

The 'Compound House' a paper by Shane Greive and Michelle Hon.

**The 'Compound House'; a concept embracing many simple solutions towards increasing housing diversity.**

*Abstract*

Across Australia, a warped tax structure, conservative planning and building regulations, together with a supply driven home building industry and the poorly considered aspirations of home buyers have all conspired to bring us the well recognised mismatch between housing supply and need (Searle, 2004). In Western Australia, this ill-fated scenario is being played out everyday by most people but not by everyone. This research highlights several different examples, whereby circumstance or design, an alternative model of housing has emerged that satisfies several of the different modes of family and household living that seem to be so prevalent these days yet are so poorly catered for.

The 'compound house' is a concept that spans a range of physical housing models, which share a common capacity in satisfactorily housing more than one household or family at a time. Just as there are blurred social and economic relationships within and between these families and households, so too are there blurred boundaries and privacies with the living spaces. Each of the examples is presented with an appreciation of the physical structure of the housing together with an understanding of the social and economic links between the households.

What is revealed through these examples is that there are a plethora of socio-economic and environmental advantages that can be achieved relatively easily through a retrofitting of the existing built form. The energy, materials, and infrastructure savings are considerable, as is the social capital generating potential of the 'compound house'. The concept encompasses a spectrum of possibilities of how to house families in the way that they increasingly need, it has implications for the design of new housing, the retrofitting of existing, and for pursuing regulatory reform from local development assessment to state level strategic policy.

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## **Introduction**

This paper presents an overall argument that explains

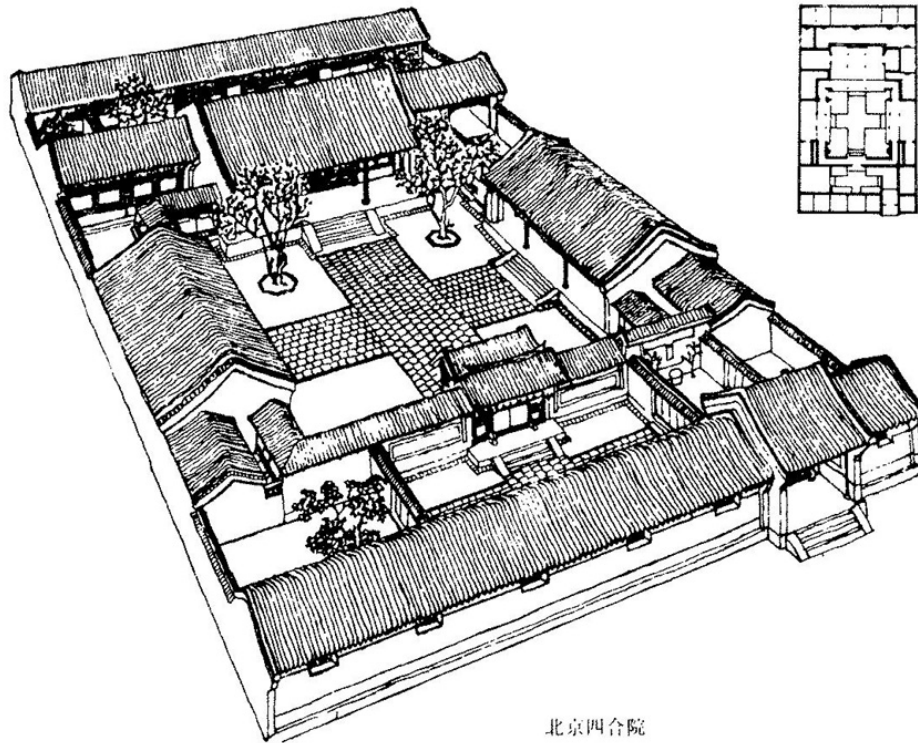
1. What is meant by the compound housing concept including what it looks like and how it functions in practice;
2. Why the concept is so appropriate in today's context, particularly in responding to social and economic trends that collectively underpin the need for greater housing diversity;
3. Why and how it is that the concept has/is unnecessarily stymied by legislation and social conventions that tend to overstate the negatives and fail to recognise the benefits.

Rather than a comprehensive or in-depth study on any of the aspects of this broader argument, the overarching purpose here is to stimulate public debate, design innovation and legislative reform. The first part of the paper discusses each of these points conceptually and develops a three-part framework that considers the physical dimensions, how it responds to social and economic trends, and then considers the potential problems and regulatory environment.

In the second part, three examples of how the compound house concept manifests in metropolitan Perth are examined. The analysis follows the same three-point framework. Diagrams, and photos serve to illustrate the significant spatial interrelationships, while interviews with the people who live in these homes serve to develop an appreciation of the motivations and benefits, and any problems encountered.

## **What is the compound house?**

The compound house is not a new idea. The term compound house has been used to describe a traditional form of Chinese housing that accommodates the extended family in several dwellings within the same walled compound. The relative size and position of each of the dwellings is commensurate with Confucian ideas of hierarchical social order and the interdependence between family members (Dutton, 1999) see below.



北京四合院

Compound household.

There are many variations of this traditional approach to family living across Asia, Europe and the Americas. Very often the dwellings are contained within the family plot, and they are positioned to maintain the productive (agricultural) potential of the land, particularly in respect to avoiding fragmentation. In these societies, the extended family is the economic unit with defined roles. The elderly may for example play a significant role in looking after the very young, which frees the parents to engage in other more productive activities. The compound house is effectively the spatial expression of such social and economic interdependencies, which over generations has both fostered and been shaped by these dynamics.

As out of context as these traditional models of the compound house may at first appear, it is worth noting that right up until the 1980s, there were many such examples, developed by Italian and Slavic families in market garden areas of Perth. One or more of the sons and daughters would build homes adjacent their parent's home with productive and supportive advantages, but with some need for a degree of separation. It is also clear that variations of the Chinese compound house are currently being built in Perth by recently arrived Asian families seeking to house three generations into the one site.

Another enduring model of the compound house is the boarding or lodging house. Again, there are many structural and management oriented variations that reflect significantly different functions; but in general, they are arrangements of private rooms with shared bathroom and/or kitchen facilities. Again, the context is critical in defining the nature and character of the functional separation of private and communal spaces.

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Lodging houses were particularly effective in facilitating the rural to urban migration of the late 19<sup>th</sup> and mid 20<sup>th</sup> centuries, but they also generated serious health safety issues, and as a consequence are highly regulated. By contrast, in southern Europe, buildings with very similar physical layouts are commonly termed pens'iones and are used as holiday accommodation. The big advantage with this genre of the compound house is that they offer inexpensive but very well located housing opportunities for people of modest means. The compact living arrangements and the shared infrastructure underscore the capacity of this model to exist in high value land areas.

Despite the unmet demand for inner city lodgings, they have been in steep decline in Australia since the 1960s, as they have been elsewhere. For the past 15 years, the backpacker revolution has consumed many of the remaining lodging houses. The same buildings have been transformed. The new layouts, together with different management regimes cater for younger international residents, travellers and students.

Considering these long established but vastly different genres of the compound house it is instructive to identify the themes common to the derivatives of both the lodging house and the traditional extended family models. These are:

- Shared infrastructure
- Servicing non nuclei households
- Private, semi private, and communal spaces
- Functional need specific structure and management
- A degree of social and economic interaction between households

There are a multitude of other examples of housing models in the literature and on the Web that share these themes. One such example is the share house and office designed for the two owners by architect Chan Soo Khian. In very expensive and space poor Singapore this design provided a functional living space void separating the two households (Grotz, 2001).

The *triple-decker* housing model common in traditional Boston suburbs has proved to be very versatile in accommodating different household arrangements (family or not) in three identical houses one on top of the other. Boston has a high rental population, partly due to its very high student population, and the triple-decker serves to provide affordable rental opportunities, very often with the landlord living on the ground floor. In the past, the City of Boston has capitalised on the triple-decker in an affordable homeownership scheme whereby the income stream generated from the two rentals enabled aspiring homeowners on income ordinarily too low to access bank financing to be able to do so. An alternative affordable housing program also associated with the triple-decker housing model is explained at ([www.cityofboston.gov/dnd/c.Three\\_Decker\\_Survey.asp](http://www.cityofboston.gov/dnd/c.Three_Decker_Survey.asp)).

In another series of more experimental examples, a removable attachment is added to an existing home to accommodate an expanding family and living requirements. With this approach to retrofitting suburban homes, the cost and energy savings are considerable. Moreover, the argument for *The Relocatable House* concept is framed in the recognition of the social and cultural trends that underpin the need for more flexible and adaptable housing (Case and Spanbroek, 2005).

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At a larger scale, the echo village and the lifestyle village approaches to retirement-oriented developments are also starting to offer real choices for people seeking less expensive and more socially interactive/supportive modes of living. In the *Bridgewater* lifestyle development, the alternative and energy efficient construction methods, shared infrastructure such as drainage and reticulation systems, and the strategic placement of individual homes provide significant economic efficiencies along with ecological sensitivity [www.nlv.com.au](http://www.nlv.com.au). It is at this community scale that the benefits of the compound housing concept are maximised [http://www.wies.murdoch.edu.au/etc/pages/news/nlv\\_water.html](http://www.wies.murdoch.edu.au/etc/pages/news/nlv_water.html).

As has been demonstrated the 'compound house' is a concept that spans a range of physical housing models that share a common capacity in satisfactorily housing more than one household or family at a time. In suburban Perth, the 'granny flat' is perhaps the most common example of the compound house. Increasingly though, there are other examples such as studio spaces above garages for younger family members. In the empirical research presented later, the emphasis is on models appropriate for suburban contexts because it is these areas with the most housing, and also the least diversity.

### **Why is the compound house appropriate in today's context?**

There are several important trends that underpin the growing need for housing that can flexibly accommodate more than one family or household at a time. In highlighting these largely socio-economic trends, the very significant advantages of the compound house come to the fore. More specifically, it is clear that the compound house responds to the very significant rise in the number of single households, and the growing income disparity between higher and lower income households. Cultural and lifestyle shifts such as younger people living at home longer, and the need for home-based care for the aging population are also significant demand drivers.

Although it is important to understand the housing implications of these socio-economic trends, the trends themselves are well established within the literature (Yates, and Wulff, 1999; O'Connor K (ed.), 1999). The percentage of single households has increased from 10% of all households in 1961 to 24.6% in 2001 (ABS, 2001a). From a demographic perspective, the aging of Australia is generating the spectre of one partner outlasting the other and living for years longer. The divorce rate creates young, middle aged, and elderly single households. An estimated 20% of today's young singles 20-30 years today will never marry, and if they do, it is more likely to have been a delayed choice in comparison to previous generations.

These trends are interrelated with the housing market in complex ways. The casualisation of employment is recognised as having very significant implications for the propensity for the young to save a deposit and become homeowners at the same relatively young age that their parents did. Family relations have also taken a turn towards less hierarchical relationships, a cultural revolution which today's baby boomer parents pioneered. Young people also need to study and train longer, and they travel more than previous generations, and the age at which people are still referred to as young has risen from 20+ years to 30+ years in less than three decades. That young people are staying at home longer is one of the trends that have served to stabilise the fall in the average household size (Yates and Wulff, 1999).

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The even bigger demographic based argument for the compound house relates to the aging population. The research on aged housing needs is fairly conclusive in its call for the need to 'age in place' (Olsberg, et al, 2004), whether it is in the same home, or down the street in purpose built aged housing development with a range of care facilities and services. As indicated earlier, retirement villages are a form of compound housing, accordingly they provide low impact higher density housing, private and communal spaces, infrastructure savings, and facilitate supportive interaction.

The 'granny flat' form of ancillary housing has been part of the local suburban vernacular since the 1970s. Regulations have been relaxed in several local government areas in an effort to encourage this form of development. Locally, however, there is little evidence to suggest that these opportunities have been popular. One reason lies in the orientation of the regulations that imply that it will be the 'Granny' that will live in the flat. By contrast, the statistics suggest that some 75% of the surviving grandparents will own their home outright (ABS, 2001b) perhaps cash poor but house rich, and thus unlikely to see the benefits of down scaling into a granny flat, attached to their adult children's house, in another place/town/suburb.

For a lone elderly person living in his or her own home, ancillary housing is ideal for a live-in carer. Under such circumstances the compound house serves as an income supplement, or cash in lieu, it is time efficient and it would be critically important in case of emergencies. Even just to have someone else around, but not in the same house, can help to maintain a sense of independence, and yet provide the piece of mind, and tangible support to help an elderly person keep living at home. However, it is this configuration of compound housing, where the ancillary housing is for someone other than a family member that is very often illegal – a point taken up below.

The basis of the affordability of the compound house comes from a variety of savings and efficiencies – no subdivision costs, lower utilities costs, less connection fees. The federal government also grants tax-free status for the income earned from renting to students. Moreover, the model facilitates the generation of social capital through neighbourly supportive arrangements – from joint gardening efforts, to increased security, to car sharing and babysitting.

The compound house also enables lower income renters to share the same higher value locations as the higher income homeowners that they rent from. It also allows for two or more rental households to live separately but with shared areas and services and overall lower costs, which is particularly important in the case of single households. From a housing policy perspective, the capacity of the compound house to confront the spectre of increasing social spatial polarisation (Gregory and Hunter, 1995; Winter and Stone, 1999) by facilitating lower income households access to higher value areas that is most compelling. The locational advantages that come with such areas are well documented in the literature (Maher, 1999).

From a broader economic perspective, the compound house is also an appropriate response for what Searle (2004) has described as the irony of small families developing very large houses. The larger capital gains tax advantages that come with

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larger more expensive homes is certainly a motivation, but if these structures were initially designed to accommodate the prospect of shifting family and household arrangements, this dedication of family investment would be much better served. The resale potential of such properties is also on sound footing, given that the readily apparent unmet need for housing diversity and flexibility has yet to be consciously fulfilled by the market.

### **Problems and Legalities with the Compound House**

As indicated earlier, although there is some degree of government support for compound housing there are also significant regulatory constraints placed on the principle. Many of these regulations emerged as a response to health, safety and welfare concerns for individuals, and also in respect to community amenity issues related to residential densities. The argument presented here, however, suggests that the foundation of these concerns is largely historic, and that while some issues remain, they can largely be resolved through good design and management practises.

In Western Australia, the R Codes are a very important regulatory instrument that serve to restrict housing density, and in so doing they have significant bearing upon the legal status of the compound house. The R Codes are incorporated into local town planning schemes (TPS). The R Coding denotes the number of houses per hectare; R80-R160 is high-density housing; R30-R60 equates with medium density housing; and R12.5-R 25 are typical for lower density suburban areas. It is noteworthy, that many suburbs do not achieve their allowable density levels (Alexander 2003).

How the R Codes actually define ancillary housing is:

Ancillary Housing is self contained living on the same lot as a Single House that may be attached or detached from the single house occupied by the member of the same family as the occupiers of the main dwelling (WAPC, 2002:18)

The origins of the concerns associated with the principle of more than one family or household sharing housing stems back to the tenement living common in 19<sup>th</sup> century cities. Small and large buildings were overcrowded with multiple families sharing scant kitchen and washing facilities, and with poor ventilation and lighting. The disease out breaks and the risk of fire were endemic. Indeed, it was these squalid living conditions that generated support for the health, housing, and planning legislation that originated in Australia and Britain at the turn of the last century. It was a time of dirty industrial cities, cramped and poorly constructed housing, and poverty.

Lodging houses still need to be inspected under the Health Act, and with good reason, but in the main, the living conditions that gave rise to the regulations concerning substandard group housing have gone. As the statistics suggest, over crowding is no longer an issue. Instead, the issues of today relate more to unsustainably low housing densities and the growing disparity between the have and the have nots (Hamnett, 2000; Glesson and Low, 2000). Moreover, while these concerns have stimulated some degree of regulatory response, it is also clear that vestiges of the old regulations and cultural norms are acting to retard this progress

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The R Codes do allow for local interpretation, and there are special provisions for aged and disability units, and also so for single bedroom dwellings (Part 5 Special Purpose Dwellings, WAPC, 2002)<sup>1</sup>. However, many councils have their own policies, where there is an explicit requirement very often involving a signed agreement, that only family members live in the ancillary housing. The requirements for the physical structures are also designed to make it difficult for non-family members to live on the same site. This brings into focus the point that planning policies have unnecessarily restricted the prospect of ancillary housing being used to provide affordable rental housing, particularly in areas where there is very little. Such policies have also negated the opportunity for moderate-income prospective homebuyers being able to factor in a rental income stream to help qualify for a mortgage.

Some local governments adopt more flexible approaches than others. The City of Subiaco is a local example of leadership on this front. They have recently altered their regulations to encourage greater housing diversity and affordability. The broader implication here is that it is less a case of regulatory insistence, and more a case of cautious disdain among planners, councillors and residents that act to retard spread of the benefits of compound housing. This prevailing negative attitude extends beyond Australia and certainly includes cities in the USA (Andrews, 2005).

These days the rationale for such regulations rarely include health and safety concerns; rather the focus is on the nebulous concept of amenity. Although this concept of neighbourhood or private amenity is not defined under the Western Australian Town Planning Act, it tends to equate higher density living with lower amenity values. Issues such as increased traffic volumes, street-parking problems, and the threat to property values are commonly cited as the tangible unwanted outcomes of increased housing densities. Privacy issues, including noise and overlooking also factor in as regulatory concerns.

A key point is that the implicit assumption within these perspectives, in respect to population density paralleling housing density, does not hold true these days. Since the 1960s, the average house size has expanded by 30% while the average family has shrunk by 25% (ABS, 2001a). Following these national trends, the situation in Perth is that irrespective of whether housing density has increased, housing bulk has significantly increased, but the population density often has not.

This paradox was recently borne out in study of the battle-axe subdivisions in an inner-middle suburb of Perth. The pattern of urban consolidation unfolding in Doubleview suggests that the original relatively small homes (100sqm) that in the 1960s once housed approximately 4 people are currently being redeveloped into two 230sqm homes with 2.5 people in each (Hussey, 2002).

The concept of amenity for inner city living is different from that for suburban living. While all residents have the need and desire for the fundamentals of light and air, space and privacy, this differs between suburban localities and inner city localities. In suburban areas - the main focus of the Codes - a major source of amenity is the space that surrounds that locality and the dwellings. In the inner city, it is equally likely to be the external facilities, and the opportunities and choices these bring that create the amenity.  
(WAPC, 2002:98).

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In keeping with national trends for expanding house sizes, the bulky houses being built in Doubleview are clearly consuming up the space, despite what the R Codes intended. In this context, the effectiveness of the R Codes in preserving residential amenity is compromised because although the number of dwellings is restricted, it is the size of the dwellings that is actually consuming 'the space that surrounds the locality and the dwellings'. Nationally, as Searle (2003) reports, people are buying home designs without eaves in order to have an even larger house.

The compound house concept may not be well regarded in terms of legislation and social conventions but the arguments presented here suggest that these unwittingly assume antiquated ideals of household/family structure, and misplaced concerns about residential amenity. This is not to imply that there are not problems associated with sharing infrastructure, and factors such as noise, security, and privacy, but these are largely design and management issues, which can be resolved accordingly.

### **The Compound House in Practise**

In the following analysis, three examples of the compound house in suburban settings are examined in terms of their physical structure and services; the social interrelationships; and any legal or design problems uncounted. Across Perth, there are many examples. Some of these are illegal, but whether they are or they aren't, most are taken for granted and largely unrecognised for what they are. Increasingly though, different models of the compound house are being designed and built

The three examples examined offer some insight into the local diversity within the suburban context. Only the most recently developed of these compound houses was purposefully designed, and with planning approval for the ancillary accommodation. The other two examples developed into compound housing by circumstance and have nevertheless lasted as the questionable legal arrangements that they are for 12 and 30+ years respectfully.

The physical form and the significant spatial interrelationships are illustrated through photographs and two conceptual drawings for each example. The physical layouts are very different, as are the household/family structures. The drawings demonstrate the arrangement of private space, semi private, and common space, and the division of private and common infrastructure and services. This sharing facilitates a range of cost saving possibilities – space, infrastructure and services.

The footprint of the built form was not extended in any of the examples examined. In the case of the Granny Flat model, Example 1, it evolved from a studio space that was once a saddlery/barn. Overall, the photographs depict the ancillary housing to be relatively modest in scale and it appears that they are unlikely to significantly add to the bulk of the built form and therefore are largely sensitive to the 'suburban' neighbourhood amenity.

Interviews were conducted with the owners and tenants who live in these homes, towards developing a fuller appreciation of the motivations and benefits, and any problems encountered. Most of this data can be illustrated in drawings or summarised in a comparative table, however, it is also the case that a more discursive analytical

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approach would reveal the richness of the detail, particularly in describing the depth of the interactions between 'supposedly' non family households.

The interviews suggest that there are clear financial and social capital advantages, as well as psychosocial benefits such as security and stability that emerge from combination of the familiar closeness and physical/social separation fostered under this housing concept. As the tenant in Example 1 described, outside of their immediate family, both he and the landlord have never lived along side anyone else for as long. When the need arises, they drive each other to the airport, water the plants, and take messages, but they live quite separately. In Example 2, the single mother of two and landlord appreciated the company of her adult tenants. She encouraged the artist tenant to use her sunny courtyard to paint because it was good for her children to see.

In Example 3, the parents recognise and have planned for the five children from two marriages ranging from 7 to 28 to be around for a long time. What they hadn't planned for was the fact that the current occupiers of the ancillary house are the girlfriend and possible 5-year-old daughter of the oldest son. These are all non-nuclei households.



Example 1 - Photo showing relationship of ancillary accommodation to main house.

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Example 1 - Common drying area outside ancillary accommodation in Compound House 1.



Example 2 - Level 0 entry into ancillary accommodation in Compound House 2.

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Example 2 - Level 0 ancillary accommodation, Level 1 main house in Compound House 2.

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Example 3 – Ancillary accommodation.



Example 3 - Ancillary accommodation adjacent main house.

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Table 1 Summarises the survey findings.

	Example 1	Example 2	Example 3
<b>Physical Layout</b>	Granny Flat	Separate Levels	Three Living Areas, two interconnected.
<b>Relationships</b>	Two single households, land lord and tenant.	Single mother and 2 children, and older child; or a single adult tenant.	Three generations of the same family 7-9 people
<b>Rent</b>	1/3 less than average rent	1/3 less than average rent	N/A
<b>Infrastructure</b>			
Water	Common	Common	Common
Gas	Common	Common	Common
Electricity	Common	Common	Common
Telephone	Common	Separate	Common
Laundry	Common	Separate	Common
Garden	Semi Private	Semi Private	Common
Parking	Common	Separate	Common
<b>Limitations</b>			
Overlooking	Semi Private Areas	Courtyard seen from above	N/A
Noise	Side access creating noise at night.	Noise generated by children above.	N/A
Parking	Landlord owns 4 cars, and the tenant 1	No Problems	Potential problems as the children age and own cars
Legal Status	Not Legal as it is rented to a non-family member.	Currently legally occupied by the oldest son. But it has been rented illegally to a non-family member as a home business, a hairdresser for 4 years, and artist for 2.	Legal
<b>Motivations for Owner/Landlords</b>	The owner became unemployed shortly after buying the home and needed the extra income. Currently, the tenant looks after the place when owner works away.	Originally, and currently used to accommodate older children or other family members. The rental income (6 years) and the company of other adults were also cited as positive features.	The owner builder was conscious of the size his family, that his children did not appear to be leaving home, and that the grandparents looked like they would be around for a long time.
<b>Benefits for Tenant/Family Occupiers</b>	Good location, affordable rent, cheaper living costs, very stable.	Good location, affordable rent, cheaper living costs	Flexible in facilitating both private and communal living in a big family

The diagrams below illustrate the shared services and social interrelationships between the ancillary accommodation and the main house, in all three case study examples.

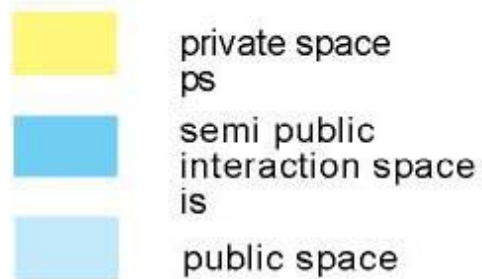
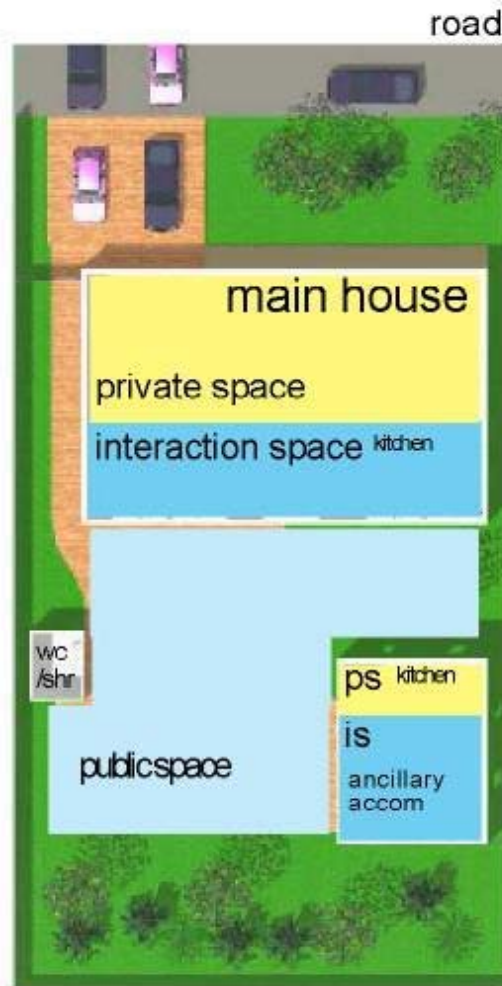
## services



## compound house 1

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## zones



## compound house 1



## services

### level 1 plan



### level 0 plan



separate washing machine  
separate phone line  
shared electrical costs  
shared water bills

## compound house 2

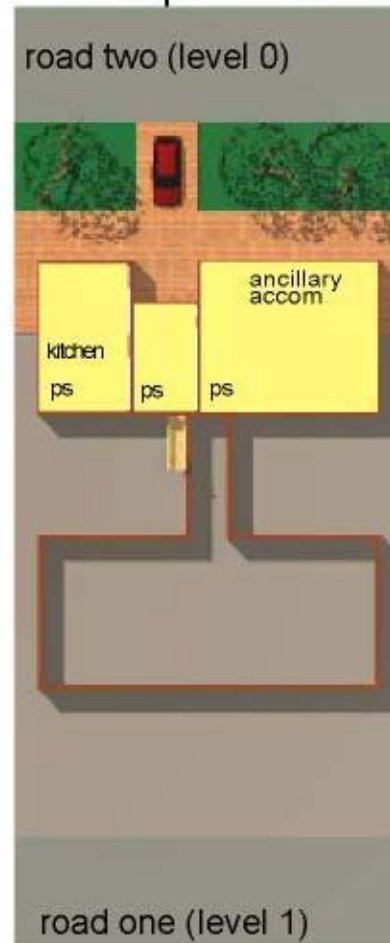
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## zones

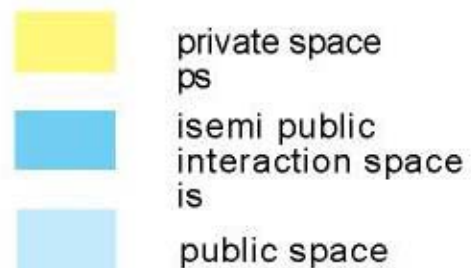
### level 1 plan



### level 0 plan



## compound house 2



## services



shared washing machine  
shared phone line  
shared electrical costs  
shared water bills

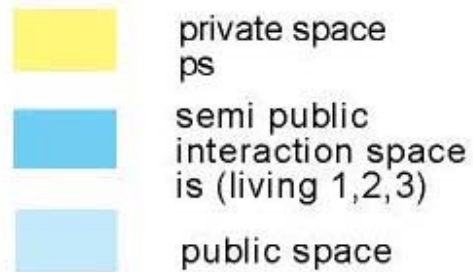
ground floor

## compound house 3

## zones



ground floor



## compound house 3

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## **Conclusions and Broader Implications**

Overall it appears that the compound house does have a myriad of applications in responding to the need for increasing the diversity within the housing stock. From a physical perspective, there are important implications for retrofitting the existing built form, particularly with respect to accommodating the growing numbers of single households.

With new housing, there is a palpable recognition on many fronts by architects and informed clients that it is indeed desirable to live communally at times and there seems to be as many new and old models of doing this as there is the variation of need. Regulators have looked upon some of these initiatives favourably, however, there are still examples where the regulation holdovers from the old context have not been adjusted to meet the challenges of the new. This seems to be more a question of the attitudes held by planners and the public rather than the legislation per se.

This year the City of Santa Cruz received the American Planning Association's 'Outstanding Award for a Program', which in this case specifically promoted ancillary housing to help satisfy the critical demand for affordable housing for students (Andrews, 2005). The City council workshopped the idea with the community to both encourage people and also to allay the fears of the neighbours. Some 30-50 new affordable housing units have been created each year. Interestingly, the California Pollution Control Financing Authority funded the outreach program.

In Australia, while many local authorities still look poorly upon the concept of compound housing, others have relaxed the regulations to explicitly encourage greater housing diversity. In our view, this encouragement could and should be transformed into a significantly more active agenda, where the concept of compound housing is recognised for the considerable environmental and affordable housing advantages that it actually embraces.

In Australia, the dialogue between social housing policy and the sustainability agenda has barely been broached. The compound house is an idea that responds to both sets of these key policy concerns.

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