
Improving sustainable housing in Queensland

**A Response from
Building Designers Association of Queensland Inc.**



1.0 SUSTAINABLE HOUSING IN QUEENSLAND

The Building Designers Association of Queensland (BDAQ) believes there is a need for more sustainable housing in Queensland. This association has had a strong commitment to education and training of building designers in sustainable building design and has encouraged the industry to seriously consider the incorporation of sustainable housing principles into Queensland housing stock.

The Queensland climate, at least in the most populated areas, provides ideal conditions for people to adopt lifestyle choices which can lead to not only more sustainable housing but also to more healthy living. At a time when health is becoming a major, and problematic, cost factor for governments, it is worth considering the positive impact a healthy lifestyle can have on the community as a whole.

Housing affordability is a topic which currently is high on government and industry agenda. The discussion on sustainable housing must recognise the problems faced by young people getting into the housing market as well as the older people maintaining their position in the market.

It could be said that real sustainable housing can only be achieved by recognition of all three sides of the Smart Housing Triangle – environmental, social and economic. This is just the start of the story.

BDAQ believes that the required reduction in greenhouse gas emissions can only be achieved if regulation is accompanied by an attitudinal change by those who live in our housing stock. We have already seen evidence of this in South East Queensland's response to the water crisis.

When Queenslanders agree that climate change is equally a crisis, we are confident that a change in attitude by most people can happen and will have an equally successful impact as the water crisis. For those who need further convincing, the increased costs that will accompany the impending carbon trading scheme should do the trick.

The secret to sustainable housing in Queensland lies in ensuring that regulation is flexible enough to allow good design principles to be achieved for each individual site and for each individual occupant group.

Key message

Regulation of sustainable housing measures must work to encourage best practice building design which has the lowest possible economical impact and enhance the health and lifestyle of Queenslanders while reducing the emissions impact of Queensland housing.

2.0 DESIGNING AND BUILDING A SUSTAINABLE HOME

2.1 **Require all new homes to be built to a 5-star energy rating from 1 January 2009**

BDAQ supports the introduction of 5-star energy rating from 1 January 2009. It may be necessary to recognise the need for some transitional arrangements for homes already in the system. Homes may already be designed and may be part of a construction contract but have not reached

the approval stage by 1 January. In the current market there is often a lead time of many months between the completion of design and getting the approval. BDAQ would encourage the consideration of transitional arrangements.

BDAQ strongly supports the assertions made in the discussion paper that Queensland's unique climate means that the three methods of designing 5-star housing must be maintained.

In introducing this measure, it may be appropriate to consider the prescribed climate zones. The broad geographical nature of the BCA zones in Queensland mean that a whole range of "sub-zones" exist across the state. It appears that this may be addressed in some of the 2nd generation software but it probably needs to be recognised in all assessment processes.

An architect or **building designer** needs the flexibility to select the method that best suits the design brief. That brief will identify the micro-climate issues as well as the more generic climate zone issues for the site. Just as importantly, the brief will identify the lifestyle choices of those people who will live in the home.

A lesson learnt the hard way from the premature introduction of star rated thermal performance using early generation software is that applied incorrectly, the computer modelling can become a self-fulfilling prophecy. Where Local Governments introduced planning provisions using software designed for southern climates, the result was housing that could only operate with air conditioners.

BDAQ submits that energy assessors need to be fully trained and experienced persons. There have been concerns expressed by members that people without prior experience in the building or building design industry are being trained to use a software tool in a short course before being permitted to assess housing by computer simulation. The Department should consider ensuring that only people who have industry experience in addition to specific sustainability/software training be acceptable as competent persons.

If applied correctly, these requirements should not adversely impact on housing affordability. We should not be talking about the increase in construction cost as a well designed home will usually be more efficiently laid out, will make better use of the outdoors and hence can provide the same lifestyle in what could be a reduced floor area.

This will be possible only as long as the deemed-to-satisfy and the peer review methods are maintained alongside the computer simulation method.

The peer review process is an important part of the regulation. It allows for the homes which all Queenslanders know to be comfortable to be assessed. Examples are tropical houses that may be pavilion style open designs with plenty of natural ventilation, shading and the right orientation. These will struggle to meet either of the alternate assessment methods but are known to be great homes for the North Queensland lifestyle.

Guidelines will need to be established for the effective operation of the review panels. There will need to be safeguards and professional standards identified as well as some discussion about acceptable sustainable principles.

Through an affiliation with the Building Designers Association of Australia, BDAQ will be rolling out the EcoDesign Smart Building Designer Program in Queensland. As part of this program, experienced building designers complete training using the Building Sustainability Seminars produced in conjunction with the (then) Australian Green house Office. Those completing the course are recognised by BDAA as EcoDesign Smart Building Designers.

The program will be delivered in Queensland during 2009 and BDAQ suggests that this accreditation would be one suitable qualification for the peer review panels.

2.2 Investigate requiring 5-star energy equivalent rating for new units

The application of 5-star energy rating for units is a more complex issue than for detached houses. With strong growth in the unit market, however, it is an issue which must be addressed.

In any unit building each individual unit may experience its own micro-climate based largely on orientation. This is an issue that can be addressed by good design. In fact the market will at some stage demand that all units be well designed to sustainable housing principles.

The main issues will be glazing in walls where the orientation is not optimum and natural cross ventilation. These can be addressed at the design stage through material selection, shading, building shape, common breezeways, wide covered balconies or open courtyards. As a side effect this will also lead to better natural lighting.

The future of housing in Queensland will embrace increased densities so it can be expected that units will become a growth market. Efforts to improve sustainable housing in Queensland should consider the energy impact of units.

2.3 Investigate providing better recognition of outdoor-indoor spaces

It is of utmost importance for houses to be designed carefully to suit the occupants' lifestyle. In Queensland, the climate is such that the outdoor environment is ideal for a great lifestyle and it is good sustainable design to foster indoor-outdoor living.

This can provide a double bonus of reducing the power usage through lower need for heating and cooling and of improving the level of health within the community. We need to design outdoor living spaces that are more attractive than the computer room or media room and promote a more active lifestyle.

Generally outdoor living areas that interact well with the indoors provide enhanced shading and natural ventilation. If properly designed they can manage solar access to ensure that the indoors are sunlit and warm in winter but shaded and cool in summer.

BDAQ agrees that better recognition of outdoor-indoor spaces should be included in the assessment process for sustainable housing in Queensland. In fact, the investigation should be broadened to identify further good energy efficient design measures.

BDAQ would be pleased to assist the department to investigate what could be a complex issue requiring specialised design input.

2.4 Investigate developing a star rating for building materials

A star rating for building materials would assist designers in their selection of product for a project. There are a number of projects underway which are investigating the life cycle of materials relative to their energy use from origin to disposal. It will be worthwhile monitoring the progress of these projects as part of the investigation.

It must be recognised that there will always be a variable in regard to transport of materials. This means that an over-prescriptive rating system may not allow the full picture to be clear. The use of a rating process will need to be performance based or as identified in the discussion paper, it can be an information tool.

How materials are used also has a bearing across all the sustainability principles. The way materials absorb, reflect or transmit heat or cold conditions should be understood by designers and builders. These properties of materials can be used to naturally enhance the comfort levels within the home. Some will store warmth which is slowly released in cooler times while others will quickly allow the heat to dissipate quickly when required.

Good research has already been done on the health issues involved in the selection of materials and finishes. If sustainable housing is to encompass the three sides of the triangle, the social responsibility side includes the supply of healthy homes using healthy building products.

2.5 Investigate preventing residential estate covenants that restrict the use of energy efficiency principles

Estate covenants and body corporate rules can be the enemy of sustainable housing. Where colours, materials and the use of appropriate appliances are restricted there is little scope for the designer to apply good sustainable design principles.

Where a minimum size of home is required, the designer may not be able to create design solutions which work most efficiently to suit the lifestyle of the occupants.

Anecdotal evidence suggests that individual owners within unit blocks or townhouses are experiencing frustration in applying sustainable principles to their homes.

One owner wanted to install a water tank, mainly because he had a large outdoor spa. He was informed by body corporate management that the water coming off the roof belonged to everybody and could not be used for the benefit of one owner. Another reported frustration in attempting to install shading devices to large west facing glass areas.

BDAQ agrees that covenants and body corporate rules need to be monitored and restrictions which may lead to inefficient and un-sustainable housing should be removed.

There is an argument that this provision should extend to Local Government Planning Schemes. Schemes which regulate the use of colours, materials and even shapes and sizes can be counter-productive in terms of energy efficiency and sustainability. Members in Cairns, for example, point to a requirement which prevents the use of light coloured roofs in some areas.

A further consideration at a time when population densities are increasing would be to ensure that small lot housing estates take into consideration orientation, climate responsive outdoor spaces and the need for appropriate shading when the house is constructed. This may require optimally oriented lots, designated building areas on the lots, consideration of breeze paths and more.

3.0 CREATING EFFICIENT HOUSING THROUGH FIXTURES AND FITTINGS

3.1 Water saving toilets and tapware and energy efficient lighting

BDAQ supports these proposals.

3.2 Phase out of electric hot water systems

BDAQ supports this proposal in principle. Investigations should also be made into ways to improve the supply of hot water to the various taps within the home. Significant water and energy is wasted by the wait for hot water to arrive at the tap.

One concern is that the requirements for gas installations can restrict the location of windows and other openings. Where being retro-fitted, recognition of the restrictions will be important.

The use of solar hot water systems with electric boost may actually have a detrimental effect because the normal peak power time is early evening when the solar hot water units may need a boost. This may cause issues with the supply authority who largely used off peak times to heat the electric hot water systems.

3.3 Sustainability declaration at point-of-sale and point-of-lease

BDAQ agrees with the proposal but suggests that a consumer education program will need to accompany its introduction.

The inclusion of 5-star does cause some concern and with this being a self-assessment process, there will be confusion about how the star rating can be established.

We also know that much of Queensland's existing housing stock would have difficulty achieving 5-star and that some of the most climate responsive and comfortable homes will never pass a computer simulator assessment.

Perhaps the declaration should include an energy efficiency measure that is more appropriate to Queensland housing and more easily understood by consumers. It is unreasonable to expect the average home-owner or real estate agent to have an understanding of energy equivalent ratings

and it would be sad for this to become a revenue raising exercise for computer simulation assessors.

While new homes have three possible assessment methods to achieve the 5-star rating, it would be difficult to do a deemed-to-satisfy or peer review panel for existing homes.

We submit that the passive design measures on the list are a more effective way of establishing the level of energy efficiency. Unfortunately the consumer and probably the real estate industry will use the 5-star as a benchmark and this may actually be misleading.

BDAQ congratulates the department on the inclusion of access, safety and security aspects.

3.4 Prevent the sale and installation of inefficient air-conditioners

BDAQ supports this proposal.

3.5 Investigate requiring photovoltaic energy to be installed on large houses

BDAQ supports this proposal but would want to review the detail when it is established. A better measure may be the value of the home rather than the floor area.

The measure should capture those who can be expected to use more energy than the average family. This may be a couple occupying a 300 square metre home with all the gadgets rather than a family of eight or more struggling to manage in a more modest but larger home.

3.6 Investigate requiring minimum energy star rating on swimming pool pumps

BDAQ supports this proposal.

3.0 IMPLEMENTATION

While BDAQ supports the concepts involved in “Improving sustainable housing in Queensland”, we know that the ultimate success of the measures will depend on the implementation and even more importantly on the industry and consumer education program that accompanies that implementation.

BDAQ will be pleased to work with BCQ to assist in developing and refining the measures still being investigated and we look forward to having a significant role in the education program.

If any of this submission requires any further information or clarification, please contact BDAQ Executive Director, Russell Brandon on 07 38899119 or email admin@bdaq.com.au.

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