Australian Institute of Architects

The Built Environment Sector including the design, construction and operation of buildings and infrastructure

A background paper prepared for the Australian Services Roundtable Services Summit 2009

March 2009

About the Institute of Architects

The Institute of Architects is an independent, national, member based organisation with approximately 10,000 members across Australia and overseas. The Institute exists to: advance the interests of members, their professional standards and contemporary practice; and expand and advocate the value of architects and architecture to the sustainable growth of our community, economy and culture. The Institute actively works to maintain and improve the quality of our built environment by promoting better, responsible and environmental design.

Disclaimer

Overview

The built environment touches virtually every aspect of Australian life.

Design is fundamental to the built environment- poorly designed buildings and cities are inefficient. They cost too much in materials and energy, they also create uncongenial living environments, adding to demands on health and community services. Design involves the efficient use of materials, skills and construction techniques to deliver sustainable places and buildings of lasting value.

Built Environment Facts and Figures include the following;

- Approximately $158 billion was spent on new construction in Australia in 2008
- The market value of Australia's homes is approximately $2.7 trillion
- More than one million people are employed in the nation's construction industry
- More than one in two Australians own the nation's commercial property assets mainly through superannuation funds
- Almost $26 billion is paid annually in property taxes
- One in five renters was in housing stress in 2008
- Buildings and their occupants account for 23% of Australia's total green house gas emissions (GHG) emissions
- Current projections indicate that GHG emissions will double by 2050
- The Australian construction sector has the second lowest investment in R&D at 1.5% annually
- It is estimated that time delays in development approvals can add 15% to total development costs

Research by Price Waterhouse Coopers *'Cities of the Future: Global Competition, Local Leadership 2005,* identified a range of trends that will impact on the built environment:

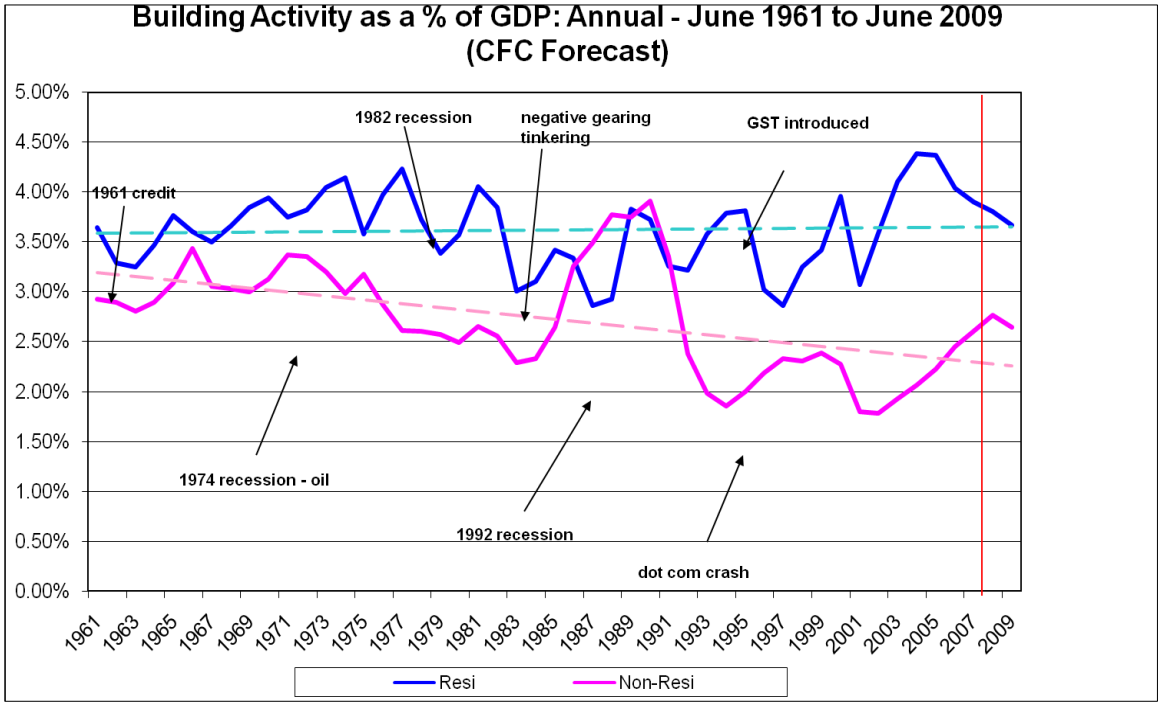
- Global companies and economies working in local competition, within global structures,
- The individual as the principle economic unit, reflecting the increase in single members households and transient populations,
- Blurring of social and national boundaries,
- Increasing speed in all aspects of life,
- New technologies and robotics which will contribute to the design of 'intelligent' houses,
- The emotional appeal of the environmentally friendly, safe, secure and aesthetic city as an imperative for modern civic pride,
- The impact of the ageing population across the globe,
- The United National predicts that by 2030 approximately 60% of the world's population will live in a city, and
- Increased global migration presents challenges to social cohesion, integration and employment

Long Range Trends

The graph below (courtesy of the Property Council of Australia) sets out the historical trends for completed work as a percentage of annual GDP for both the residential and non residential sectors from 1961 to the present. This data is useful in tracking cyclic trends and indentifying previous major events which have impacted building activity.

It is interesting to note that the residential sector, which includes new housing, flats and alterations and additions to existing stock, shows that activity has maintained a series of regular cycles of expansion and contraction with a long term average investment of around 3.5% of GDP.

The Non-Residential sector which includes commercial offices, retail, industrial, heath, education and aged care facilities has experienced larger and longer cycles of expansion and contraction. The period following the 1987 stock market crash shows a massive expansion phase followed by a rapid decline of approximately 50% in activity from 1990 through to 1992. This period resulted in a significant oversupply of some stock and rapid devaluation of property assets which had very painful consequences. The more recent expansion from 2001 to now has been more gradual and reflects solid investment from both private and government clients in the sector.



Source: Courtesy of the Property Council of Australia

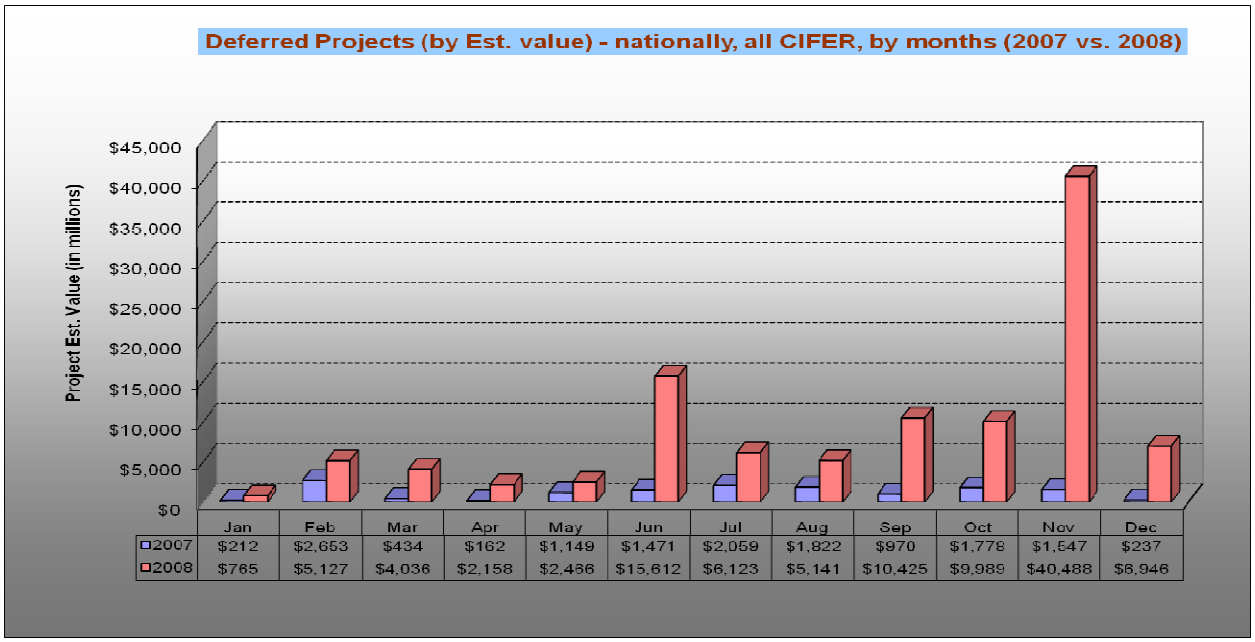
Sector Forecasts

The Construction Forecasting Council of Australia (CFC) was created under the Australian Construction Industry Forum (ACIF) - a peak consultative organisation of the building and construction sectors. The CFC provides short and long term forecasts of the construction and property sectors in regards to:

- Residential building construction activity
- Non-residential building construction activity, and
- Engineering construction activity

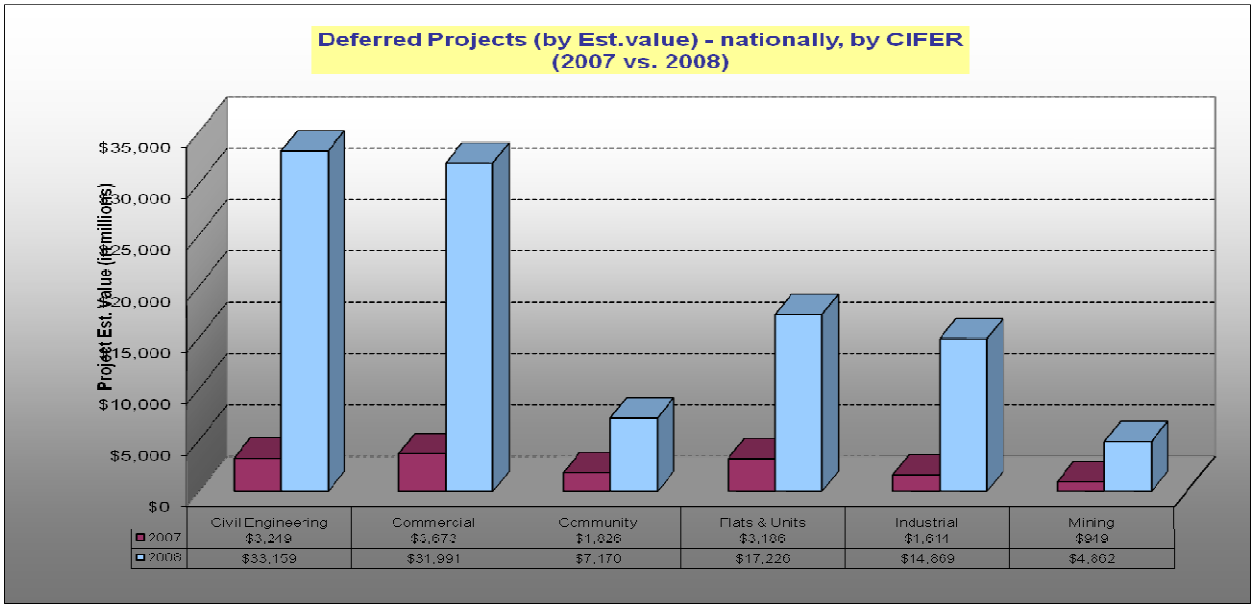
The forecast is a useful tool for these challenging times. Setting out future demand by state/territory and cities, the forecast predicts the likely demand for services across 22 categories of projects. The latest forecast was issued in November 2008 however significant changes have occurred in the delay and deferral of projects due to the rapid global economic change since that time, and therefore the CFC is bringing forward its next forecast which will be available at the end of March 2009 at www.cfc.acif.com.au.

The following graphs (courtesy of Reed Construction Data) indicate the size of the recent change in conditions for the sector. Since mid 2008 a significant number of projects have either been deferred or shelved, peaking in November with over $40 billion dollars of work affected in just one month. These figures indicate an approximate increase of over 500% in deferred projects compared with one year earlier.



Source: Courtesy Reed Construction data

The following graph shows over $100 billion of deferred projects with the civil and commercial sectors being the worst affected.



Source: Courtesy of Reed Construction Data

Export Opportunities

The Australian Government's Austrade website provides the following overview of building services:

"The Australian Bureau of Statistics states that Australia exported building services to the value of $720million in 2005, although this figure may be understated due to the difficulty of tracking services transactions. Technical services such as project management, engineering and architecture are said to contribute 80 per cent to Australian services exports, which totalled A$625 million. Construction services at $95million make up the balance.

Australian architectural firms punch above their weight in world architecture. Amongst the worlds' 60 largest architects, there are seven Australian companies, a significant achievement for a country with a population of only 20 million. Per capita, Australia has produced more global architectural players than the US, Canada, Germany, Japan, India and China.

Australian consulting and construction engineers provide feasibility and environmental studies and project design and management. A smaller but nevertheless significant volume of services exports comes from Australian construction contractors. They have specialised skills and a reputation for quality, efficiency and ability to deliver on time." (Source Austrade website last updated 27 January 2009)

Key issues for the built environment

In September 2008 a range of public policy positions were developed by a group of built environment representative organisations under the umbrella of BEMP (Built Environment Meets Parliament).

The five organisations included: the Australian Institute of Architects; Planning Institute of Australia; Green Building Council of Australia; Property Council of Australia and the Association of Consulting Engineers Australia.

The 2008 BEMP summit focused on five issues: infrastructure, climate change; red tape reduction; housing affordability and innovation. A number of public policy proposals under these headings were identified and are listed below:

Infrastructure

- Set performance indicators for lifting community prosperity
- Identify infrastructure deficits and investment priorities through Infrastructure Australia, on the advice of private sector experts
- Establish modern funding mechanisms to capitalise these investments
- Tie the work of Infrastructure Australia to sustainability and liveability urban renewal program

Climate Change

- Establish an economy- wide national emissions trading framework that includes built environment operators
- Establish a Green Building initiative – a nationwide building tune-up and retro-greening program
- Lift minimum standards by committing to eco efficiency targets for carbon, water and waste efficiency along with air quality
- Establish an R & D Fund to develop the technology that will enable carbon, water and waste neutral buildings
- Provide incentives for retrofitting existing stock in the form of accelerated (green) depreciation and other measures
- Cut environmental red tape

Red Tape reduction

- Adopt the Development Assessment Forum (DAF) Leading Practice model for improving the quality and speed of development assessment processes
- Establish and fund a secretariat to oversee the implementation and ongoing development of electronic development assessment standards
- Commit to modernising property laws and procedures as part of an intergovernmental approach to harmonising industry rules across the country
- Adopt a modern approach to regulatory impact statements that more accurately tests the costs and benefits of proposed legislation

Housing Affordability

- Provide incentives to state and local governments that agree to reform site release, tax and regulatory practices that decrease affordability
- Establish short and medium term performance KPIs relevant to housing affordability and social housing
- Finalise a protocol for disbursing monies from the proposed Housing Affordability Fund based on competition policy style principles
- Seek private sector advice on realistic options for transforming the housing sector (including social housing sector) into an investment grade asset class
- Establish a national demonstration program that explores new design solutions for affordable housing

Innovation

- Establish a skills forecasting council modelled on the Canadian Construction Sector Council as a basis for building sector capacity and global competitiveness
- Establish a reform champion and KPIs for the construction industry along the lines of Constructing Excellence in the UK
  Commit to an applied R & D strategy that will deliver the technology to enable a carbon neutral and light eco footprint performance standard for buildings and new master planned communities
- Establish a national demonstration program that makes the business case for green development/ buildings and promotes innovative practices
- Establish a leading practice model for government procurement that encourages innovation
- Establish an Innovation Council for the built environment.

It is acknowledged that a number of these positions are being addressed by governments for example: the establishment of the Innovation Council for the Built Environment, the national Green Building Fund and Green Loans programs, moves to adopt 6star rating for residential housing, and white certificate programs at state level.

Building Sector Abatement potential

The Australian Sustainable Built Environment Council (ASBEC) is a peak body of key national organisations committed to a sustainable built environment in Australia. Through its Climate Change Task Group (CCTG), ASBEC commissioned economic analysis from the Centre for International Economics to assist the CCTG in its efforts to stimulate discussion about the complementary role energy efficiency can play in supporting the Federal Government's proposed Carbon Pollution Reduction Scheme (CPRS). This analysis resulted in a report titled *'The Second Plank – Building a Low Carbon Economy with Energy Efficient Buildings* (The Second Plank) (available at www.asbec.asn.au/research)

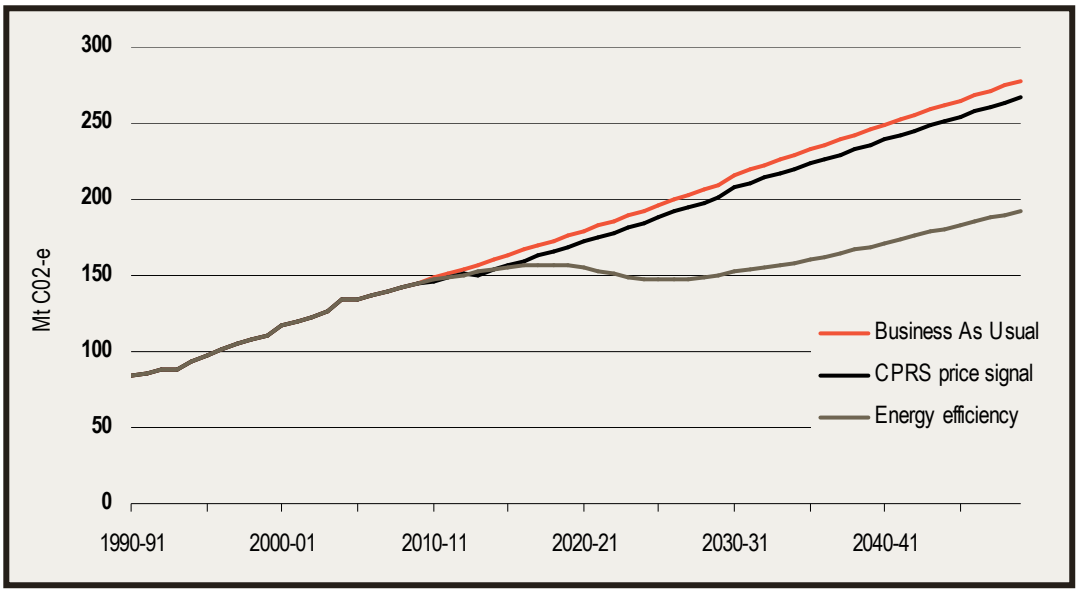
The building sector comprises two elements: residential buildings and commercial buildings. Taking into account both the amount of energy used in the building sector and different fuel types, the Second Plank report found that 23 per cent of Australia's greenhouse gas emissions are attributable to the building sector. That is, energy use from activities within buildings produces nearly a quarter of national greenhouse gas emissions. Significant savings in greenhouse gas emissions can be achieved in the building sector through energy efficiency measures using today's

technology. These savings involve little or no net economic cost.

The report calculates that:

- without complementary measures the building sector is expected to reduce emissions by around 8Mt a year from the price signal received from the CPRS (i.e. increased electricity prices);
- with complementary measures and encouragement to achieve the full energy efficiency potential of the building sector, greenhouse gas savings of around 60Mt per annum are achievable by 2030; and
- building sector investment in energy efficiency would reduce the sector's GHG emissions by between 30 -35 per cent by 2050.

GHG emissions by the building sector



Source: The Second Plank report September 2008

Note: The series 'CPRS price signal' plots only expected effect of the CPRS price signal on electricity demand. It has not attempted to account for other influences on the price of electricity (such as other policy measures), nor the supply side response to the CPRS. This series reports the impact on GHG emissions that results from an increase in electricity prices. Data Source: CIE (2007)

The building sector has substantial potential to reduce the amount of energy it consumes. However a number of institutional barriers and market failure have prevented the building sector from realising this potential. A core problem is the gap in time between the cost of making the substantial investment required to bring about efficiencies, and the time when the energy efficiency savings provide a return. The Second Plank report discusses in detail these barriers to the building sector reaching its abatement potential.

While it is acknowledged that Commonwealth and State Governments are attempting to address barriers to the adoption of energy efficiency measures, it is clear that additional policy effort is still required.

The Second Plank report has identified 21 policy approaches to stimulate energy efficiency and greenhouse gas reduction in the building sector. Five of these are highlighted in the report as key to motivating the long term structural change and significant investment required to achieve greater energy efficiency in the building sector:

- a national white certificate scheme;
- green depreciation;
- public funding of energy efficiency retrofits;
- enhancement of Minimum Energy Performance Standards (MEPS); and
- modernising the building code with higher standards.

National White Certificate scheme

In essence, a white certificate scheme enables energy efficiency to be a tradable asset which would provide an incentive for the building sector to invest in additional energy efficiency. Several states are in the process of implementing variations of a white certificate scheme, however a national scheme that applies to the residential and commercial elements of the building sector could minimise differences and enable a broad market to operate on a larger, more efficient scale.

Green depreciation

Green depreciation involves the provision of accelerated depreciation allowances for capital expenditure on energy efficient fittings, fixtures and capital works that raise the overall energy performance of a building to a specific standard. Green depreciation would play a key role in overcoming the timing gap problems, allowing investors to defer tax payments in exchange for bringing forward energy efficiency and greenhouse gas reductions.

Public funding of energy efficiency retrofits

Public funding of energy efficiency retrofits will require a range of grants, subsidies and rebates for improvements undertaken by households and the commercial sector that have a proven ability to reduce energy consumption. Public funding of retrofits reduces the investment cost for energy consumers thereby closing the 'payback' gap and providing additional incentives to undertake investment in energy efficiency.

Increase Minimum Energy Performance Standards (MEPS)

An increase in minimum standards for the energy efficiency of appliances through MEPS would accelerate energy efficiency gains. Appliance standards are one of the most cost-effective and widespread instruments for increasing building energy efficiency and are necessary to gradually remove the least energy efficient products from the market.

Building Code Modernisation

Building Codes are an important driver for improved energy efficiency in new buildings. The Building Code of Australia needs to be updated and tightened with higher standards for energy efficiency achieved through design, selection of building materials and installation of efficient heating, cooling and lighting systems.

The Second Plank report clearly demonstrates that there would be substantial benefits to the whole economy through the implementation of the outlined set of complementary policies to achieve the substantial abatement potential of GHG emissions through energy efficient measures in the building sector. These complementary measures are based on using current technologies and are in addition to the emissions cap applying under the CPRS. Through government undertaking this action, the whole economy can benefit through a reduction in the cost of permits under the CPRS and through a lowering of the adjustment costs across the whole economy.