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Part 1

**Camp life can be bad for your health...
a better model of resource project
accommodation...**

**A Submission to the House Standing
Committee on Regional Australia- Use of
FIFO/DIDO Workforce Practices**

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October 2011

Part 1: Camp life can be bad for your health...

A proposed better model of resource project accommodation

October 2011

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Synopsis

1. **Doing time, problem behaviours and modern camp life in the era of FIFO and remote project sites**
2. **Principles for a healthier model of camp life**
3. **Proposals for evolved project accommodation and workforce health and resilience**



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5000 man camp, Canada



Synopsis of the Part 1 Submission

- attraction and retention of workers to project sites and resource towns is a competitive issue that will worsen over the next decade
- lessons are drawn from anthropology, armies and towns about optimum group sizes as well as from the eco-resort developers and even from the modern exploration camp model about autonomy, scale, clustering and liveability
- FIFO, shift work, centralised feeding and laundry reinforces the dependency and dislocation experience of remote camp occupants- mostly men who are separated from women and children to make their living
- the social disconnection of remote camp living has been correlated to risky behaviours and poor health indicators amongst some camp based workers
- evolved models of camp design, layout and small group clustering are proposed to promote normalised work/life patterns for workers who live in camps
- infill micro-camps for town sites and rapid deploy solutions are also proposed



1. Camp or prison?

the present model of camp life is delivering poor health outcomes, avoidable staff and operational costs and poor relations with nearby towns despite increasing costs per person accommodated



Newman , WA



Prison, Arizona

**Global investment
in mega resource projects has created new problems of scale for site
accommodation, worker mobility
and retention**



Prison- Texas, USA



Mine camp , New Caledonia

Home on the range?

resource project camps usually operate as autonomous, centrally planned garrisons requiring huge investment into amenity and accommodation units

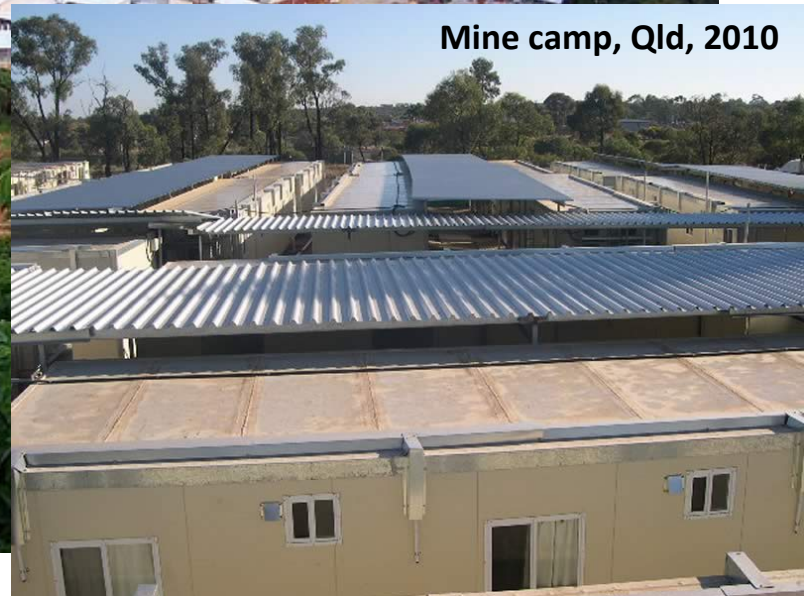


Spot the difference..

resource camps are readily adapted into detention centres as they are built with the same out-moded planning principles ill suited to suburbanised FIFO workers



Christmas Island, 2010



Mine camp, Qld, 2010

Doing time...

FIFO and BIBO into remote sites is a recent development where the disconnection between camp life and shift work from family life is marked



Camps are rarely communities...

remote camp life is correlated to many of the problem behaviours associated with isolation, male dominance and social disconnection*



*Professor Kerry Carrington QUT, et al

'Globalization, Frontier Masculinities and Violence'

British Journal of Criminology

February 2010

**Most camps are not intended to be towns..
there are few women, no children or pets , scarce water, few permanent
dwellings and little or no shared history. However.....**



Families(3-10), villages(15-50) and tribes (50-150)

..history and anthropology teaches us that certain group sizes work best for organising work, defence and stable community and town building



Resort developers and the eco-tourism operators have been adapting traditional village patterns for decades. Some project camps have applied these patterns but at military scale - as the accommodation and feeding task is significant



Chimbu village, Central Highlands, PNG



Emirates Wolgan Valley Resort, Blue Mountains, NSW



1000 man camp, Pilbara

Yulara Resort, NT



2.Principles for a better model of camp life:

- Design camps that break down the grid patterns of donga rows and service roads into distinct villages and walkable sectors



- Plan camps using ‘family, village and tribe’ grouping principles
- Integrate micro-camp clusters into regional communities and service towns....where these are welcome
- Encourage personal domestic responsibility and allow autonomous living options for those individuals who wish to co-habit in stable groups

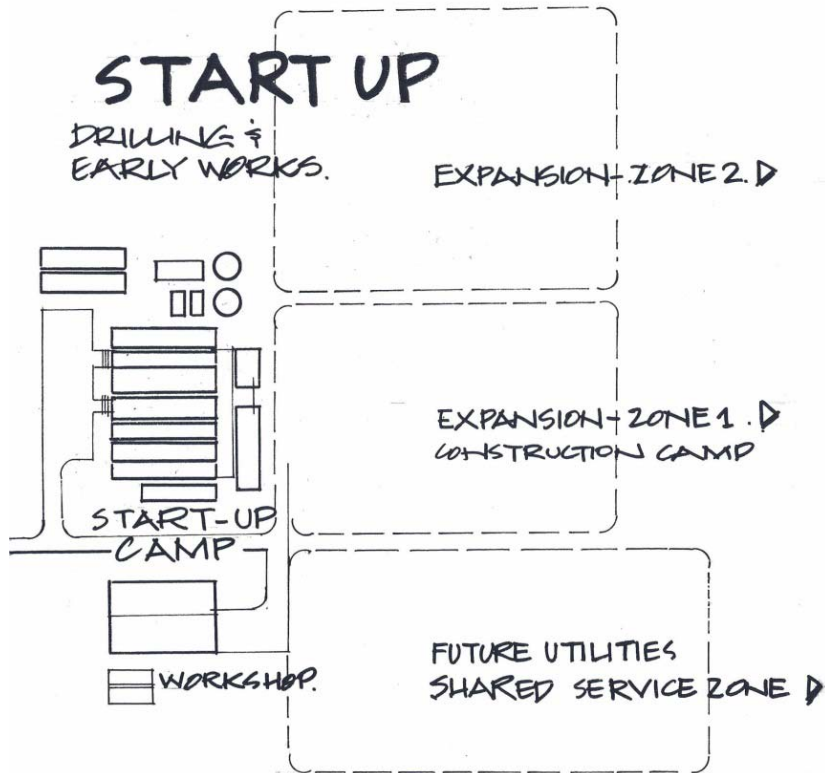


2. Principles for a better model of camp life(continued)

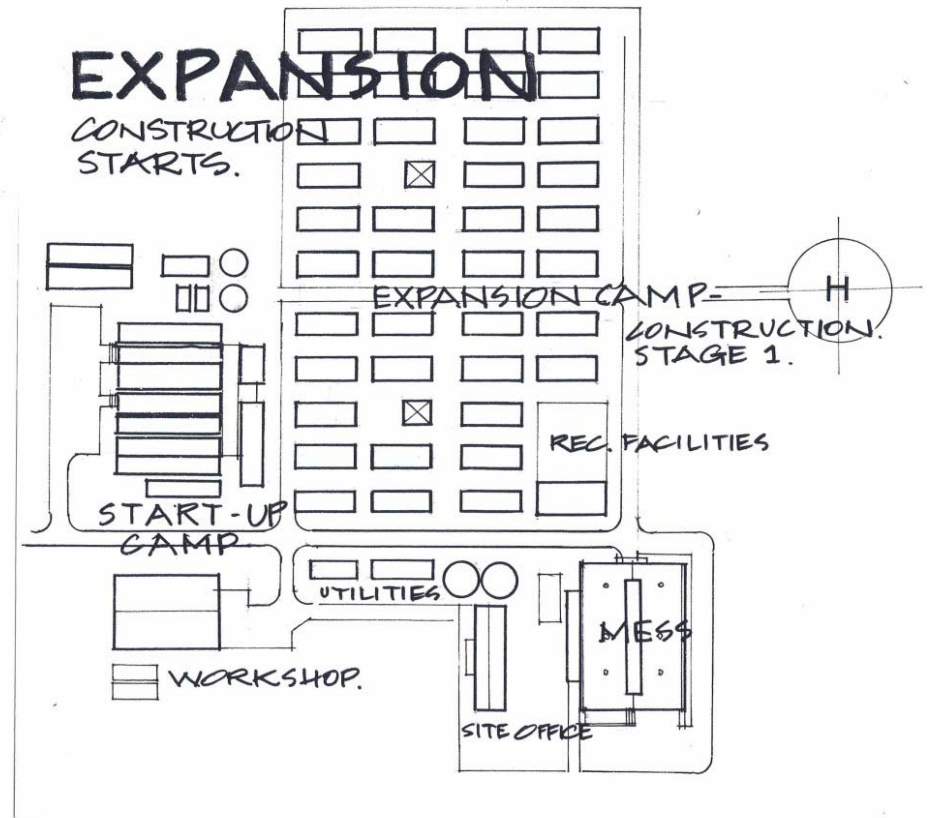
- Allow those groups to practice and protect home patterns of living
- Employ local people as domestic support for small living groups
- Reduce cafeteria bloating and allow de-centralised meal preparation and self laundry
- Encourage fatigue avoidance with incentives to arrive early and leave after recuperation
- Tolerate private or pooled vehicle usage to, at and from sites where it is feasible



Camps don't usually evolve into sustainable towns
as camps grow in blocks to meet manpower needs over the construction period - typically 2- 5 years.



Stage 1

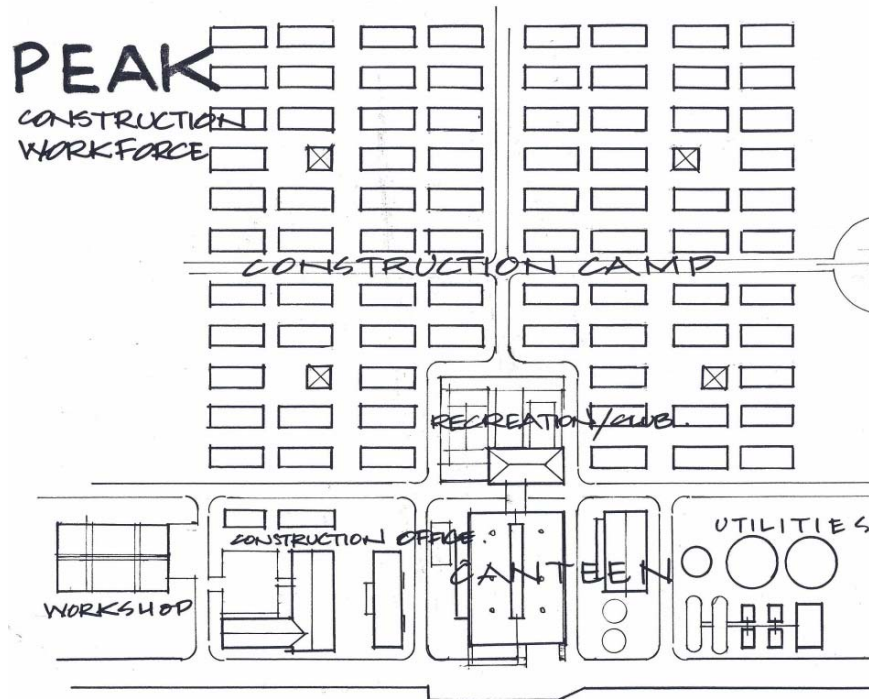


Stage 2

Operational site townships

often comprise the remnants of the construction phase camp...

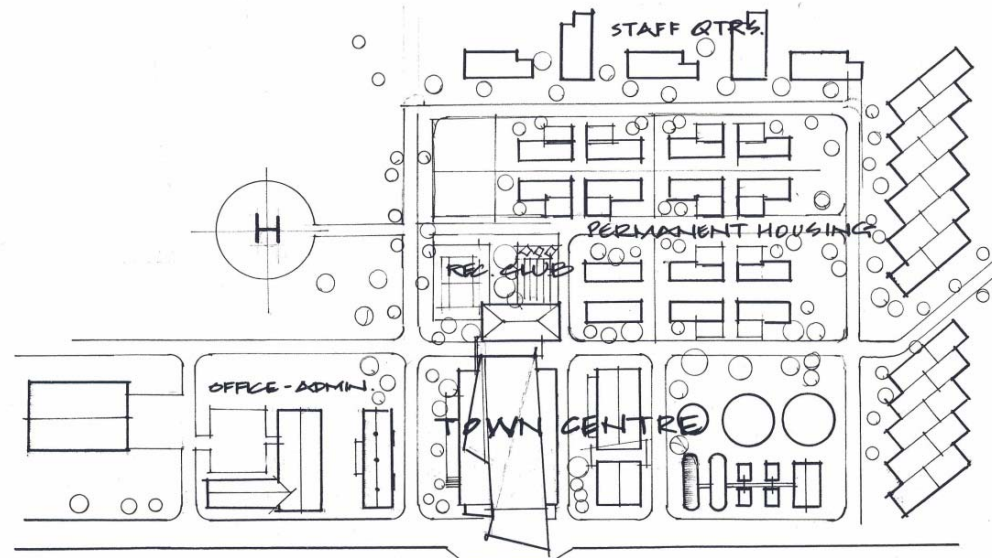
Group size within camps has had little attention to date...



Stage 3

OPERATIONS

PERMANENT VILLAGE



Stage 4

...however some resource site developers are learning that breaking down large camps into smaller clusters can make for happier and healthier campers. Decentralising village clusters from dependency on a common canteen is the next step



Brownfields and remote sites

site location and remoteness should influence the camp design approach and camp operations- generic grid layouts don't make healthy places to live



The Big Pit, Kalgoorlie



Remote site camp layouts

can exploit topography and radial layouts to create distinct sections and village scale areas without expensive earthworks or increased walk distances



G8 Summit security group camp, Canada



We experience home life in small clusters

Australian workers come mostly from suburbs where they know their immediate neighbours through their backyards and in the street. Small group clustering enables a sense of local place to develop within larger workforces living away from home



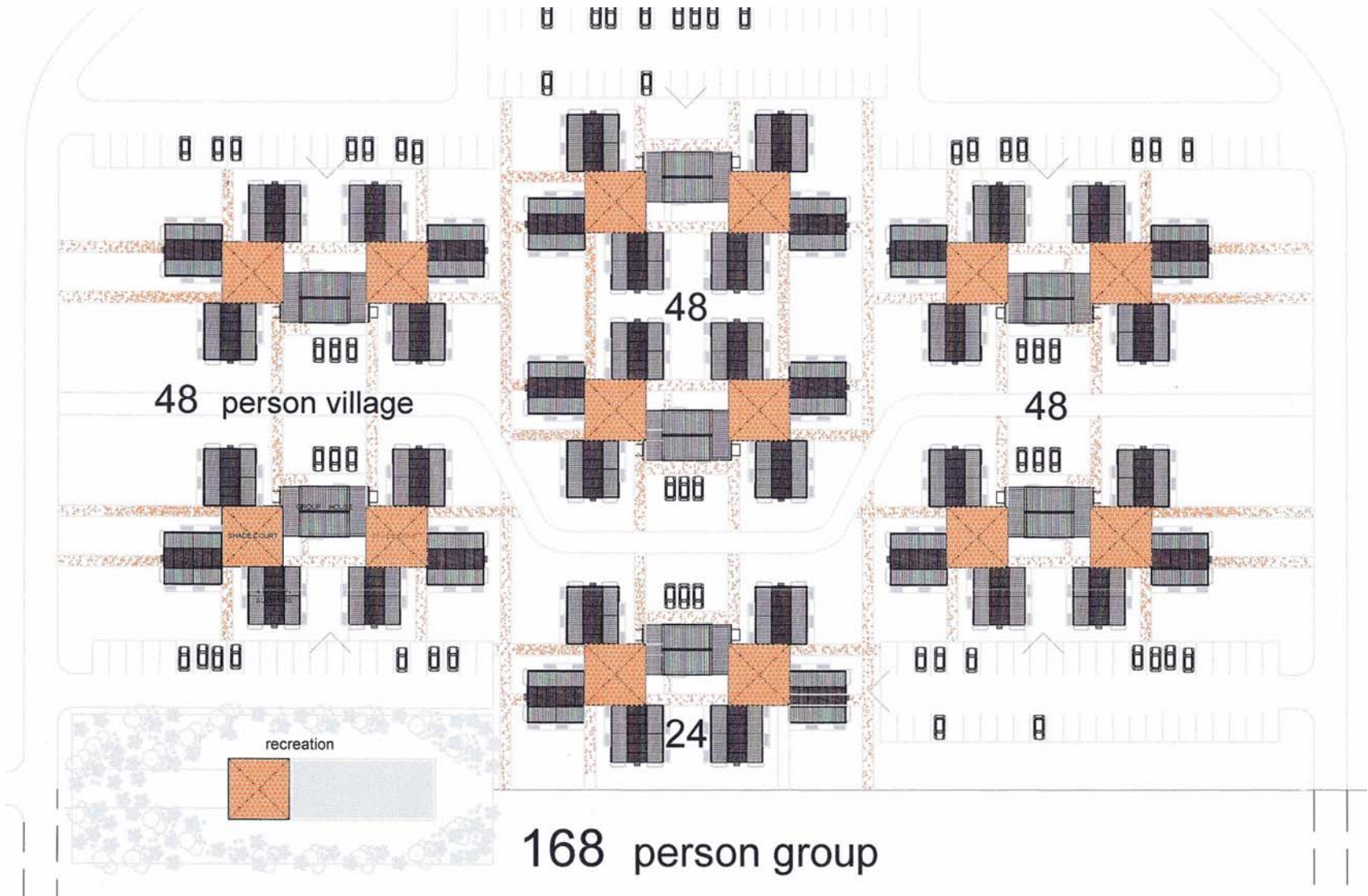
3. A new 600 person camp model for remote sites

3x 168 person sections or 'tribes'. A 'start up' camp of 75 persons and permanent village for 50 people are planned for with areas allocated in the master plan



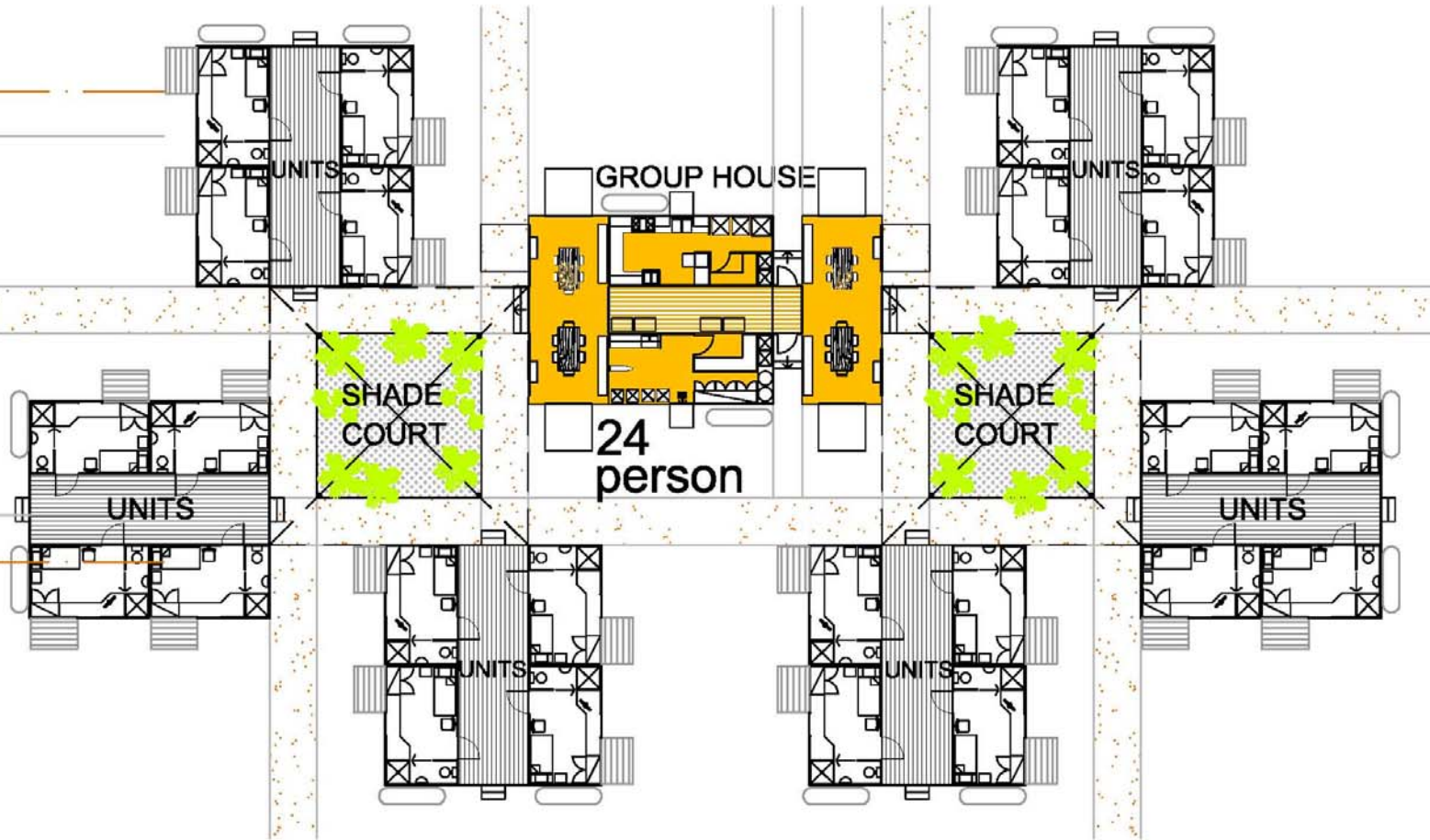
168 person 'tribes' or sections

comprising 3x 48 person villages, 1x 24 person village that can operate autonomously without the need for centralised messing and some utilities



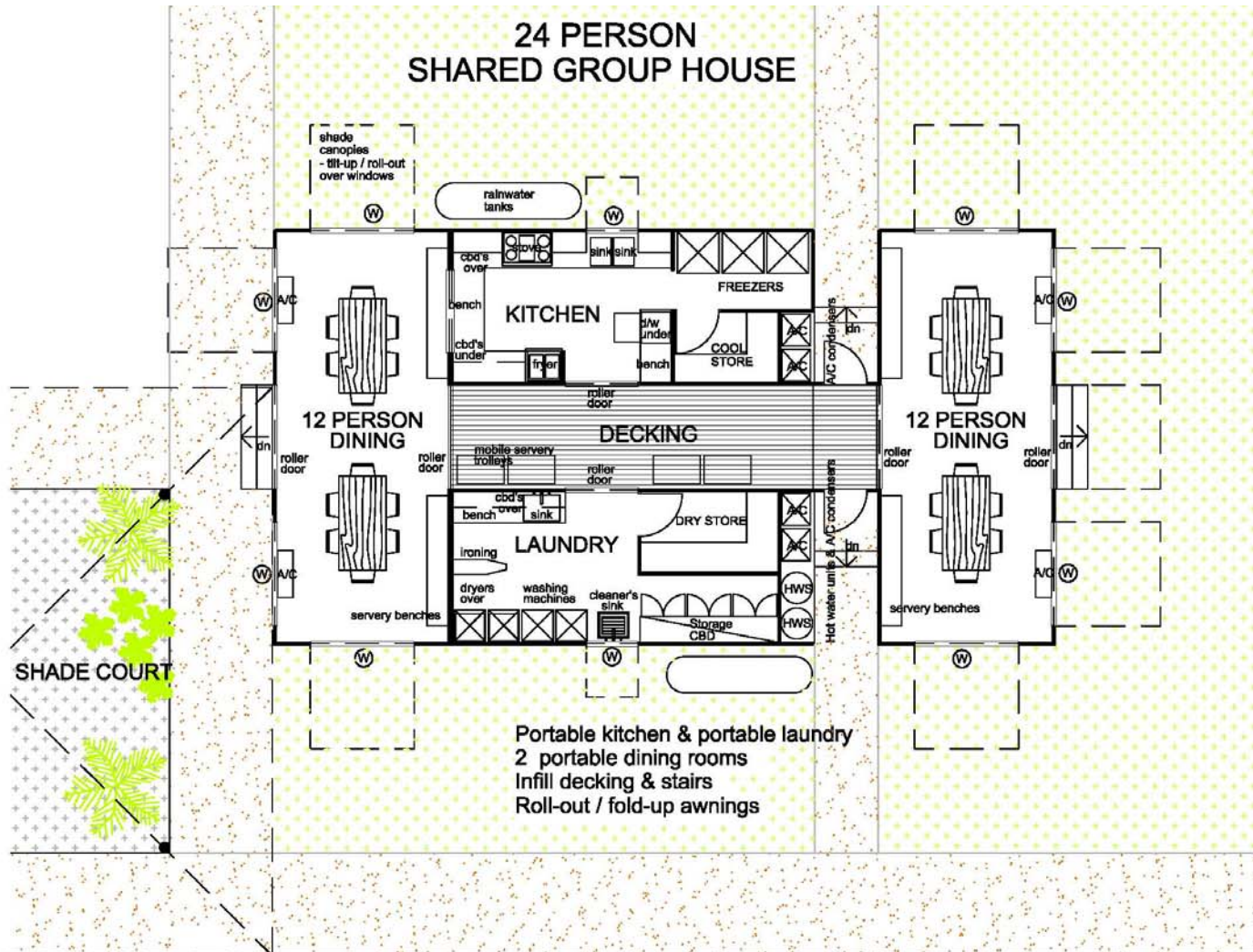
Know your neighbour

3 x 48 + 1 x 24 person villages comprising 7 x 24 person clusters each sharing 1 x group house cook and amenities pod per 24 people.



Within each 48 person village:

2 x group houses, each one shared by 24 people who can prepare and eat their own meals or have the 'house cook' prepare meals and provide housekeeping services



Better remote camp sites of the future

will have good common area facilities, employ water wise design, have early landscaping and planting and will be planned for small group autonomy to promote and allow more normalised home patterns of living



Better remote site camps

will be planned in smaller group clusters with de-centralised amenities. These will allow more stable group formation and local 'ownership' and will have the look and feel of our suburbs. Residents will know and choose most of their neighbours.



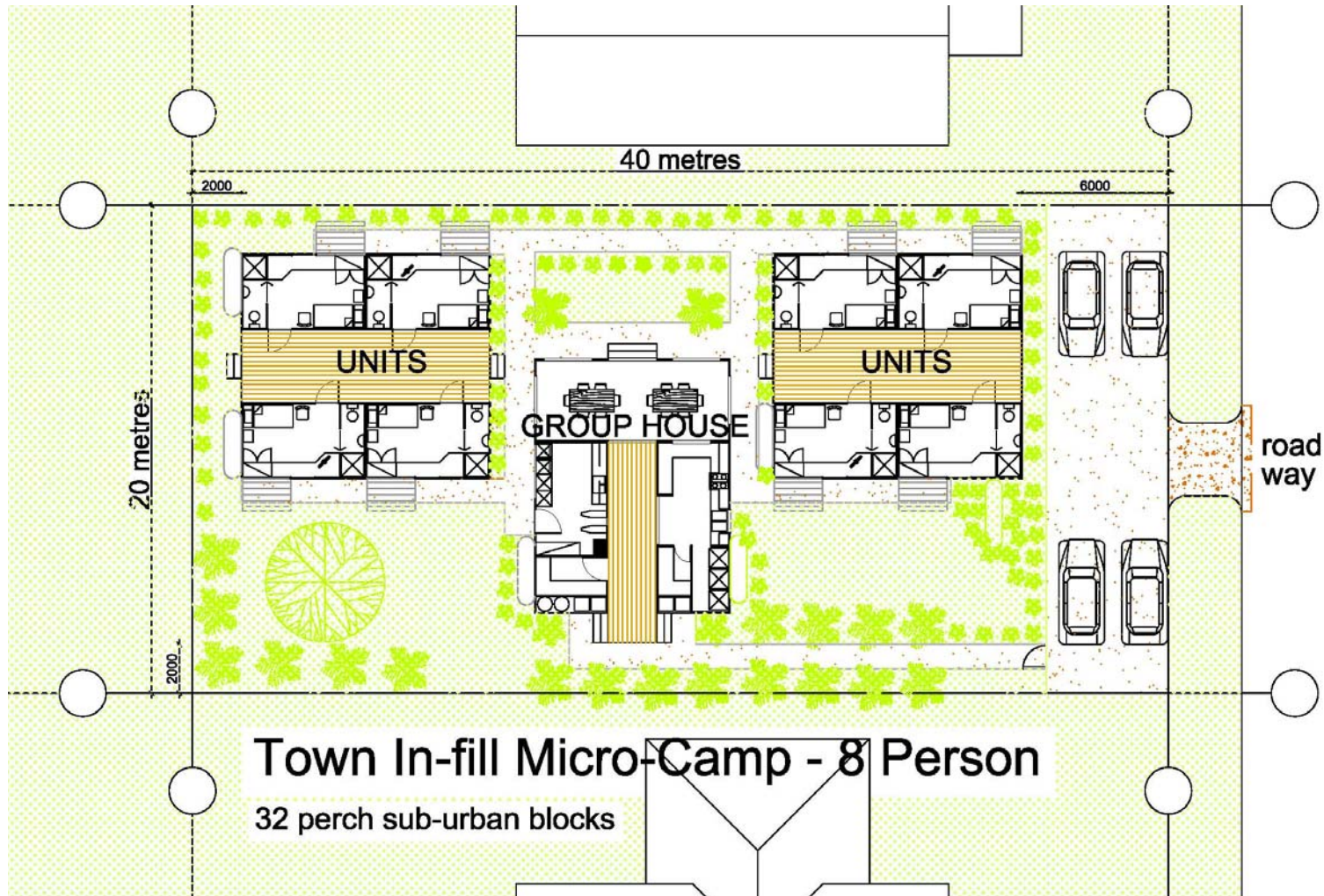
Brownfield sites and in nearby towns

regional councils and businesses are keen to attract project related accommodation into country towns but they don't welcome the problem behaviours associated with transient workers



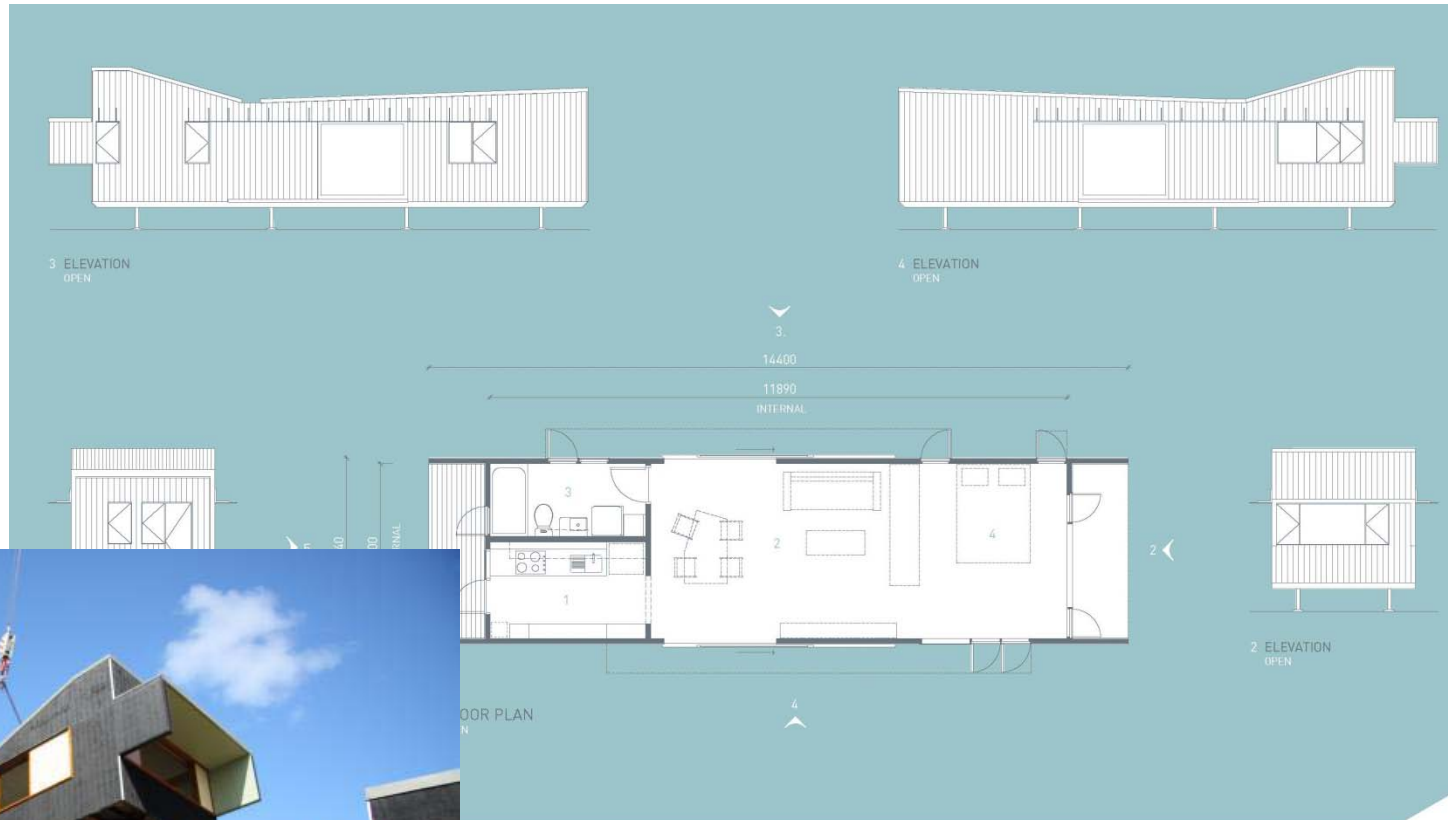
Brownfields site development near towns

micro-camp elements can be located as 'infill' onto vacant town blocks without the need to build new permanent housing. These can connect to town services at low cost and the occupants become residents rather than transients.



Brownfield sites and in town

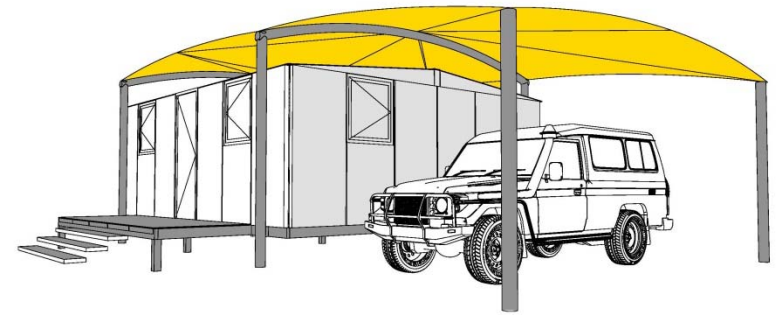
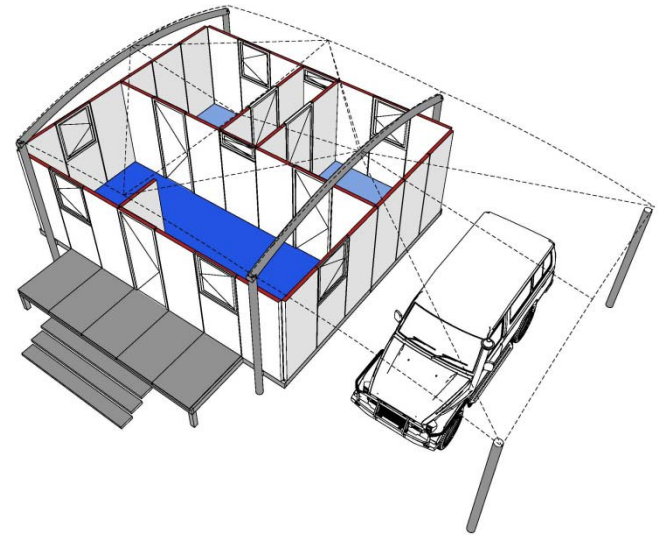
the pre-fab house builders can deliver quality designer houses for less than the installed costs of a mine site donga and its associated infrastructure



Hutchinson Builders Happy Haus - Dhan Series

Rapid deploy, remote site alternatives

lightweight, flat-pack camp accommodation systems using modern technology and materials have already been adopted by the eco-tourism operators. Some are very suitable for construction camps and small group configurations



'Fastshack' 2 person rapid build, flat-pack



acumen partners

architects and project managers
south brisbane, queensland

Part 2

Inclusive models of accommodation for non-resident resource communities in Queensland's Bowen and Surat Basins ...

a smarter model of resource project
accommodation that supports regional
development..

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The FIFO camps vs. regional town development battle lines are now clearly drawn-particularly in the Bowen and Surat basins in Queensland where many rural service towns and mining towns are well established



The FIFO camp accommodation model by-passes the problems of long term community building and leaves these for the regions and the State to solve. The resource developers' position is that their development investments are adequately taxed and that they are not in the business of town building. Why not? Both stakeholder groups should be winners...

FIFO and DIDO is a function of the absolute low cost of road and air transport relative to the cost and complexity of regional town development, local skill formation and retention. The resource developers have recently side stepped the regional development of sustainable communities..



Smarter models of transitional accommodation are required in towns for non resident communities that both enable social inclusion and allow appropriate capital investment into towns matched to project workforce peaks



Project development workforces and their families can be accommodated in towns via a transitional model of town growth and development.

The basic principles:

- **Extend MP3.3 to 5 years.** The State of Queensland allows Shires to extend MP3.3(Temporary Accommodation Buildings and Structures Code) of the Queensland Development Code (presently only 2 years approvals allowed)
- **Development of town allotments for non-resident communities** based on the principles of social ecology and communal clustering
- **Development of in-fill micro camps** onto town blocks to be allowed
- **Remote site accommodation systems** and sub-division engineering standards suited to MP3.3 of the QDC be allowed by Shires for town sites
- **Autonomous utilities, compact foot print compounds,** car accessibility and decentralised messing and laundry based on the 'group house' concept for single worker villages to be allowed
- **Modular power, water and waste water systems** sized in increments of 150 person groups up to 1000 persons to be allowed before major town utilities upgrades are required
- **Shires levy proportionate infrastructure charges** based on the above

4 generic types of established towns in the Bowen Basin

- **Type 1: Established towns:**

Emerald- 10,000 people mining and irrigated agriculture- sustainable regional scale

- **Type 2: Mining-expanded towns:**

Moura- 2000 people, a rural service town that has evolved with mining investment since the 60s- capacity for growth

Clermont-2000 people, a rural service town that has evolved with mining investment since the 60s- capacity for growth

Capella-1000 people, early development in the 1950s by the Qld Food Corporation

Blackwater-5000 people, **Bileola**-6000 people. Both rural service towns connected by rail that have grown substantially since the 60s- sustainable regional scale

- **Type 3: Mining towns:**

Moranbah-8000 people, a thriving single purpose town established in 1971(Bjelke-Petersen govt.) by Utah Ltd before the FIFO era and connected by rail to Hay Point in 1972

4 generic types of established towns in the Bowen Basin

- Type 3: Mining towns:

Dysart- 2500 people which peaked at 4500. Established in 1973 before the FIFO era.

Glenden- Built in 1983 for the Newlands mine

Thieri- 1600 people established by MIM in 1983 before the FIFO era.

Middlemount-built in 1981 for German Creek and Foxleigh mines

- Type 4: Development towns

Springsure-1000 people and **Rolleston**-130 people farming and grazing, established in 19th century but set for big growth from planned Xstrata investment

Theodore- 750 people, farming and grazing, established in 19th century but set for big growth from Anglo Coal investment.

The Bjelke-Petersen government made regional town development an explicit condition of access to Queensland's resources



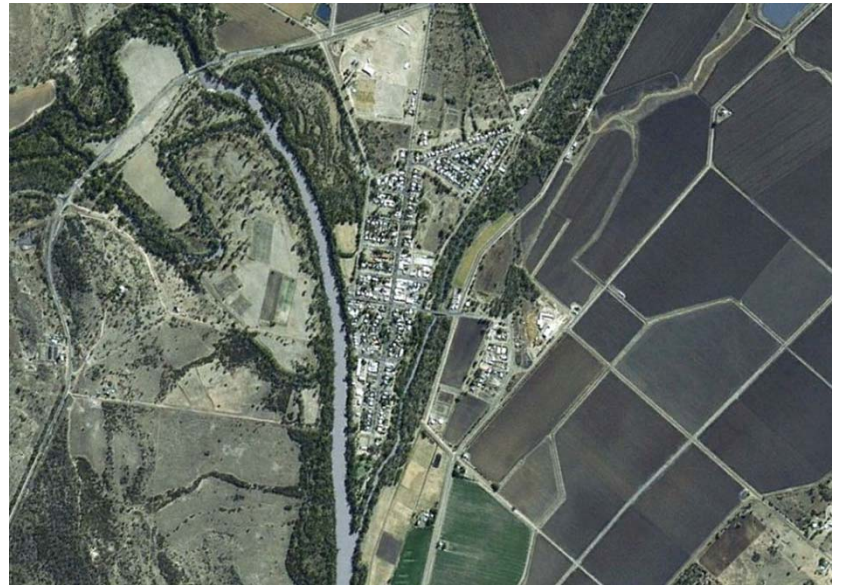
Type 1- Emerald



Type 2-Blackwater



Type 3-Dysart



Type 4-Theodore

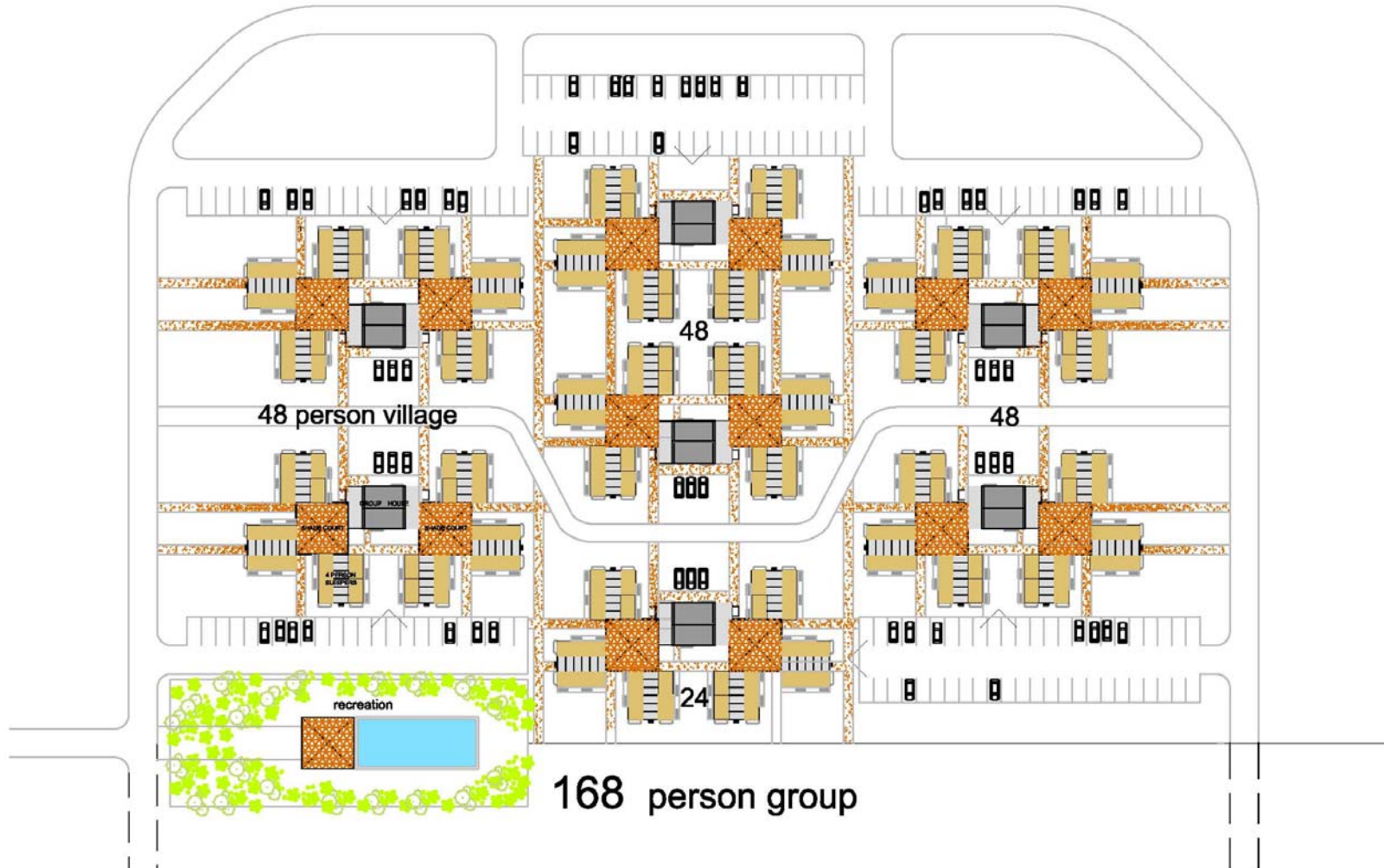
Town based accommodation clusters for non resident communities
Australia's FIFO workers come from suburbs and regional towns where they know their neighbours through the backyard and the street. Small group clustering enables a sense of local place to develop within larger workforces living away from home



Brownfield development near towns
regional councils and businesses are keen to attract town investment but don't welcome the problem behaviours associated with transient single workers

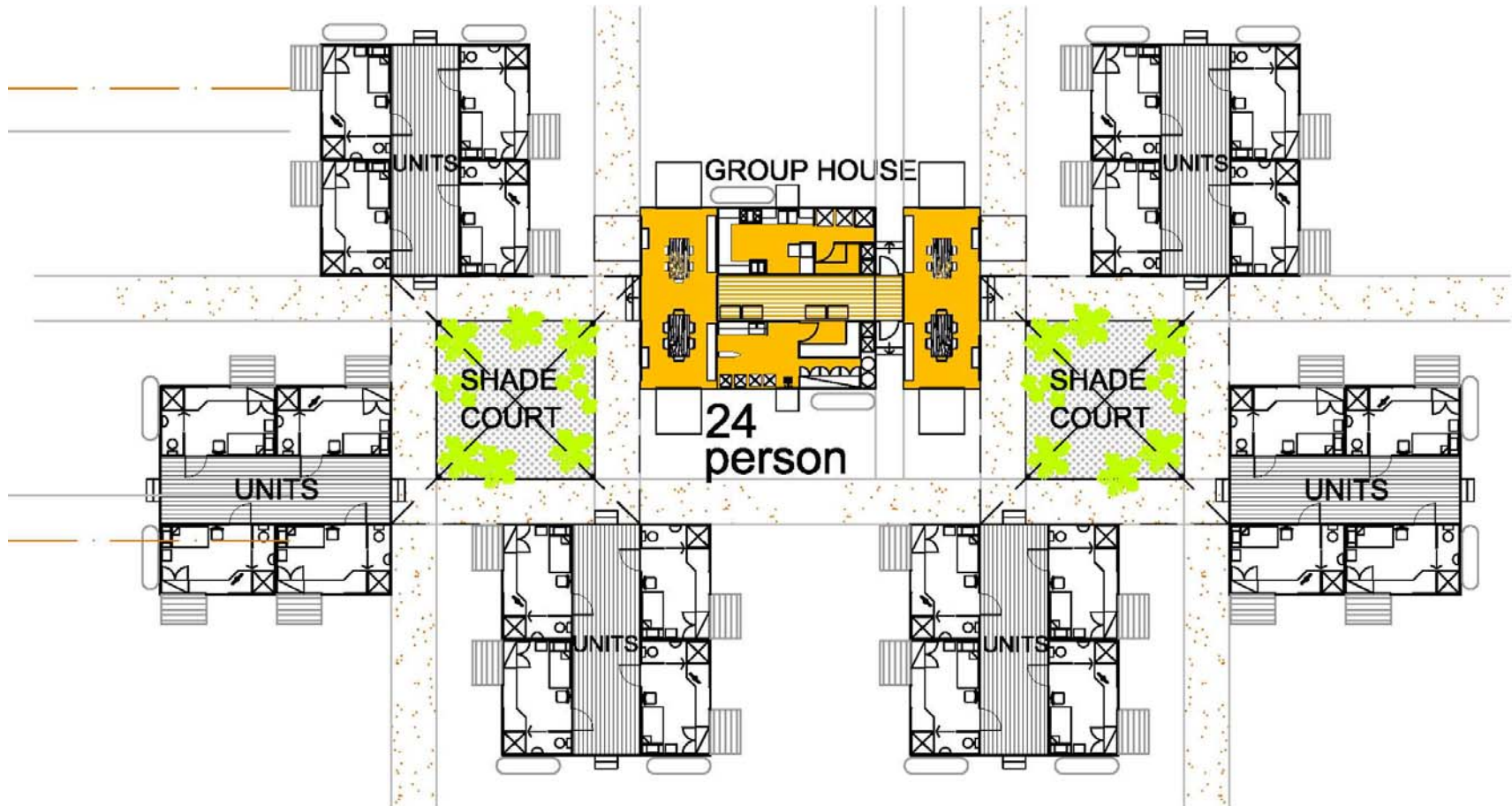


**Transitional town allotments or sections
employing small group clusters and adopting remote site camp technology
can be employed in towns to resolve the stand off between resource
developers and town communities**

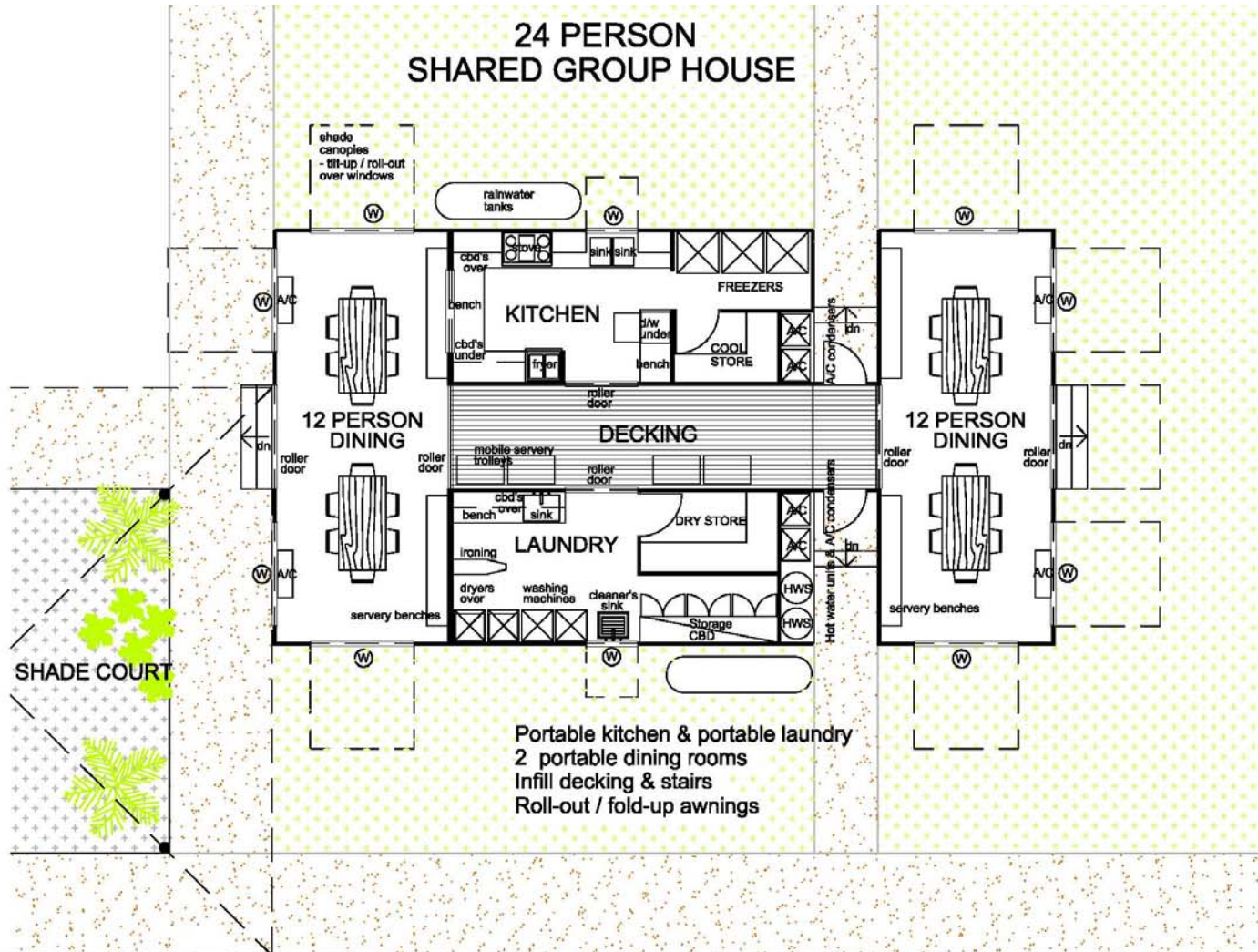


Know your neighbour

Example: 24 person 'singles' villages in clusters each sharing 1 x group house cook-and-amenities pod. These can be developed in towns and employ towns people to staff to support home patterns of living

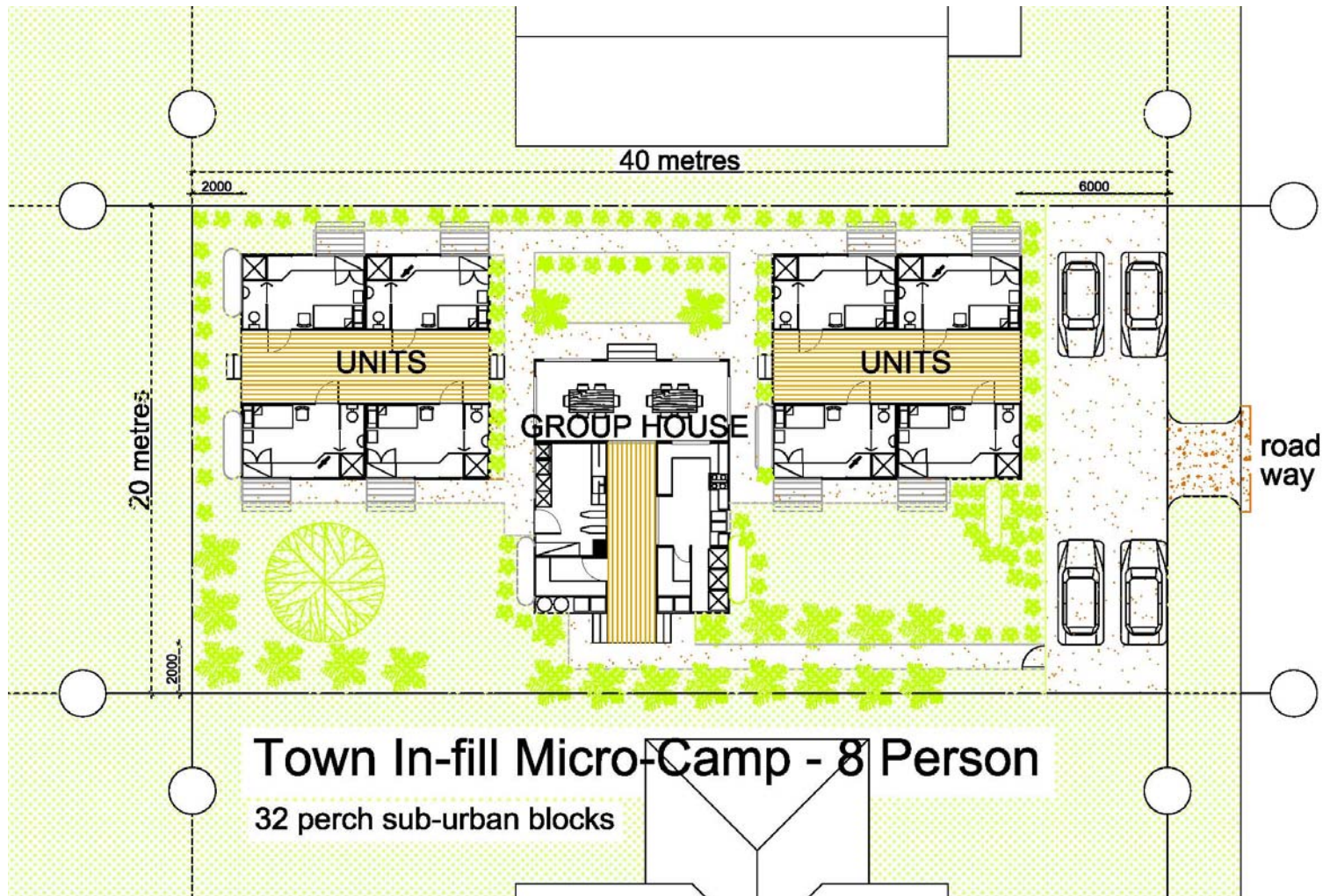


**The Group house becomes the ‘kitchen’ of the singles village:
 Group houses, each one shared by 24 people who can prepare their own meals or have the ‘house cook’ prepare meals and provide housekeeping services from within the town. This model eliminates centralised messing.**



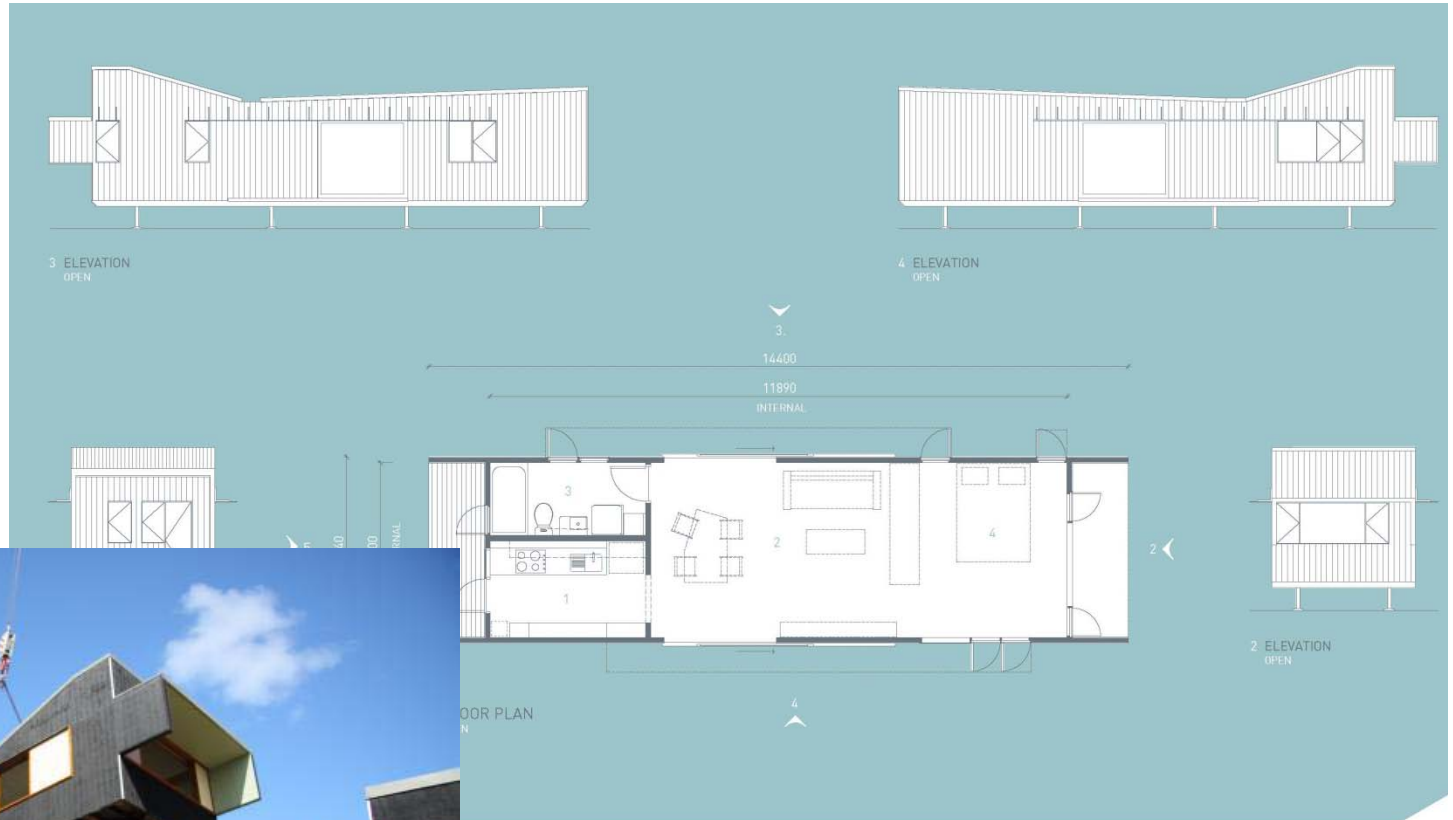
Micro camps as infill development on town blocks

micro-camp clusters can be located as 'infill' onto vacant town blocks as an alternative to permanent housing. These can connect to town services and house 8 - 10 singles supported by town based housekeepers



Brownfield sites and in town

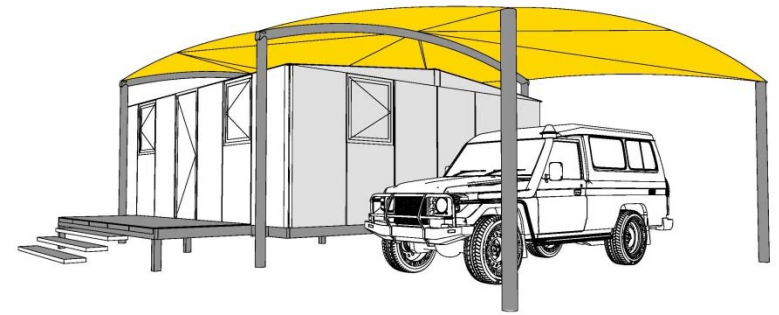
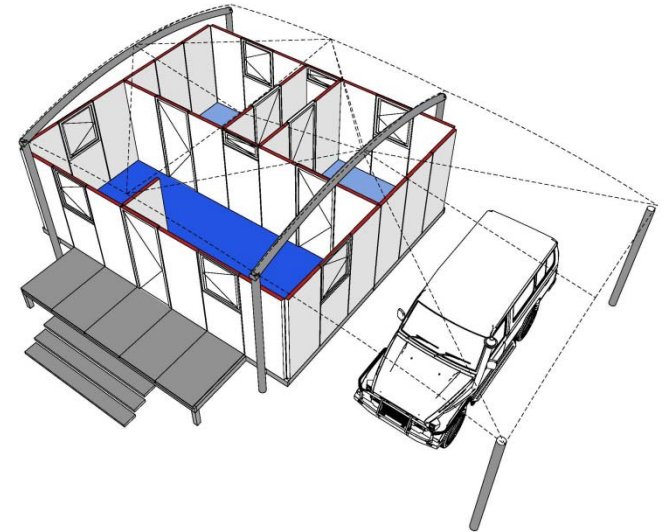
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Hutchinson Builders Happy Haus - Dhan Series

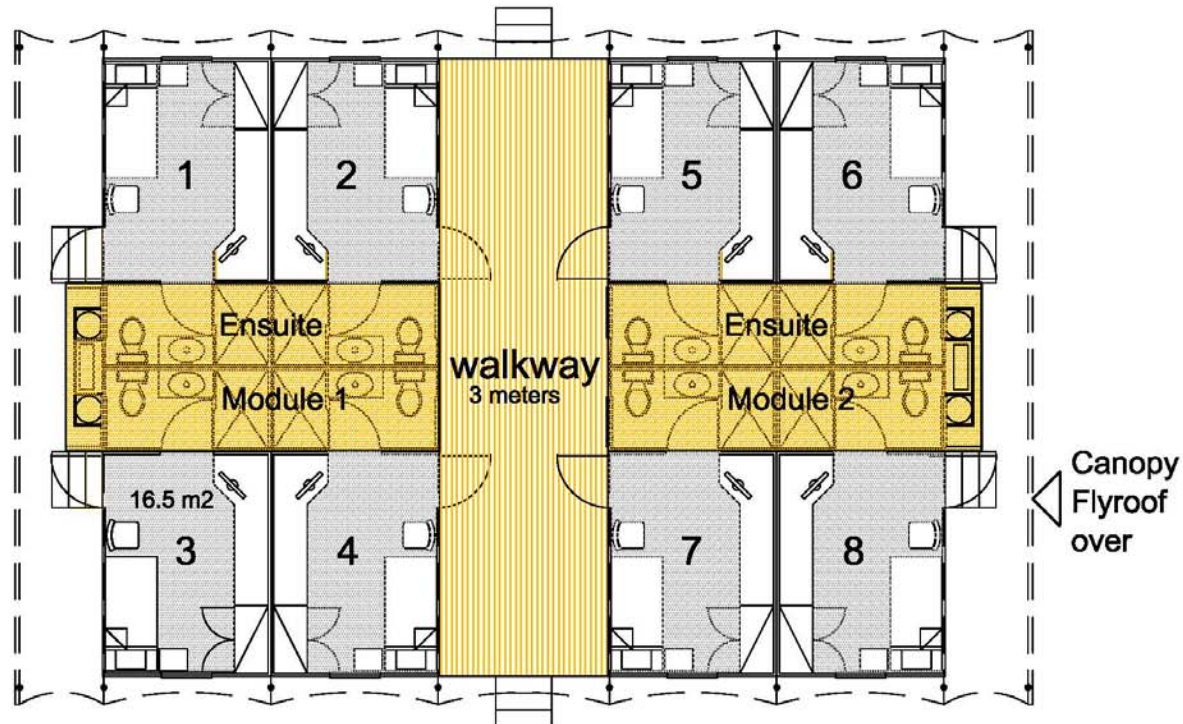
Rapid build systems, remote site alternatives

lightweight, flat-pack camp accommodation systems using modern technology and materials have already been adopted by the eco-tourism operators. Some are very suitable for construction camps and cluster configurations within towns

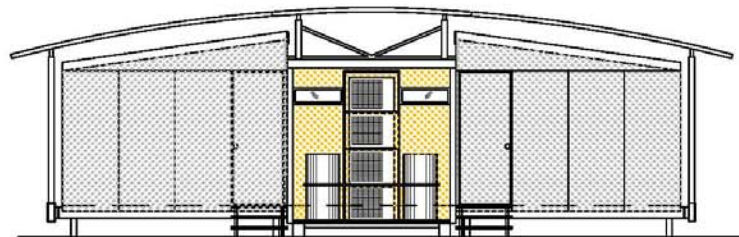


'Fastshack' 2 person rapid build, flat-pack

**8 person singles units made from light materials
can be installed on town land for a fraction of the cost of permanent
housing sub-divisions. Peak construction workforces can be housed in town**



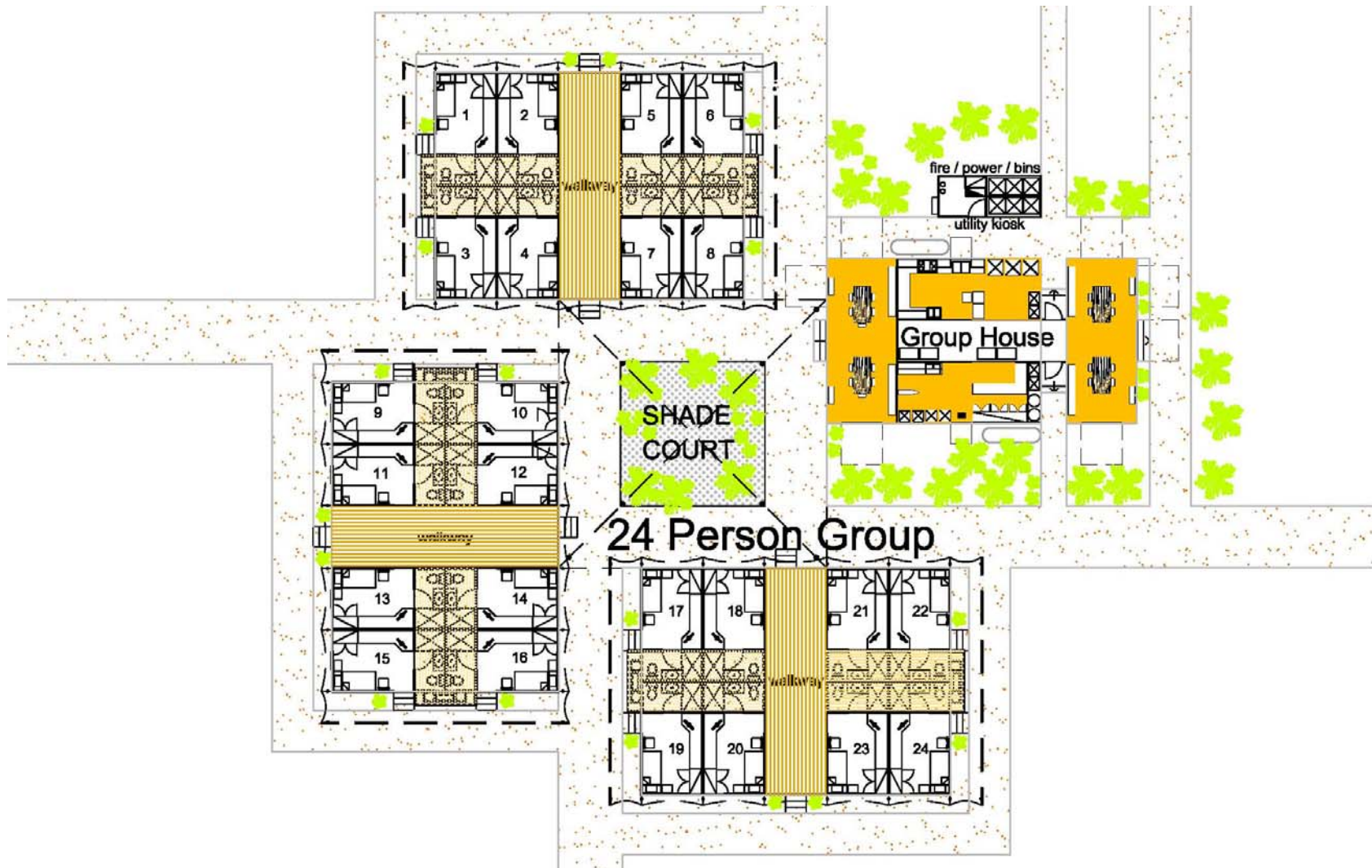
**Fast Shack Accommodation Units
8 PERSON GROUP**



Autonomous camp accommodation technology can be used in towns highly evolved, easy to install on un-developed town land to create transitional allotments without the heavy capital costs of town utilities upgrades required for short term population peaks



**A 24 person singles village
comprising 8 person modules, a central shade court, group house, parking.
Will connect to modular power, water and waste systems sized for 150
person groups**



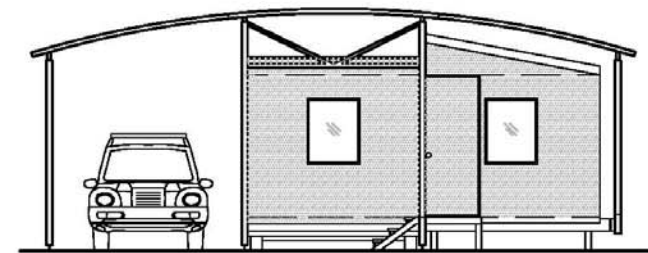
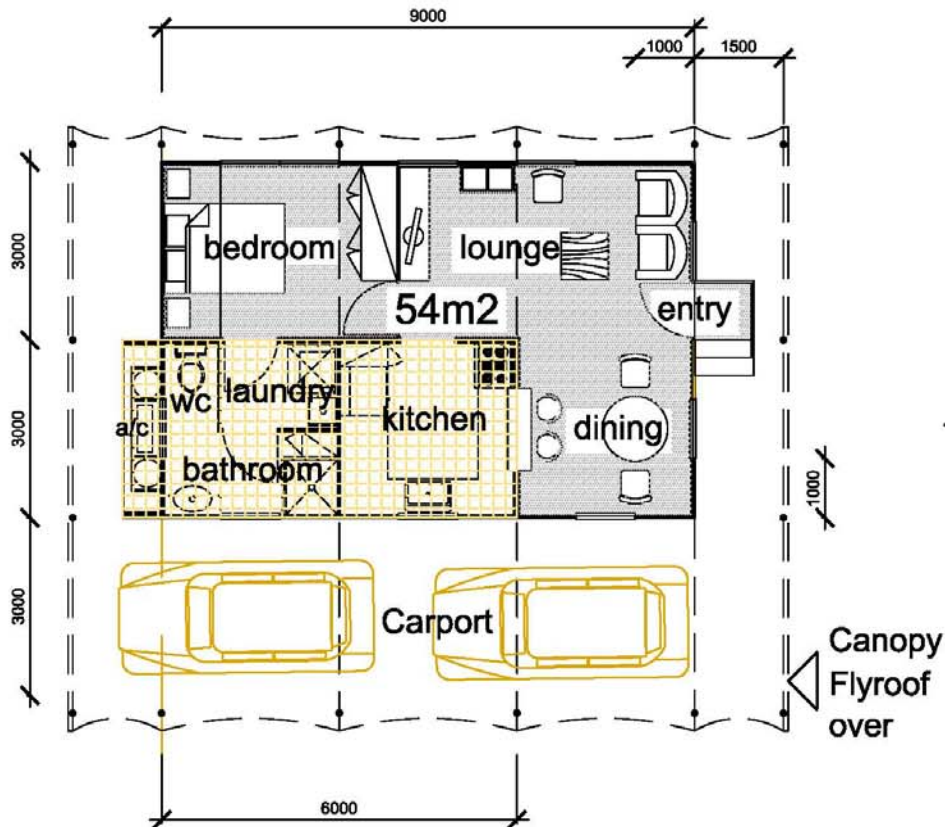
144 person section or short term allotment

Autonomous utilities, compact foot print for town development, car accessible, decentralised messing and laundry based on the 'group house'



Lightweight, relocatable married quarters

Pre-fab kitchen and bathroom module, flat pack panel wall and floor system, membrane fly canopy over including 2 car parking



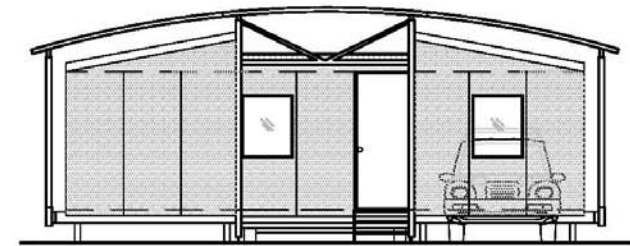
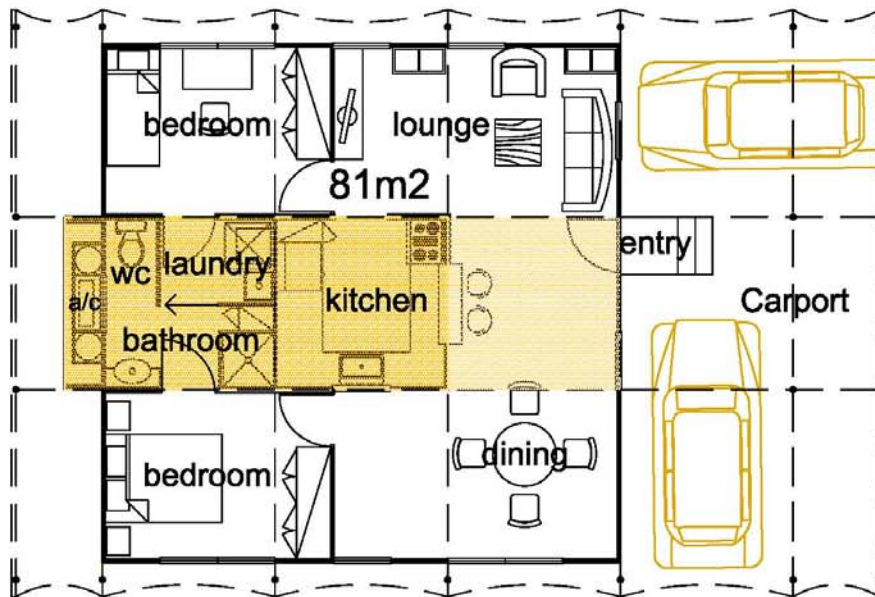
Elevation

Plan

Fast Shack staff quarters - 2 Person

Lightweight, relocatable small family quarters

Pre- fab kitchen and bathroom module, flat pack panel wall and floor system, membrane fly canopy over including 2 car parking



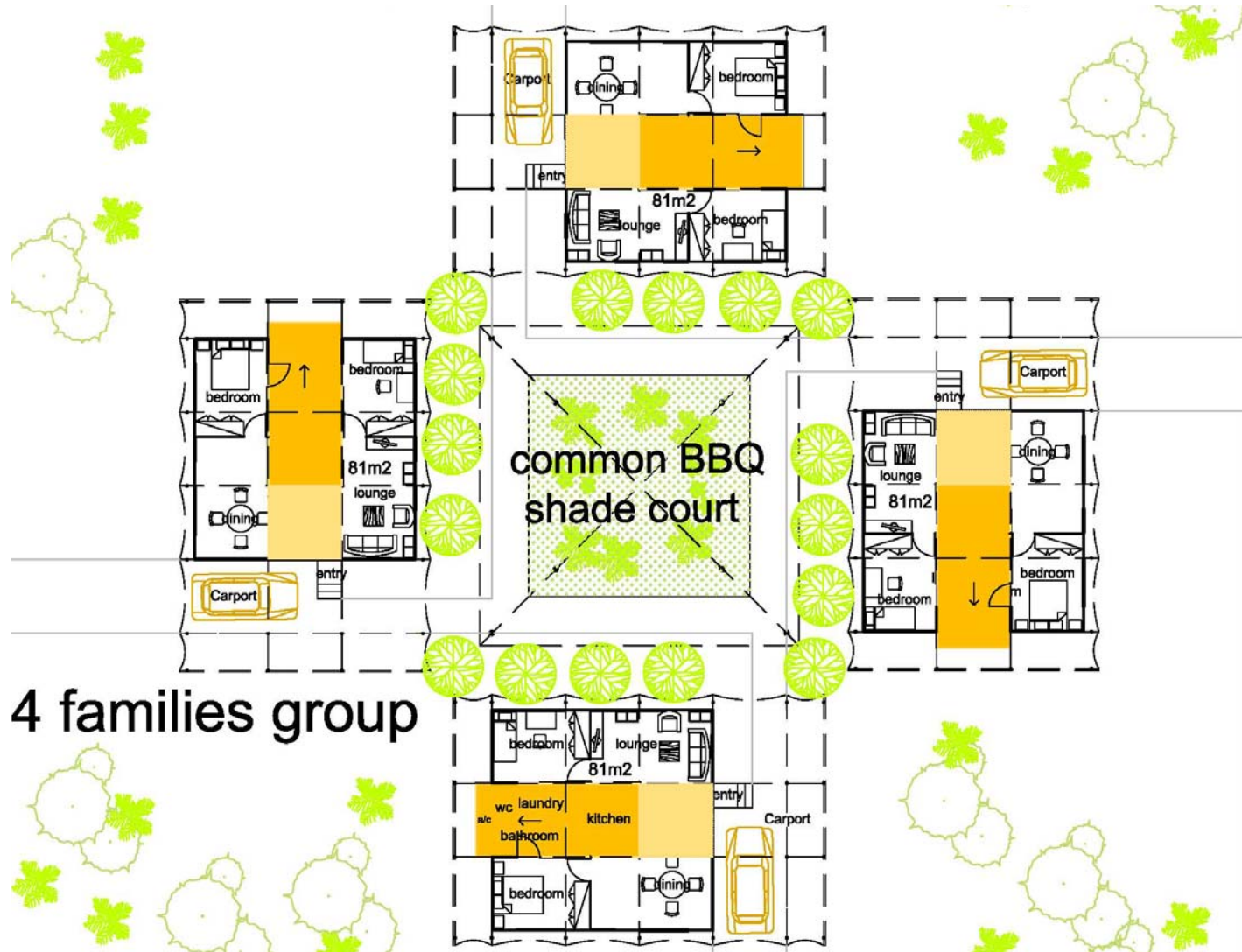
Elevation

Plan

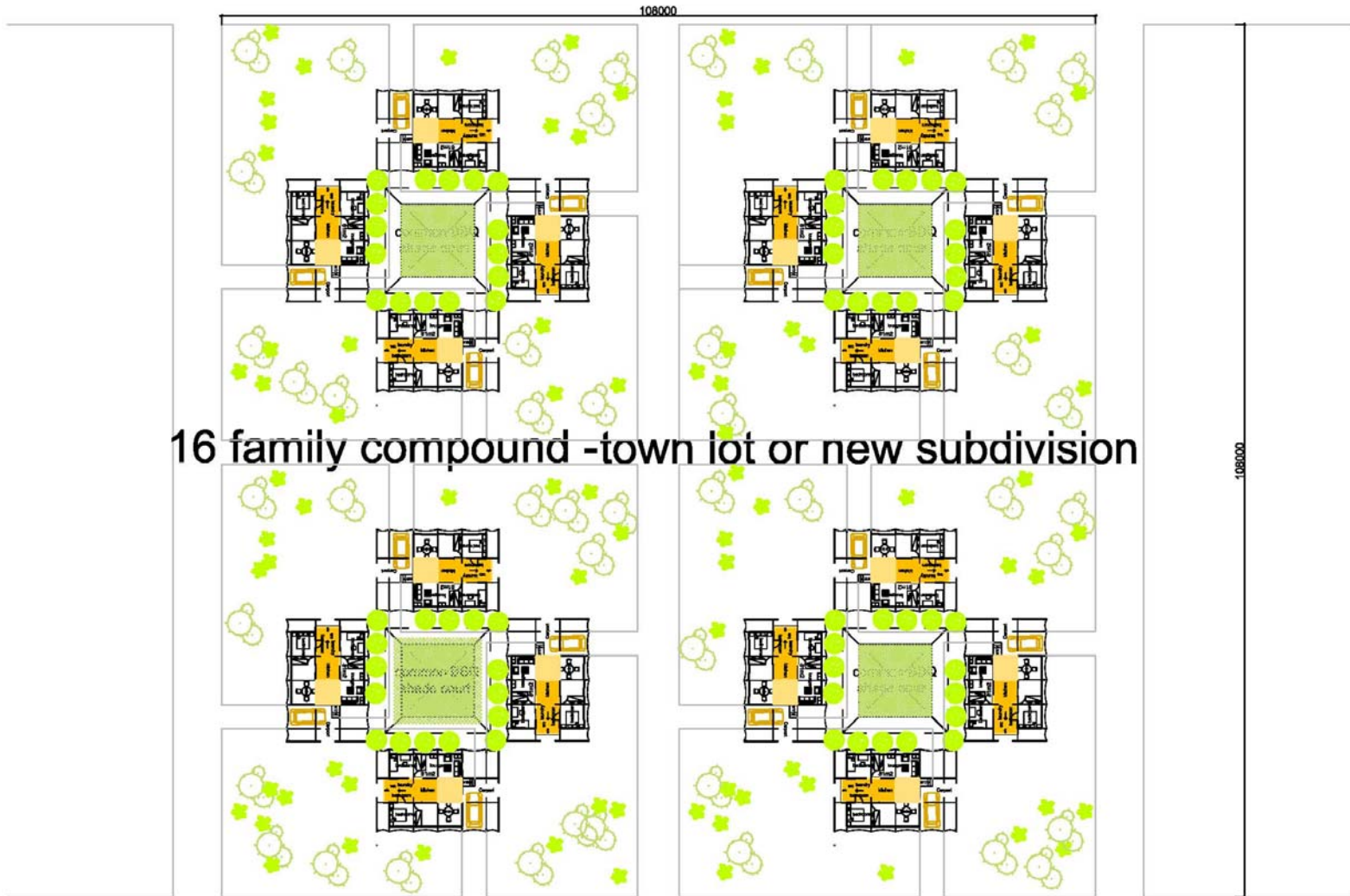
Fast Shack staff quarters - small family

Small families group:16- 24 people

Sub-division engineering designs would adopt the temporary accommodation standards allowed under the Queensland Development Code



16 small families town compound or allotment employing proven autonomous accommodation technology for up to 1000 people





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