

The Anglican Diocese of Canberra and Goulburn's Green Building Policy

At its October 2007 meeting, Bishop in Council endorsed Synod's resolution to *shrink our environmental footprint* (1053/07). The resolution includes a 'request that the Environment Commission, reporting to Bishop in Council, specifically examine the means and financial implications of achieving:... (c) improving the energy efficiency by at least 20% by 2010 and 50% by 2020 of the Church's facilities and operations.'

This Diocesan Green Building Policy is one element aimed at achieving this goal. The policy seeks to improve the environmental quality of buildings within the Diocese. In doing so it seeks to achieve a balance between the economic, environmental and social aspects of building construction and use.

Accordingly, Bishop in Council requires all building construction and modifications to follow the Diocesan Green Building Policy.

When **constructing a new building or major renovation**, parishes must abide by the following process:

1. Before any new building or major retrofit project can be considered by the Diocese, there is a requirement that the Anglican Church Property Trust Property Development Consultation Process be adopted, the guidelines adhered to, and that the financial governance arrangements for construction approvals be made cognisant of achieving progress to a higher aggregate green star rating
2. When briefing an architect or proponent on a new or major rebuilding project, they are to be provided with the document at Appendix 1. It is to be made clear that all new commercial buildings, including multiunit residential buildings, healthcare and educational facilities are expected to reach a 6 star greenstar building rating (<http://www.gbca.org.au/green-star/rating-tools/green-star-rating-tools/953.htm>). Domestic buildings are to reach a 5 star (one above legal requirement) Basix standard. The Architect's brief is to be written accordingly.
3. The brief will inform architects that the Green Building Council of Australia (GBCA) ratings will be used when selecting the preferred design, and instructs designers to use the GBCA ratings tools to present a case to support the measures proposed. They are also to provide a statement of the additional costs contributed to the design by reaching this standard and the long term financial benefits to be expected from the proposed measures.
4. The approach is designed to ensure that environmental attributes are considered in an evaluation process that is fully informed of the relevant facts, where assessment is based on accepted national standards, and where 'other criteria being equal' selection will be based on the design that results in the least harmful effect on the environment.

Parishes and other diocesan entities will develop their proposals according to this process unless given a specific exemption after an examination of practicality, costs and benefits by Bishop-in-Council. If approval is obtained not to meet the standards, a short statement setting out the agency's rationale should be provided to the

Diocesan Registrar (to allow the Commission to identify systemic problems in the policy).

When **performing minor modifications** parishes are to seek to improve the energy efficiency of existing buildings (see '*A green guide for people in parishes*', (found under "Resources" on the Commission website), and the Diocese of Bathurst document '*A carbon neutral diocese*').

Parishes are encouraged to have an **energy audit** done of the buildings under their care to identify significant energy loss areas to assist with the development of a plan to improve building energy efficiency. Such an audit can be arranged through your electricity supplier who will also provide suggestions as to ways to improve energy efficiency (and reduce costs). Alternatively, a less detailed audit can be made using the checklist in *A Green Guide for people in Parishes*.

The option of offsetting carbon emissions related to energy consumption is now available from most energy providers as well, allowing parishes to both offset carbon emissions and also promote green power infrastructure in the energy industry (contact the Diocesan Registry, also see Diocese of Bathurst document '*A carbon neutral diocese*').

Synod 2008 approved the creation of a Green Fund to support environmental initiatives across the Diocese. While deployment of assistance from the Green Fund would be on the basis of the relative merit of individual proposals, it is envisaged that the Fund would be accessible for expenditures that improve the energy efficiency of buildings.

The Green Building Policy will be reviewed as often as is necessary and at no longer than two year intervals to ensure that the benchmarks set are at an appropriate level and that the policy is achieving its desired outcome.

Further background information to assist with building construction or modifications is contained in the attached document and is available from the Registry.

Supporting Information – Anglican Diocese of Canberra and Goulburn's Building Policy

What is a green building?

The Organisation for Economic Co-operation and Development OECD defines Green Buildings as those buildings that have minimum adverse impacts on the built and natural environment, in terms of the buildings themselves, their immediate surroundings and the broader regional and global setting.

A Green Building is designed to minimise the total environmental impact of its materials, construction, operation and deconstruction while maximising opportunities for indoor environmental quality and performance.

A Green Building will save money, reduce waste, increase worker productivity and create healthier environments where people live and work.

A Green Building incorporates design, construction and operational practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants. It includes strategies for addressing:

- energy efficiency
- greenhouse gas emission abatement
- water conservation
- waste avoidance, reuse and recycling
- pollution prevention - noise, water, air, soil & light
- enhanced biodiversity
- reduced natural resource consumption
- productive and healthier environments
- useable buildings
- social amenity
- transparent reporting

The benefits of a Green Building are:

- lower development control costs
- improved risk mitigation and management
- higher tenant retention
- lower renovation costs
- lower overheads
- higher returns
- more flexible space planning
- more productive and healthier environments
- access to financial incentives and tax credits
- a baseline measure to earn carbon credits
- lower insurance costs
- increased interest by Ethical Investment Funds
- a better industry image

Costs/Benefits – an example :

The average premium for the construction of Green Star 6 (World Leadership) (equiv to Level 3 Gold US) is slightly less than 2% or \$33 more per m² based upon a m² rate of \$1500.00. This rate is the national average for a school for example. A residence is a similar figure and a church is \$1800 per m². These rates will vary state to state and therefore the figures represented are averages.

The % premium has been determined by a study undertaken by Davis Langdon across some 100 school sites in the US and the indications are that this is a reducing premium which will go negative within the next 2 years or less.

Operation Cost Savings and Consequential Cost Savings.

	\$\$\$ per m ²
Energy	99
Emissions	11
Water and waste water	11
Increased Earnings	539
Asthma Reduction	33
Cold & Flu reduction	55
Teacher retention	44
Employment impact	22

Total Savings	814
Cost of Greening	(33)

Net Financial Benefit 781

It should be noted that not all of these benefits will accrue to the school but also to students, parents and the greater community. Therefore the proposed policy tangibly embraces our social obligations as well as providing a direct benefit to the school and the school population: similar savings would be expected for any type of diocesan building..

Taken from *The Dollars and Sense of Green Buildings 2008*

Ways to improve present buildings

Parishes should consider the following:

1. Easily achieved energy reduction measures which can usually be done without significant modification to building structures:
 - a. Utilise lower wattage lighting which provides an equivalent level of illumination to existing incandescent lighting, such as fluorescent or LED lighting systems.
 - b. Install weatherstripping or seals around doors and windows to minimise infiltration of outside air.
 - c. Install insulation above ceilings to reduce heat loss/gain from roof cavities (minimum 150 mm fibreglass insulation batts or equivalent).
 - d. Install adjustable external shades on sun-exposed windows.
 - e. Install programmable thermostats on central heating/cooling systems (capable of separate settings for day/night and weekday/weekend).
 - f. Replace older appliances with energy efficient ones (fridges, stoves, ovens, dishwashers, etc.).

2. Energy reduction measures which may require significant modification or are more easily done in combination with minor building modifications:
 - a. Install solar hot water heating, with an inline gas or electric instantaneous heater to supplement.
 - b. Replace electric resistance heating (or older gas or heat pump systems) with high efficiency heat pumps or natural gas (heat pumps are a better option where cooling is also required).
 - c. Install light coloured, reflective roofing or high efficiency reflective roof paint to minimise solar heat gain.
 - d. Replace single pane window systems with dual glazed, low emissivity windows with air tight seals.
 - e. Insulate external walls of buildings (usually only practical where a building has siding, is being resided, or where sheeting on the inside of an external wall is being replaced).
 - f. Install heating appropriate to the building use:
 - Infrequent use – radiant heaters to heat the people (e.g. stone walled church)
 - Frequent use, low thermal mass – convective or forced air heating/cooling with on/off or thermostatic controls (e.g. weatherboard construction house or office)
3. For issues related to Grid connected solar PV (Photovoltaic) systems contact the Registry also, see Diocese of Bathurst document '*A carbon neutral diocese*'.

Appendix 1

BRIEFING OF AN ARCHITECT OR PROPONENT ON GREEN REQUIREMENTS

In addition to normal briefing documents the following documents should be included:

1. *'New Facilities for The Anglican Church – Report to The Anglican Church's Environment Commission, Canberra – December 2004.'*(see Commission website).
2. A requirement to base the design of new facilities on the principles and details of the Green Building Council of Australia, Green Star Rating system and to utilize data from the website: www.gbcaus.org to achieve a minimum of a 6 Star Rating.
3. Current Green Star Rating Tools are:
 - Green Star – Office Design
 - Green Star – Office As Built
 - Green Star – Office Interiors
 - Green Star – Office Owners
 - Green Star - Education
 - Green Star - Healthcare
 - Green Star - Shopping Centre Design
 - Green Star - Multi Unit Residential
 - Green Star - Mixed Use
4. For domestic buildings the 5 star Basix rating standard should be met.
5. For major renovations the above standards are to met as far as is possible and the shortcoming listed and explained.

If the Proponent/Architect is of the opinion that The Diocese will benefit from variations to the minimum specifications stated, the Proponent must detail the alternative.

The Diocese expects the “alternative” specifications nominated to reflect cost effective innovation and the overall design objectives of the project.

There is an opportunity for the Proponent to provide an innovative response to the standard practice or specification indicated. Where the Proponent takes this initiative the response should indicate what the innovation is and how it is of benefit.

The following footnotes provide additional explanation to the specification where standard practice could be considered environmentally questionable.

1. **Life Cycle Impact.** The Diocese expectation regarding life cycle impact is that the materials and components used within the building will last at least twenty five years with minimal or standard cleaning and maintenance. At the same time, materials with cost effective, low environmental impact should be considered and

included. The Diocese will give preference to cost effective innovations in low embodied energy and low environmental impact materials and their benefits over the life of the building. Cost effective innovations that require replacement over the life of the lease may be included if the overall environmental benefits can be shown.

2. **Material Selection.** Many standard, modern, commercial, building materials have low or minimal recycled content and are difficult to reuse and recycle. While expecting a commercial level of finish for the project, the Diocese will give preference to cost effective innovations in the use of materials that have high recycled content and/or are easy to recycle, or the material is part of a product stewardship programme so that it is taken back by the original supplier at the end of its life. Innovation can include recycling of materials that have previously been difficult to reuse/recycle as long as this ability can be evidenced.
3. **Indoor Environment Quality.** Many standard, modern, building materials use chemicals as part of their manufacture, content or installation. The Diocese will give preference to cost effective innovations in use of materials and solutions that have low toxicity content particularly formaldehyde and volatile organic compounds. Preference will also be given to solutions for installation that do not rely on adhesives or use adhesives that are low in volatile organic compounds and formaldehyde content. Preference will also be given to installation methods that are re-usable.
4. **Water.** The Diocese requires its projects to be water efficient – see the provisions of the Diocesan Water policy. Cost effective innovative solutions that assist in the saving, storage and re-use of all water will be given preference.
5. **Energy. Ventilation and Internal Conditions.** The climate is a large factor in dealing with heating and cooling and appropriate ventilation of the project. The Diocese will give preference to cost effective innovations in ventilation that increase the amount of natural ventilation and reduce the water and energy required to provide this ventilation. The Diocese will give preference to proposals that use cost effective innovations in the façade, glazing and sun shading where they allow the building to use less energy, water or resources and provide for a better quality of internal environment.
6. **Cleaning and Maintenance.** The Diocese will give preference to cost effective innovations in use of materials. Preference will also be given to cost effective innovations requiring minimal or no chemicals and where chemicals are required for cleaning, they can be disposed of safely and easily without damaging building systems or waterways.