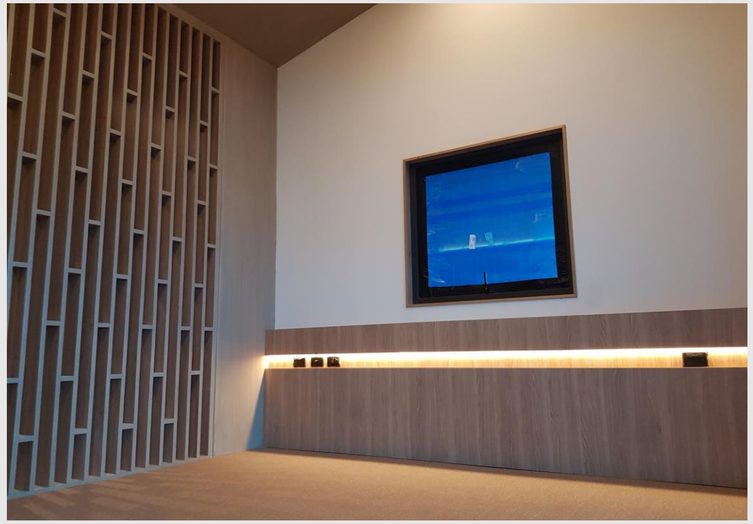
- Up to 10-storey blocks.
- Flexible number of keys per floor.
- Ground floor lobby, management and retail.
- Two levels of underground or above ground car parking.
- Full fire rating as required by local Codes.

Scalable to suit your site requirements.

Hotels and resorts







Guide Hill Station resort, Tekapo, New Zealand’s South Island

Hotels and resorts

Lakeview Terrace hotel, Johor, Malaysia and Capricorn Roadhouse, Western Australia

Hotels and resorts

Holiday village, Bunbury, Western Australia

Project overview

Holiday Park 1-bed Studio Unit

Overview

Destination

Broome, Western Australia

Modules

Each studio unit consists of a single module 3.5m x 8.4m with bathroom and living area.

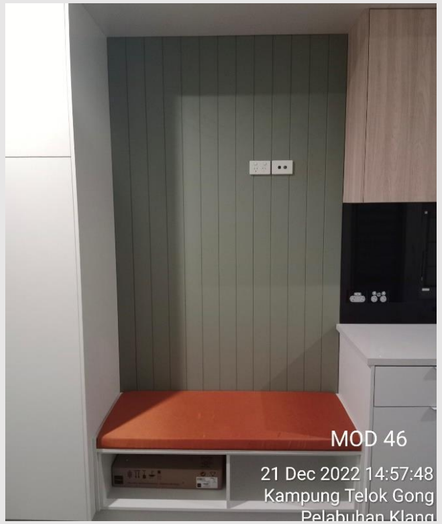
Specification

In accordance with Building Code of Australia, with cyclonic wind rating.

Current location

Installed on site.

Holiday Park 1-bed Studio Unit



Project overview

Yankee Village (single wide mobile housing)

Overview

Destination

Portland, Maine, United States of America.

Modules

Each 80sqm house consists of 2 main modules and 5 modules for the high-pitched roof.

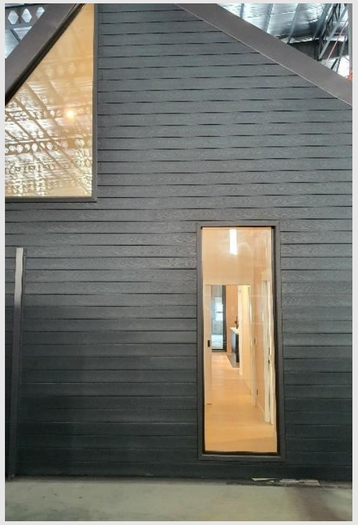
Specification

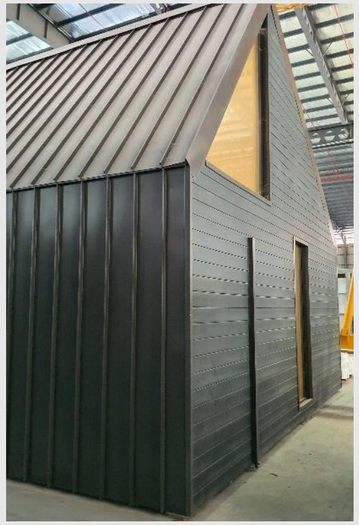
In accordance with the requirements of HUD, the Housing and Urban development Authority, for high snow load conditions.

Current location

Telok Gong factory, Kuala Lumpur, Malaysia.

Yankee Village

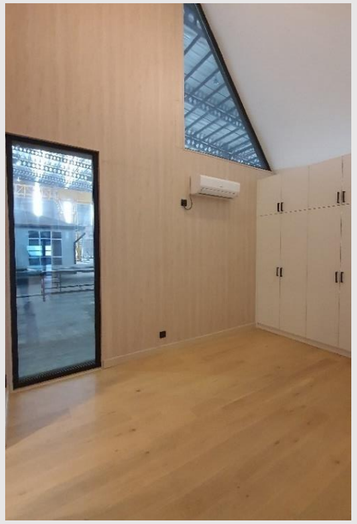
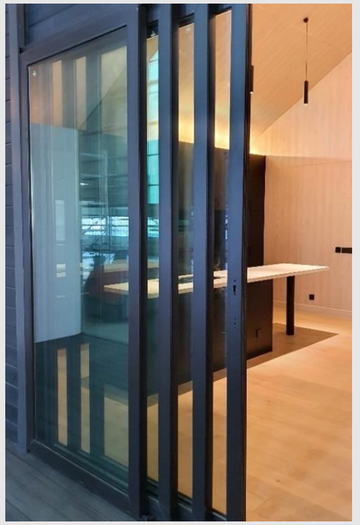


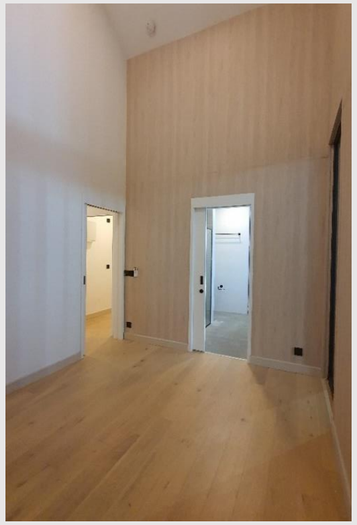


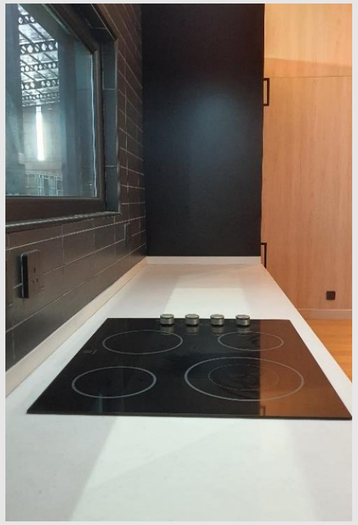
PETRA MODULAR

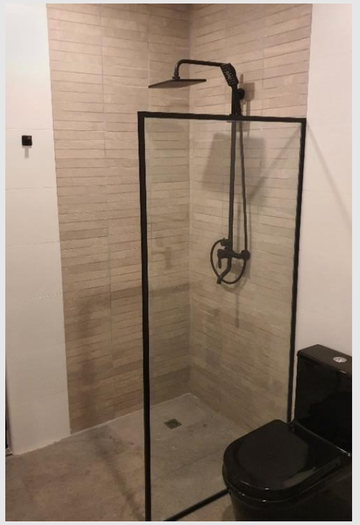
Yankee Village









Project overview

Terrace-style social housing

Overview

Destination

Originally Coventry, United Kingdom, now in Telok Gong, Selangor, Malaysia

Modules

Two modules stacked with internal staircase, with total area 100sqm.

Two bedrooms on the first floor with a shared bathroom.

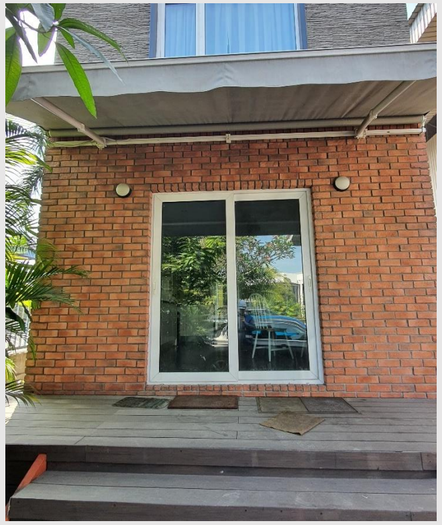
Specification

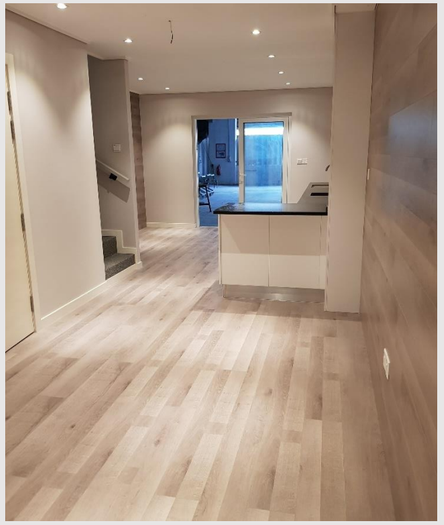
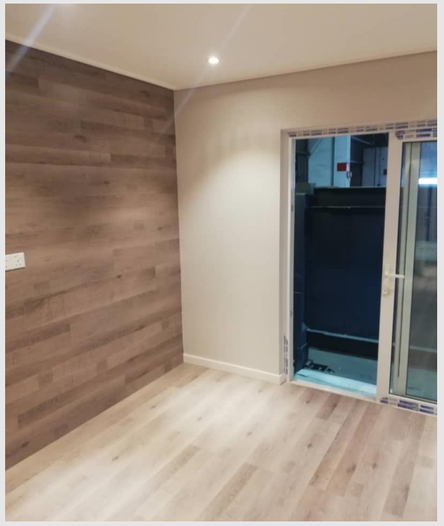
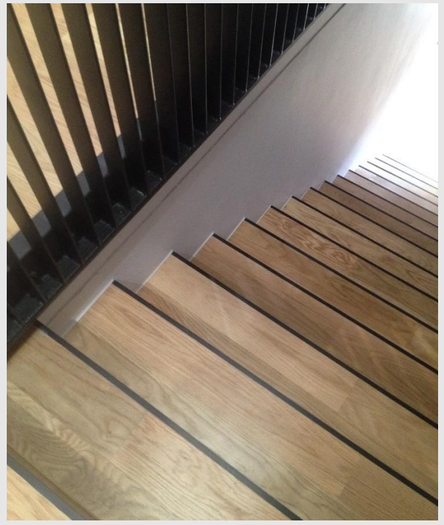
In accordance with UK Building Codes, built as initial unit for client approval for UK social housing project.

Current location

Operational at the Telok Gong factory, Malaysia.

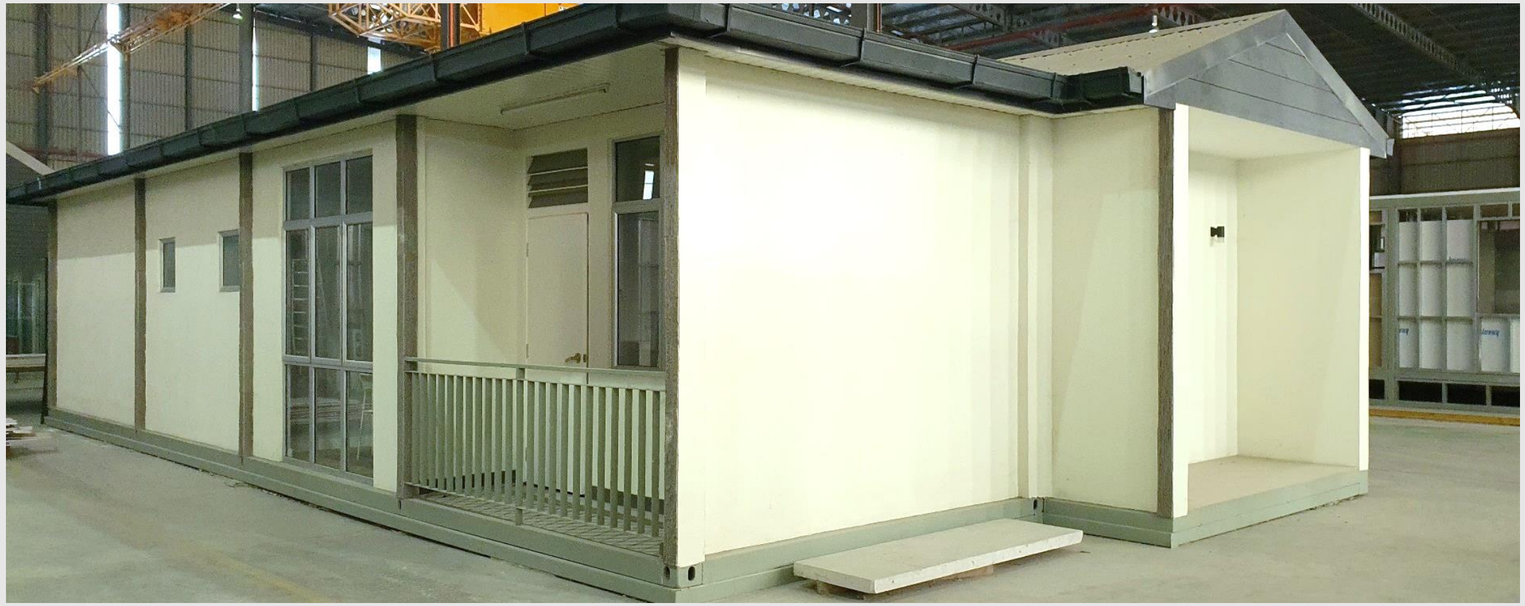
Terrace-style social housing





Project overview – Affordable housing



PR1MA affordable housing block

Overview

Destination

Malaysia

Modules

A 3-bedroom 100sqm apartment consisting of two modules built to be placed on the top floor of a 10-storey apartment block.

Specification

In accordance with Malaysian Building Codes, with steel framing, concrete floor and walls for PR1MA affordable housing standard in Malaysia.

Current location

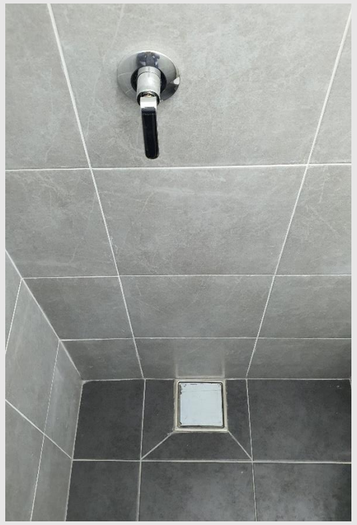
At client’s site, Klang, Kuala Lumpur, Malaysia.

PETRA MODULAR

Affordable housing






Product overview

Tiny homes

Overview

Destination

Worldwide

Modules

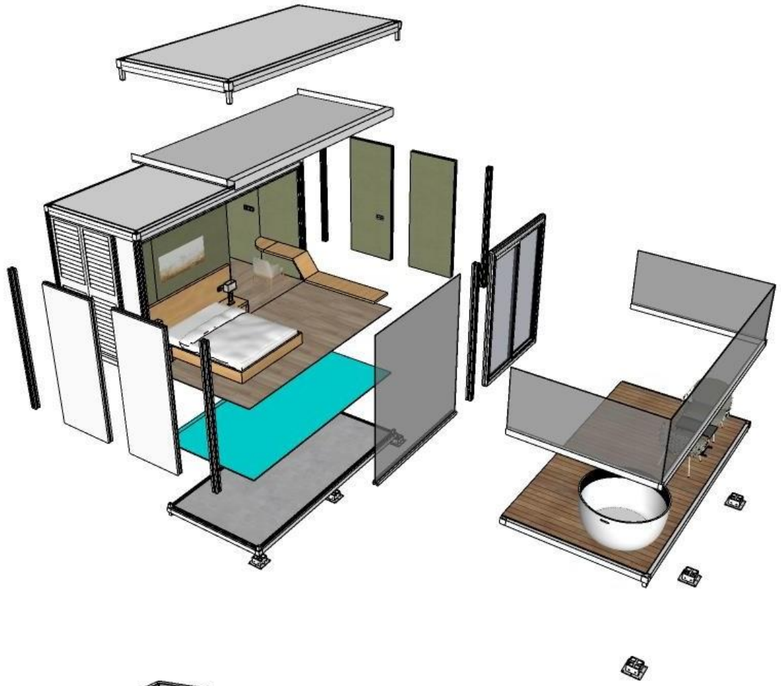
Flat-pack solution packed into 40’ containers.

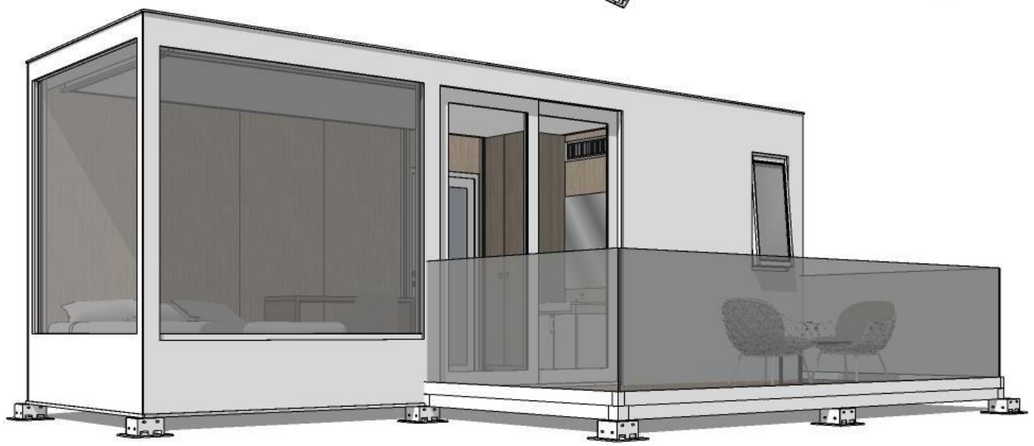
Specification

In accordance with the destination building codes.

Product overview – Tiny homes

Product overview – Tiny homes





Next steps

Our request

Petra requests that you review this document and advise your thoughts and ideas or preferences so we can discuss any customisation to suit your needs.

In order to make this efficient for you, we will provide you with our Client Preferences Form for you to complete.

Our offering

Petra Modular is willing to invest the time and resources to work with you to design any features or facilities you need beyond our standard packages.

We ask that you work with us by:

- Completing our Client Requirements Form, which will be provided upon request, or providing us your project specifications.
- Providing us with the coordinates and details of the property or final location.

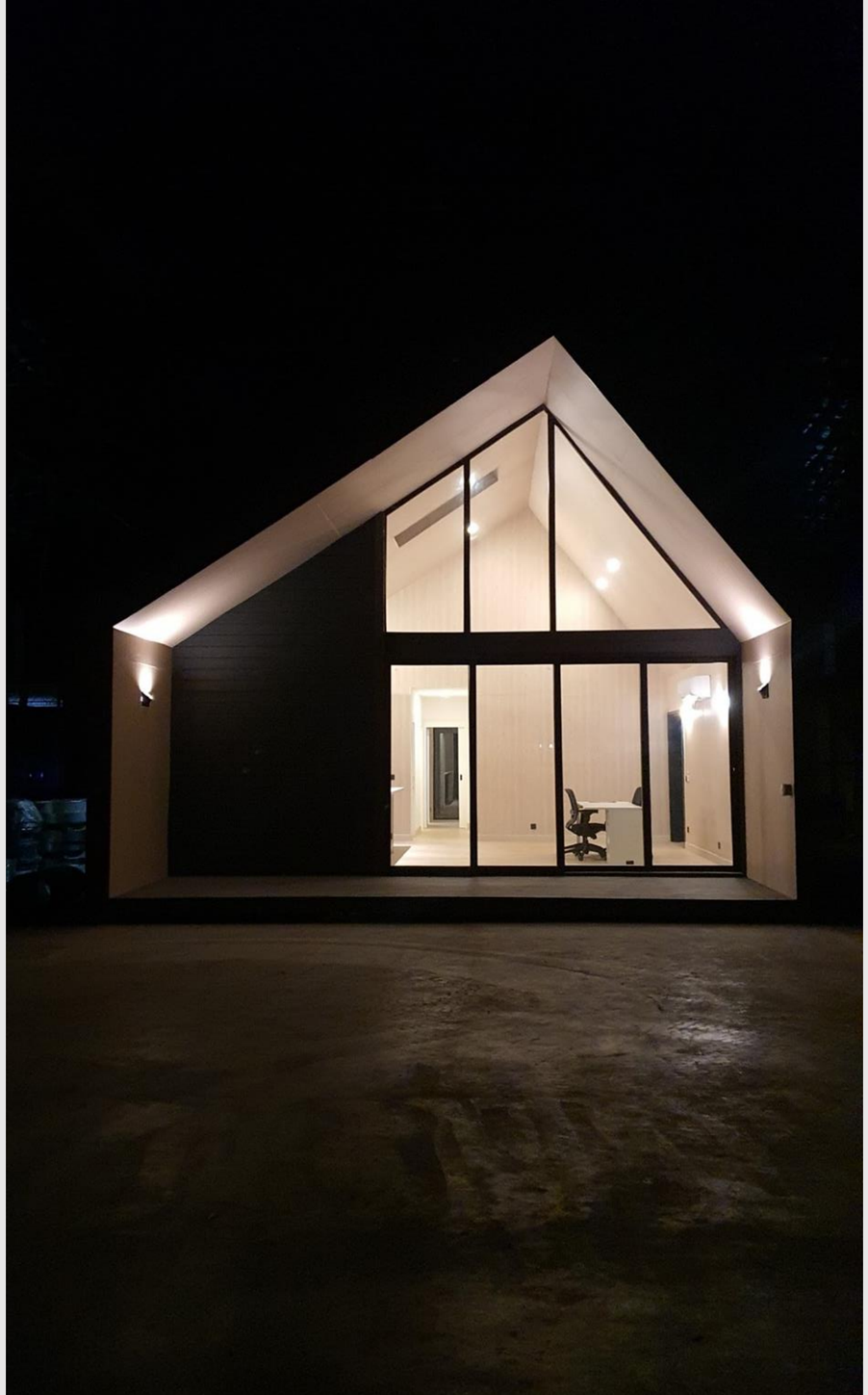
Collaborating for a seamless modular building solution

We see our relationship with you as a partnership. This collaboration means:

- No surprises and no headaches.
- Certainty of delivery times and budgets.
- A satisfied client.
- Happy workers.
- Expanding the reputation of the parties.
- Ongoing business together.
- A win/win for everyone.

Building quality living environments for your workers

- Petra Modular's commitment to improving your profitability and the lives of all workers.
- Exciting prospects for affordable, high-quality workers' accommodation.
- Together, let's create a better living standard for your workers.



Contact us

Petra Modular – Malaysia

Jalan Canang Emas 7/KS10, Kampung Telok Gong, Klang 42000, Selangor, Malaysia

Petra Modular – Australia – East

74-76 Magnesium Drive, Crestmead 4114, Queensland, Australia

For more information

E: contact@petramodular.com

W: www.petramodular.com

Luke Tingley

Executive Director
E: luke@petragroup.net
M: +60 176 969 283

Matt Ferrie

Business Development Manager
E: sales.westkey@petragroup.net
M: +61 491 036 059

Dennis McMahon

Business Development Manager
E: dennis@petragroup.net
M: +60 169 839 715
+61 402 612 471

Matt Williams

Operations Manager
E: matt@petragroup.net
M: +60 133 768 464
+61 414 475 220