

The Affordable Australian

has evolved from the exploration of three guiding principles; Australian-ness, environmental Friendly-ness (siting, building envelope, use of resources etc) and For All-ness (accessibility, affordability, flexibility etc).

These ideals are underpinned by a theoretical position of social sustainability fuelled by a belief that it is necessary to re-orientate Australian housing toward the community; the current insularity of our suburbs must be reversed.

SOCIAL SUSTAINABILITY

As we concur with Kim Dovey that 'built form 'structures' social behaviour through a combination of 'enabling' and 'constraining'' the house program has been divided into basic zones of public and private, located such that all 'public' functions are at the front. In orientating *The Affordable Australian* toward the community we have followed what Kim Dovey has referred to as the 'encounter' model.¹ The transition between community and public starts at the front fence.

'fences provide a catalyst for bringing neighbours and pedestrians together. Edges, borders and boundaries are dynamic places where people can converge. By creating an edge for residents to lean on and congregate, fences break down social and physical barriers. The psychological barrier that the front lawn creates in most US suburbs does not exist...the use of fences in the front yard modifies the approach to the home and moves the threshold from the front door to the front gate. The enclosed front yard defines an area that bridges the public and private spaces of the home, acting as a large foyer and becoming an active part of the household.'²

This foyer is further enhanced by the front Verandah which (in its preferred orientation) will be a cool protected spot on long summer afternoons encouraging lingering in the front yard and engagement with life on the street. Considered window placement enables 'eyes on the street'³ and the front gate to be 'surveilled' while prepping and cooking in the kitchen. While allowing for parking of two cars as stipulated, the house is positioned as far forward on the block as will accommodate a 'compliant'⁴ 1 in 20 walkway thereby providing a sense of intimacy while permitting access for all.⁵ In a deliberate attempt to liberate suburbia from the car as GodKing,⁶ our design comes with a carport rather than a garage. Part covering this space with a continuation of the variegated verandah sheeting extends the transitory edge experience of the front foyer/ yard.

¹ *Safety and Danger in Urban Design*, paper presented at Safer Communities: Strategic Directions in Urban Planning convened jointly by the Australian Institute of Criminology and the Victorian Community Council Against Violence, held in Melbourne, 10-11 September 1998.

² The Latino Landscape of East Los Angeles, J.T. Rojas, NACLA Report on the Americas, Volume XXVII NO 4, Jan/Feb 1995.

³ A phrase coined by Jane Jacobs, but currently more generally applied to 'safe urban design'.

⁴ compliant with AS 1428.1-2001

⁵ 'Apparently about 15.6% of Australia's population is disabled in some way and approximately 13% is actually handicapped. When temporary difficulties like recuperation from accidents and knee reconstructions are added to the equation, the figure could easily be 20% or more at any one time.' *My Practical World, Long-Life Loose-Fit*, M.A. Jackson, April 1999 Bulletin, Architeam Cooperative Ltd.

⁶ The dangers of allowing cars to dominate modern society and garages to dominate front facades of housing are well documented.

To be socially sustainable, housing layouts need to accommodate the changing demographics of society. As outlined in the following paragraphs, statistics indicate that the 'young family' market is not an enduring market segment. Therefore we believe that 120sqm houses with; three dedicated bedrooms, separate laundries, ensuite, dedicated family room etc, should not be built as, inevitably, trying to squeeze in all those rooms will result in rabbit warren boxes.

Population change projections show 'the outer metropolitan fringes will continue to grow rapidly in Wyndham, Caroline Springs and Melton, Hume, Whittlesea and Casey – Cardinia'.⁷ Similarly 'Number of lots released' data⁸ indicates that, eg Casey, Hume, Brimbank and Wyndham are the most likely location of *The Affordable Australian*. However research illustrates that even now and certainly well into the future, the demographic make-up of households in these areas is not the eponymous 'nuclear family' of Mum, Dad, two kids and dog, but rather much more diverse.

Casey, Wyndham, Brimbank and Hume combined expect to accommodate approximately 150,000 additional 9 households by 2031. This provides a crude indication of decreasing household size. With respect to Age Structure; in 2001, Casey, Wyndham and Hume all exhibited similar characteristics being; population while relatively evenly spread from 0-39 (though obviously dipping in the 20-24 bracket) showed a marked decline after 39yrs with very small numbers of 70+ residents. Brimbank showed a different structure; relatively evenly spread 0-54 with a roundish peak from 15-44 and a marked decline after 54yrs. Projecting through to 2031, Casey, Wyndham and Hume again all exhibited much the same characteristics but altered from 2001 to become; population relatively evenly spread 0-69, peaking at around 45-49 while still dipped in the 20-24 bracket. However a major increase in the number of 70+ residents and significantly less 0-19s are predicted. In Brimbank there is expected to be as many 85+ as 0-4. Considering family type and numbers of residents usually present, all four areas are remarkably consistent with 'Couple with children' being the largest single family type represented at around 48 – 51%. However 57% (Hume), 60% (Brimbank) to 61% (Casey and Wyndham) of households consist of 3 or less resident persons, with 2 person households being the single largest group in each case.¹⁰

Therefore with projections of additional households and age structures taken into account, it is reasonable to assume that the percentage of 3 or less resident persons will increase; the growth being experienced mainly in 1 and 2 person households.

AUSTRALIAN-NESS

Australian-ness is not 'australiana', but a more ephemeral notion of indoor-outdoor connectivity harnessing space and light. While continuing in the pavilion genre exemplified by Glenn Murcutt, *The Affordable Australian* is designed to read

⁷, *Victorian State Government Population and Household Projections 2001-2031*, Victoria in Future 2004, Department of Sustainability and Environment.

⁸ Figure 5: Growth Area estates reported by Councils – number of lots released, June Quarter 2004, *Residential land Bulletin* June Quarter, 2004, Department of Sustainability and Environment.

⁹ Refer page 2, Research Matters, Issue 31 September 2004, Department of Sustainability and Environment for definition of 'additional'.

¹⁰ *Victoria in Future 2004 Metropolitan Summary Slideshows*, Department of Sustainability and Environment.

as a homestead's collection of shed-like forms housing public and private zones separately.

Shielding the front façade edge with a 'striped' roof covering instantly evokes the heritage of earlier Australian single- and double-fronted suburban (workers cottage) housing which always had front verandahs. Double doors opening to an enclosed verandah/ gallery recollect the sleepouts or stables of times past in outback homesteads. *The Affordable Australian* re-invents modern Australian indoor-outdoor relationships on the accessible-to-all BBQ deck.

The deliberate selection of standard 'aussie (zincalume) tin' (not colorbond) not completely rustic but certainly not slick, is designed to convey an ambience of Australian history, of 'arte povera', of a wider local culture, of the modesty of the egalitarian Australian day.¹¹

Suggestions of wide open aussie spaces are created by the open plan 'public' pavilion housing kitchen/ living/ dining functions and by running the (light-coloured plasterboard) ceiling over the bedroom doors to the edge of the verandah/ gallery (hall). Properly sized (bed)rooms and laundry facilities incorporated directly into the bathroom (not behind closed doors) results in uncluttered space rather than the predictable rabbit warren of small separate rooms. (Laundry facilities are intentionally minimalistic as demographic research indicates that 'Mum, Dad + 2 kids' is not a realistic longterm market. Wash day doesn't happen anymore however basin/ trough is big enough for hand washing or baby bathing.) Although the zonal distinction between community, public and private is clear in the overall layout, these functions are distorted at the edges by (the Australian) verandahs.

Why does Australian first-home/ fringe suburbia look like neo-X/ McMansion sprawl, imported from someplace else? Are developers and/or governments lacking in direction? There is definitely a role for 'the conceptual and design skills of architects'¹² to produce architecturally meritorious housing in this market segment.

ENVIRONMENTAL FRIENDLINESS

When located on its preferred site in its preferred orientation *The Affordable Australian* exploits passive design principles by being built on a concrete slab with its long axis East-West. North windows are maximised while south, east and west windows are minimised. An integrated system of landscaping and shading devices modulates sun and wind penetration.

Use of resources

The palette of materials has been derived with a view to minimising; the number of site trades, site revisit frequency required and embodied energy. Overall layout and material choice has resulted in a reduced quantity of resources being necessary, a carport is less resource-hungry than a garage. Internal layout is intentionally basic without nooks and crannies. One main wet area accommodates combined bathroom and laundry facilities including combined washing machine/ dryer and trough/ basin thereby obviating the need for extra walls and plumbing fittings. The limited amount of built-in cupboards provided is intended to both minimise use of undesirable materials such as plastic-encased board products and accompanying glues and to encourage occupants to use family heirloom or other pre-existing solid timber furniture such as tallboys and wardrobes.

¹¹ *How to Connect?*, Carey Lyon, Architect Victoria Winter 2004

¹² VicUrban's Affordable Home Design Competition for The Year of the Built Environment, Competition Guidelines.

Additionally, selected materials are as much as possible from renewable or recyclable energy sources, eg plantation timbers and steel cladding. It is also intended to deal with companies that demonstrate an environmental commitment, incorporating high levels of recycled content in their products. In keeping with Long-Life Loose-Fit principles, the structural system of columns and lintels means that walls are non-structural easily permitting future re-configuration. Also, as demonstrated by the drawings, the grid adopted allows the various rooms to be of sufficient size to enable flexible use – bedroom today, family room tomorrow, home office next year.

Waste minimisation

Carefully considered industry standard material sizes have been used, eg column and lintel lengths, external cladding panel sizes, plasterboard sheet sizes, aerated concrete panel sizes, verandah roof sheeting, floor covering modules etc.

Energy efficiency

As *The Affordable Australian* achieves a 6 star rating¹³ ongoing lessened utility costs will be experienced. To further reduce heating and cooling costs room functions (public/ private) have been grouped and separated by doorways; the private zone can be further separated off in the elderly/ empty nester/ lone household by easy installation of additional doors. The 'tin' roof and east-facing 'tin' cladding will further reduce summer heat gain, while the expanse of north-facing roof is ideal for solar hot water and future solar panels. Energy efficient appliance use is enabled by the provision of a front-loading washing machine/ dryer combination unit and the positioning of the refrigerator completely out of any sunlight/ heatload area.

Recycling

Active recycling is encouraged by designing specific locations for multiple recycle bin storage and garden composting.

FOR ALL

Volume housing provision must change, houses must be built accessible for all from the start. Due to judicious layout, constructability and waste minimisation *The Affordable Australian* demonstrates that universal design¹⁴ does not preclude affordability. However, specialist engineering input is required during the initial design phase to ensure all framing is designed to use as little material as possible. The amount spent on the development of a revised vehicle design is millions compared to the sale cost of each unit, why think that housing – surely something a little more important than car ownership – can be sold without rigorous design input? Also it will be necessary to work with door and door hardware manufacturers to perfect suitable mass produced units in the sizes required and with plumbing manufacturers, eg Caroma, to develop a standard accessible combined trough/ basin vanity unit with single action lever tap. 'Do manufacturers respond to or cultivate markets? Has this selection become corporatised shopping and invention eliminated? Are we shopping or inventing?'¹⁵

Fully accessible

Due to funding restraints, lack of nursing home places and government policy direction, families are much more likely to care for their disabled off-spring in-house full-time and elderly people much more likely to remain in their own

¹³ using on-line version of FirstRate.

¹⁴ ...'an effective case for universal design from a social justice perspective. design-for-all [is] intrinsic to sustainable development' *Designing For The 21st Century III, An International Conference on Universal Design*, Rio de Janeiro 7-12 December 2004, Program and Registration Information.

¹⁵ *Material World*, Anthony Parker, Architect Victoria, Winter 2004

houses. Care is made so much more difficult in the currently standard rabbit warren boxes of narrow hallways and small bedrooms with poorly located doorways. While *The Affordable Australian* achieves internal and external wheelchair circulation from day one, it can be easily retro-fitted with a handheld shower and grabrails should they be required.

Affordable

Modular construction and waste minimisation will keep construction costs down while energy efficiency measures and siting will keep running costs down. Acknowledging the ground-breaking Fairweather Homes approach,¹⁶ the Column and Lintel system enables roofing commencement earlier therefore providing weather protection sooner. Wall panel installation, complete with windows and pre-painted, can be undertaken concurrently with the roof installation. Reduced on-site cutting will enable lock-up to be achieved quickly. This will, in turn, reduce site theft and vandalism, a problem that 'increases the price of a new home by around three per cent'.¹⁷ Layout and accessibility acknowledge the reality of modern suburban living.

Long-Life Loose-Fit

Long-Life Loose-Fit is achievable through flexibility of room layout. With Bed 3 functioning as an additional (private) living area, at 3.6m x 3.6m (gridlines) Bed 2 could be a two-child bedroom permanently if both children are of the same sex or while the children are very young if of different sexes. Given the spacing of most families' births, the latter situation could be reasonably envisioned for several years. Alternatively Bed 3 could permanently be the 'family room' as many families will be a couple with only one child. If necessary Beds 2 and 3 could house 3 or even 4 children but this, as previously outlined, will be such an incredibly small percentage of any future housing market. Bed 1 could become a home office with direct external access (which would suit the tax office). 'A lot of these boomer's kids, like their mums and dads in recent times, are finding themselves having to set up their own business to generate a livelihood. What this means is a burgeoning latent demand for office space in the suburbs – a trend that the property press is already starting to report...' ¹⁸ As residents age, disused rooms can be shut off. The ceiling system proposed means that the non-load-bearing internal walls can be moved around to suit without needing to replaster.

Saleability

Due to layout flexibility, *The Affordable Australian* is marketable to a much wider market than the (rapidly disappearing) nuclear family of Mum, Dad and two kids. While 6star rating and running cost energy efficiencies are obvious marketing advantages its Australian-ness also imbues saleable character. With no screen to clean the wide-open shower in the 'double sized' bathroom imparts a feeling of luxury. Detailing previously mentioned such as 'continuous' ceiling over partly glazed front walls of bedrooms enhances experience of space and light.

CONCLUSION

We have achieved the objectives of the competition in developing a 6 Star house that could be affordably built by volume house builders. *The Affordable Australian* is of the required size and has three bedrooms. It can be built, achieving reasonable energy ratings and costs, in various

configurations and orientations. Additionally, based on the concept of social sustainability, it fulfills our design intentions of; Australian-ness, environmental Friendly-ness and For All-ness. Therefore on the above grounds we believe it innovative for the targetted housing segment.

¹⁶ *Fairweather Homes*, Andrew Walker-Morison, The BDP Environment Design Guide November 1999, CAS18, The Royal Australian Institute of Architects.

¹⁷ email communication, *October 2004 – Melbourne 2030 Email Update*, 19 October 2004

¹⁸ *Never a Better Time for Metropolitan Planning*, Marcus Spiller, Planning News Volume 30 No. 8 September 2004, Planning Institute Australia.