

30 July 1999

Building Performance Study
Productivity Commission
Locked Bag 2
Collins Street East
MELBOURNE VIC 8003

By facsimile: 03 9653 2305

Dear Sir/Madam

***Submission by Master Builders Australia
to the Productivity Commission Study into
Improving the Future Performance of Buildings***

A Introduction / Background

We are pleased to respond to the invitation to forward a submission in respect to the above study.

MBA is the leading organisation representing the interests of builders in the Australian housing and construction industry. We have a long history of interest and involvement in the energy debate as is evidenced by the following:

- The promotion of energy efficiency amongst our 18,000 members through a range of educational courses and through the promotion of various industry awards including the National Building Energy Awards.
- Our involvement in the two IEA building related programs viz: Solar Heating and Cooling and Energy Conservation in Buildings and Community Systems. As part of MBA's involvement it represents Australia's interests through its participation on IEA's relevant Executive Committees.
- Our on-going involvement with a range of initiatives including the promotion of NatHERS, supporting activities of SEDA, Energy Efficiency Victoria, ACT Energy Efficiency Centre, etc.

B The Barriers

The thrust of our submission focuses on the barriers of demand for “sustainable buildings”.

The International Energy Agency (IEA) defines “sustainable buildings” as buildings that are designed to, based upon a life cycle analysis, minimise both direct and indirect adverse impact on the indoor, local, regional and global environments. Such buildings incorporate sustainable materials and components and use a minimum amount of energy. Furthermore, such buildings are designed and located to be used in an environmentally sensitive way.

Whereas demand in Australia for sustainable buildings is small, there is evidence that interest is growing. The indicators of this emerging market are:

- the increasing requirement by government tenders requiring sustainable building expertise;
- the increased requests for information about energy efficiency / sustainable buildings from State based public authorities such as SEDA and Energy Efficiency Victoria, as well as from industry associations / professional organisations such as MBA, RAIA, Institution of Engineers Australia, etc;
- the increased interests in the MBA National Energy Awards by way of nominations for its different categories; and
- the increased coverage by the media and within trade association journals, on energy efficient housing and buildings.

For demand in the private sector to significantly increase will require overcoming the current perception that the cost for sustainable buildings are more costly. This perception has been formed because much of the sustainable technology is unproven and due to the lack of appropriate design tools. There is therefore a need to develop an appropriate comprehensive strategy that will address the following aspects:

- The formulation of hard data on the performance and benefits of sustainable products and technologies. Many of these products / technologies are unconventional thereby creating uncertainty in respect to their performance. Appropriate tools may need to be developed that will enable these products, and in particular, their performances to be warranted.
- The formulation of demonstrated hard data on savings benefits, life-cycle cost analysis, financial models for financiers and building owners to encourage investment in sustainable buildings. Many of the building materials / products that claim energy efficiency are perceived as offering unattractive payback for the additional costs. Furthermore, the inability of some suppliers to offer performance guarantees of savings to clients acts as a deterrent to the incorporation of such products in the specifications of building works.

- The co-ordination of the building process, i.e. various aspects associated in the financing, specification, design, construction, commissioning of sustainable buildings. As set out in the Issues Paper, the building process is very complex and involves different stakeholders in the various stages, all of which bear different kinds of risks. This process is essentially driven by minimising risks through prolix contractual arrangements, all of which operate against the adoption of a co-operative, holistic approach. The most significant way in which one can take advantage of the benefits that sustainable buildings can offer is to better co-ordinate consultants during the design stage, yet the traditional contractual arrangements operate against such a development. It would seem that new contractual arrangements may need to be identified if this interdisciplinary design team is to optimise skills, resources and building performance.
- The development of an independent rating and eco-labelling system. Whereas the NatHERS system for housing and SEDA's Greenhouse Building Rating Scheme are significant developments, there is a need to establish a system for quantifying performance targets for accreditation of sustainable buildings. The formulation of such a system will avoid the tendency for a range of subjective and unquantifiable "green" claims to be made which serve only to confuse the market. This should, as a first step, involve the formulation of a consistent method for documenting green building systems. It should then result in the development of a standard labelling system of environmentally preferred products.
- The development of a single industry information reference point. There is at the moment no co-ordination of the range of information relevant to sustainable buildings and this serves as a major barrier towards providing interested parties with relevant hard evidence. Thus, an organisation like ABEC should become the focal point for the compilation of hard data on energy codes, life cycle analysis, cost savings, improved employee productivity, eco-labelling, voluntary market driven programs, analysis of codes and policies for issues that inhibit a sustainable agenda, integrated resource planning tools, standardised assessment methods, manuals for sustainable buildings, etc.
- The need to nurture greater government-industry partnerships to ensure that industry is more conversant with public policy objectives and international obligations. Similarly, such a relationship may also enhance government policies in ensuring that industry develops a voluntary suite of programs, which does not discourage innovation and creativity. Formal consultative arrangements should be put in place to provide a forum for the exchange of views on this topic and to nurture a closer understanding of the imperatives that drive government and industry policies.
- There is an under-resourcing of research and development work in this area due to a range of factors, including the recent decision by the Commonwealth to dismantle the Energy Research Development Corporation (ERDC). As a result, the Commonwealth Greenhouse Gas Emission targets are being viewed by industry as somewhat inconsistent and this perception is doing little in elevating sustainability as a high order issue. If the Commonwealth regards it as appropriate to dismantle the ERDC then why should industry regard the Commonwealth's views on research in sustainability as warranting serious consideration?

Fortunately, this vacuum has to some extent, been filled by the activities of SEDA but the need for national leadership in the activities previously carried out by ERDC remains an issue that needs to be urgently addressed.

- Following from the above point, the disbanding of ERDC has also resulting in a diminution of representation and participation on international collaborative work. Whereas Master Builders Australia and the Electricity Supply Association of Australia agreed to take on the representative role previously carried out by ERDC on IEA, such involvement has been an expense borne by the two associations. It is difficult to comprehend why industry associations like MBA or ESAA should incur the expense of representing Australia on the international stage. The fact that Australia is the only nation on the IEA's Implementing Agreement that is not represented by a government (or a governmental agency) only serves to underscore this unusual aspect of current Commonwealth policy. Furthermore, given that all IEA meetings are held in Europe or North America, the costs for participation on IEA activities is disproportionately higher on Australia than on other nations, thereby highlighting the need for some form of government support for such activities if Australian industry is to benefit from the exchange of technological information at an international level. The following represents some of the international collaborative research work undertaken through the IEA and the involvement of Australian industry is desirable if advances in technologies relevant to the Australian market conditions are to be developed:

- Annex 1: Load Energy Determination of Buildings*
- Annex 2: Ekistics and Advanced Community Energy Systems*
- Annex 3: Energy Conservation in Residential Buildings*
- Annex 4: Glasgow Commercial Building Monitoring*
- Annex 5: Air Infiltration and Ventilation Centre
- Annex 6: Energy Systems and Design of Communities*
- Annex 7: Local Government Energy Planning*
- Annex 8: Inhabitant Behaviour with Regard to Ventilation*
- Annex 9: Minimum Ventilation Rates*
- Annex 10: Building HVAC Systems Simulation
- Annex 11: Energy Auditing*
- Annex 12: Windows and Fenestration*
- Annex 13: Energy Management in Hospitals*
- Annex 14: Condensation*
- Annex 15: Energy Efficiency in Schools*
- Annex 16: BEMS-1: Energy Management Procedures*
- Annex 17: BEMS-2: Evaluation and Emulation Techniques*
- Annex 18: Demand Controlled Ventilating Systems*
- Annex 19: Low Slope Roof Systems*
- Annex 20: Air Flow Patterns within Buildings*
- Annex 21: Thermal Modelling*
- Annex 22: Energy Efficient Communities*
- Annex 23: Multizone Air Flow Modelling (COMIS)*
- Annex 24: Heat Air and Moisture Transfer in Envelopes*
- Annex 25: Real Time HVAC Simulation*
- Annex 26: Energy Efficient Ventilation of Large Enclosures*

Annex 27: Evaluation and Demonstration of Domestic Ventilation Systems
 Annex 28: Low Energy Cooling Systems
 Annex 29: Daylighting in Buildings
 Annex 30: Bringing Simulation to Application
 Annex 31: Energy Related Environmental Impact of Buildings
 Annex 32: Integral Building Envelope Performance Assessment
 Annex 33: Advanced Local Energy Planning
 Annex 34: Computer Aided Fault Detection and Diagnosis
 Annex 35: Hybrid Ventilation in New and Retrofitted Office Buildings
 Annex 36: Retrofitting in Educational Buildings

(* completed annexes)

Some of the more recent research activities being undertaken by the SHC are:

Task 19: Solar Air Systems
 Task 20: Solar Energy in Building Renovation
 Task 21: Daylight in Buildings
 Task 22: Solar Building Energy Analysis Tools
 Task 23: Optimisation of Solar Energy Use in Large Buildings
 Task 24: Active Solar Procurement
 Task 26: Solar Combisystems

- There is a need to develop appropriate educational and design tools for architects, builders, building owners and building managers. These courses should be developed by the relevant professional bodies (e.g. RAIA) and industry associations (e.g. MBA and PCA) and some form of government assistance would be preferable if qualified trade and professionals are to become better informed and able to grasp the need for closer relations.
- There is scope for governments to support sustainable buildings through the use of its purchasing power in the procurement process. Obviously the most meaningful manner in which governments (Commonwealth and State/Territory) can demonstrate a proactive political approach is through the specification and technologies in contracts involving the construction and/or refurbishment of public buildings. Such an approach will encourage designers, consultants, builders and manufacturers to develop strategies conducive to securing this important sector of the market, thereby enabling such products and technologies to be also available for incorporation into the private sector.

C Final Comments

We trust that the above observation would be of assistance. As you can see we have confined our comments towards identifying the barriers towards an increased market in sustainable buildings because we believe that at the end of the day the market for such buildings involves consideration of both environmental as well as commercial factors. In other words, while considerations of social responsibility are important, the building industry regards environmental issues like other business issues. Thus, an understanding

of how to improve the future performance of buildings must involve consideration of the factors that influence the making of a range of investment decision of which the bottom-line results are of paramount consideration. The real challenge is how one can build better performing buildings without adversely impacting on the first capital cost (i.e. building / contract construction price).

MBA would also be pleased to provide the Productivity Commission with names of projects that have recently been nominated for our National Building Energy Awards. We believe that many of these projects would be suitable case studies that would assist the Commission in evaluating the factors that affect the performance of buildings.

MBA would also be willing to provide further details of the various Annexes and Tasks being currently undertaken under the auspices of the IEA's building related programs (e.g. Solar Heating and Cooling, Energy Conservation in Buildings and Community Systems).

Finally, we would of course be available to further elaborate or discuss any of the points contained in this letter.

Yours sincerely

John Murray
National Executive Director