

## Blueprints for a Greener Planet

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Are we on the brink of a second Industrial Revolution? Green prophet and architect, William McDonough thinks we are and that we have the ability to design our way out of the massive problems created by the first one. McDonough has been at the forefront of 'remaking the way we make things' for over 30 years, creating the philosophy of a cradle to cradle system that mimics the natural system rather than the cradle to grave systems of our 'smokestack industries'. The good news – he doesn't get called loopy anymore; the bad news – he thinks we only have about 20 years to fix things.

Many agree that the damage we have caused to the planet through our industrial systems and the resultant climate change is potentially catastrophic. The exact timing of 'the point of no return' is endlessly debateable and frequently alarming yet, as an optimist might say – what an opportunity.

McDonough has proposed that we expand the sustainability ethos from eco-efficient to eco-effective. His question is - can we design things that not only 'use less' and 'do less bad' but also do no harm or even give back - cars that emit clean air for example, or buildings that generate more solar power than they need?

He believes our buildings should become 'living machines' rather than Le Corbusier's famous maxim of buildings as 'machines for living in.' This concept of green buildings has, in a short space of time, taken on an urgency and momentum of its own. Why? because buildings represent our greatest threat and our biggest opportunity.

The Dollars and Sense of Green Buildings (2008) – a report compiled by the The Green Building Council of Australia (GBCA) quotes research that estimates that buildings use 32 per cent of the world's resources in construction, 40 per cent of global energy, generate 40 per cent of greenhouse gas emissions (GHG), consume 12 per cent of water and make up 40 per cent of waste to landfill. In Australia the commercial office and residential building sector is responsible for almost 23 per cent of Australia's GHG. The conclusion: "climate change and the need to reduce GHG emissions is probably the most important and urgent issue facing mankind. Because buildings contribute about 40 per cent of total emissions they should be at the frontline of the fight against global warning."

Nationally the Garnaut Climate Change Review (2008) and Australia's ratification of the Kyoto Protocol (2008) and a growing body of international evidence on climate change has significantly upped the ante. Initiatives like the GBCA's Green Star environmental rating system which evaluates the environmental design and achievements of buildings and other tools that measure a building's active energy use (NABERS – Energy) have provided a common language and aspirational benchmarks for the building and design industry. Incentives like government agencies setting green standards for their tenancy, and market forces responding to new goal posts have redefined the commercial property sector: green is in.

The GBCA - a not-for-profit body set up to encourage a sustainable property industry in Australia, reports a significant shift in our national building industry occurring over the last

three years that has effectively moved green buildings from a niche position into the mainstream. Currently 11 per cent of Australia's CBD commercial office buildings are Green Star certified with the GBCA reporting a rapid spread in awareness, acceptance and use of the rating system throughout Australia. With research demonstrating that green buildings now make short term, long term, psychological, sociological, common and economic sense – the question has become not - why green? But why not green?

Nadja Kampfenkel, Western Australian State Manager of GBCA reports a number of milestones for WA: 2008 saw our first 5 Star Green Star office design rating awarded to 235 St Georges Terrace which boasted a 'groundbreaking' grey-water recycling system; our first heritage listed building to achieve a Green Star rating through refurbishment (Perth GPO building) and our biggest building to achieve a Green Star (140 William Street with a NLA of 38 000sqm).

2009 brought WA our first 6 star Green Star in office design awarded to 2 Victoria Avenue which signifies a level of sustainable approaches deemed to be of world leadership standard. Nadja has seen the number of projects seeking certification double from one year to the next and believes that although we are still an emerging green building market, that signs of acceptance are encouraging.

Market forces are rarely altruistic however and even though general expectations about corporate responsibility are encouraging new approaches which emphasise the 'triple bottom lines' of economic, social and environmental performance, the global financial crisis has brought the black ink at the bottom of the financial statement firmly back into view. Good news then that green buildings appear to be a win-win situation.

International studies like the The McGraw Hill Construction Report (2007) mirror what is happening in Australia and confirm that the market advantages of going green in the commercial building sector translate to an operating cost benefit of 58 per cent and a bottom line improvement of over 33 per cent. It also found that a green building has increased value of 7.5 per cent and an improved return on investment of 6.6 per cent

The 5 Star Green Star rated One40 William Street development in the centre of the Perth CBD, for example has projected saving enough water to fill more than nine Olympic-sized swimming pools and more than \$190 000 worth of electricity each year (not to mention saving the planet from 1 900 tonnes of carbon dioxide).

A study by the Royal Institute of Chartered Surveyors, Green Value: Growing Buildings, Growing Assets (2006) found that green buildings secure tenants more quickly, command higher rents or prices and have less tenant turnover. The BCI Australia Green Building Market report (2008) confirmed that owners experienced decreased vacancy periods and a subsequent increase in occupancy ratio of 3.5 per cent.

Says Stuart Duplock from Hawaiian property Group: "In terms of investment criteria, there is clearly a trend towards buildings with a better environmental performance. If you want to produce a building that is going to sustain its value over the long term you must consider its green attributes." Andrew Macliver Director of HBO + EMBT agrees "developers not only want to do it because it is environmentally responsible and they see that as being a good corporate citizen but it is a definite marketing edge – they know that they can attract tenants

with a Green Star rating.” Matthew Quinn from Stocklands simply calls it “future proofing your asset base.”

Tangible benefits for tenants include a healthier and therefore more productive workplace; studies have shown that natural light, fresh air and access to outside views can increase productivity from one to 25 per cent. A focus on reducing hazardous materials and volatile organic chemicals found in glues, carpeting, paint products and PVC products reduces indoor air pollution which effects air quality.

Perth’s first 6 star Green Star rated 2 Victoria Avenue (Durack II) for example, has achieved a 50 per cent increase in fresh air rates compared with industry standards; office lighting levels less than 400 lux to reduce discomfort and strain for occupants; used low-VOC (volatile organic compounds) paints on 95 per cent of all painted surfaces and low-VOC carpets, adhesives and sealants.

Increasingly companies also want their corporate brand to reflect a commitment to the environment and the spaces that they build and occupy need to be in tune with that ethos. Says Richard Kilbane, Development Manager at Hawaiian: “getting WA’s first 5 Star reflects who we are as a company.”

The first few years of green building in Australia have been dominated by an emphasis on the premium costs of going green over and above traditional building benchmarks with percentage figures attached to achieving different Green Star and other ratings, but with the wide spread acceptance that green initiatives are not luxury items but simply lead to better buildings, this is changing. Architect John-Paul Davies from Woodhead who worked on Durack II agrees: “the industry is trying to move away from identifying the initiative number at the bottom of a budget because those things get cut out - people can see those things and say ‘we will just trim here and there.’ It is more about trying to take a holistic approach to the building to design what you want to achieve and then building that within a project budget.”

The GBCA definition of a green building is one that incorporates design, construction and operational practices that significantly reduce or eliminate the negative impact of development on the environment and its occupants. Green Star status is achieved through addressing a number of categories that assess the environmental impact of a project’s site selection, design, construction and maintenance.

Building green requires a big picture approach that extrapolates backwards to where building materials come from and forwards to where they will eventually end up. It looks at the existing environment and how to fit in and it creates strategies to minimise waste and maximise energy efficiency at all stages of the building’s life. It recognizes that buildings are for people and should be healthy for them and promote sustainable practices like walking or cycling to work.

A green building effectively responds to its outside environment and the people who are using it: lights turn off when and where they are not needed; air conditioning responds to individual heat sources and louvers track the movement of the sun to work with it. It’s about design that works rather than design for its own sake and it has the ability to have a tremendous impact on the planet’s triple bottom line.

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