

GREEN VALUE

Green buildings, growing assets



A major collaboration into the study of building value by building green



Natural Resources Canada

Ressources naturelles Canada





GREEN VALUE HAS
SHOWN THAT THERE IS VALUE
IN BUILDING GREEN.

GREEN VALUE EXAMPLES

Rick Nevin and Gregory Watson found that people pay \$10-\$20 more for a home for every \$1 reduction in annual fuel bills.

The Heschong Mahone Group found that 'adding skylighting to the average non-skylit retail store would be likely to improve its performance by 40%'.

Pennsylvania Power and Light noted a conversion's electricity savings amounted to a payback in 4.1 years with a 24% return on investment. However benefits from lower absenteeism and higher productivity meant a simple payback of just 69 days, a 540% return on investment.

At Wal-Mart's Lawrence, Kansas, 'Eco-Mart' skylights were installed to reduce lighting costs. Employees asked to be moved to the daylight part because sales were higher there.

Reno Post Office was renovated. The improved productivity gains paid for the entire renovation of \$500,000 in less than a year. The annual savings in energy use and maintenance were a 'free bonus'.

Hyde Tools found that new lighting enabled workers to improve quality control by the equivalent of \$25,000 a year. Every dollar saved was thus worth \$10 in improved sales: the retrofit was worth \$250,000 extra sales annually.

CABE's The Value of Good Design quotes a 21% improvement in hospital discharge rate from a hospital renovation, effectively reducing total costs by 21%. It improved care quality, speed, satisfaction and had spin-off benefits of lower drug use, reduced return visits and other factors.



WHY GREEN VALUE MATTERS

Buildings have a profound impact on the quality of our lives and the world around us. They can enrich our communities, health and well being, as well as support and enable business. They are a visible stamp of our culture on the environment.

Environmental sustainability matters to British Columbia. As an example, in 2010, we are hosting the world's first sustainable Winter Olympics and we plan to encourage sustainable green building practices, all based on strong business principles.

Green Value is part of the journey towards sustainability. It looks at the financial value of green buildings and how they contribute to a sustainable community, balancing economics with the environment.

It's my hope that this report spurs discussion on what our future sustainable communities should look like, and how we can get there.

Hon. Barry Penner
Minister of Environment
Province of British Columbia, Canada





SIXTY SECOND SUMMARY

This study, which looked at buildings in North America and the UK, shows that a clear link is beginning to emerge between the market value of a building and its green features.

Not only are green buildings good for the environment, provide healthier places to live and more productive places to work, they can command higher rents and prices, attract tenants more quickly, reduce tenant turnover and cost less to operate and maintain. But because comparatively few green buildings have been built, further work will be needed to quantify more precisely the extent of the benefit. Additional study is needed on the effect of green building rating systems on market value and the extent to which the benefits of green buildings are shared between the occupier and the owner.

What is a Green building

For the purposes of this study, green buildings are those that use resources efficiently, reduce waste and provide superior indoor air and other qualities.

What is Green Value?

Green Value is the net additional value obtainable by a green building in the market.

The study concludes that green buildings can achieve greater value than their conventional equivalents. But further, it found that the green building industry and others may be failing to get the message across that the main beneficiaries are occupants.

For example because they are easy to measure, a lot of attention has been focused on energy savings. However, these are usually less than 1% of business operating costs. By comparison, total annual real estate expenses are usually around 10% of such costs whilst staff costs can be as high as 85%. This means that the biggest return on investment should arise when green buildings improve business productivity.

Instances were found of green features improving productivity, but neither owners, developers, appraisers, nor the green building sector, fully value or communicate this advantage.

Both the real estate and green sectors would benefit from reviewing their focus and working more closely together. While the benefits to asset value are compelling, they are minor compared with the benefit to business. This benefit needs to be properly valued and communicated. Then all can benefit from building green.

WHY GREEN VALUE?

With buildings being such a large consumer of resources including 40% of energy resources and a significant source of pollution, the green building movement has set about changing the way we think.

Early exponents of green building developments piloted new concepts but they sometimes proved expensive. Other early adopters and advocates lacked the financial background to prove the value of going green. Too often they tended to view green buildings primarily as a technical innovation issue, but if green buildings are to become mainstream, they have to be financially viable.

Owners' and developers' prime motivation is usually profit and they tend to view buildings as financial ventures which have to provide a return. They generally borrow to finance their buildings and lenders want to know that loans are viable and secure. However, although they may generate greater value in the longer run, green buildings can cost more up front, pressuring perceived viability.

Central to this is valuation and the appraiser, who has to understand whether green buildings add value; yet the real estate and financial sectors have not been widely engaged and the evidence proving Green Value has been limited. In this context, appraisers, developers and owners are sceptical and reluctant to change habits.

However, if Green Value exists, then this will eventually force market change, as competition will gradually make traditional buildings uncompetitive. The stakes are high because this will impact on existing assets that aren't green.

Against this background this report has sought by means of a literature review and case study assessment to address the hypothesis: "There is no relationship between the market value of a real estate asset and its green features and related performance".

The case studies involved a qualitative assessment of the impact on the value of green buildings in the USA, Canada and the UK, selected to provide a range of locations, building types and uses. Interviews were conducted with building developers, owners and occupants focussing on value benefits of their green buildings compared with comparable conventional buildings and translating the benefits in terms of valuation.

Green Value reviewed over 300 technical papers, books, articles, news releases and other media items with indexed links to sustainability and value, and undertook case studies for the following buildings:

- Green on the Grand, Kitchener, Ontario, Canada (office)
- SAS Building, Toronto, Ontario, Canada (office)
- 260 Townsend, San Francisco, California, USA (office)
- Ottawa Paramedic Services, Ottawa, Ontario, Canada (office)
- Vancouver Island Technology Park, Victoria, BC, Canada (office)
- Phillips Eco-Enterprise Centre, Minneapolis, Minnesota, USA (office/industrial)
- Mountain Equipment Co-op, Montreal, Quebec, Canada (retail)
- Oberlin College, Oberlin, Ohio, USA (educational)
- CK Choi Building and Liu Centre, Vancouver, BC, Canada (educational)
- Cranberry Commons, New Westminster, BC, Canada (residential)
- The Solaire, New York City, New York, USA (residential)
- Conventional Housing Development, Wolverhampton, UK Midlands (residential)
- 'EcoHomes' Scheme, Wolverhampton, UK Midlands (residential)
- Conventional Housing Development, Milton Keynes, UK Southern Region (residential)
- 'EcoHomes' Scheme, Milton Keynes, UK Southern Region (residential)
- Conventional Housing Development, Warrington, UK Northern Region (residential)
- 'EcoHomes' Scheme, Warrington, UK Northern Region (residential).

FINDINGS

Green buildings can:

- Be quicker to secure tenants
- Command higher rents or prices
- Enjoy lower tenant turnover
- Cost less to operate and maintain in most cases
- Attract grants, subsidies and other inducements to do with environmental stewardship, increasing energy efficiency and lessening greenhouse gas emissions
- Improve business productivity for occupants, affecting churn, renewals, inducements and fitting out costs amongst others
- Benefit occupants to an extent that may even exceed the underlying asset's value.

The Green Value study findings are summarised here and detailed in a report and technical appendix available on www.rics.org/greenvalue

The key focus of the study was value, expressed in a way the real estate and financial sectors understand it. The report found that green features and their related performance can provide extra loan security, additional income, higher rent, shorter absorption or sales duration, lower tenant churn or turnover, better rental stability, higher occupancy rates and reduced tenant inducements. In time these advantages can be expected to enhance investment returns although the evidence about the impact on asset value is limited at present. Longer building life may in time also improve investment yields for green buildings.

Most of the claims of the green building movement seem to be valid, including longer lifecycles, reduced non-renewable materials use, reduced energy consumption, and smaller 'environmental footprint'. However green advocates' claims of 'increased value' can sometimes be misleading because cost savings are often directly equated to improvements in value despite the fact that the savings do not always benefit asset value. There is a common misunderstanding of how value is determined.

The study confirms that the main value is to the occupier and business, in health and productivity. However, contrary to some claims, this doesn't necessarily translate into higher asset value.

The scale of productivity and health benefit is potentially enormous, and may exceed the value of all real estate expenditures (not just energy, operations and maintenance but other costs such as rent/mortgage as well). If developers, owners and valuers can understand how to tap this benefit, the commercial advantage that they would gain would become the most significant aspect of Green Value.

The study's literature review found limited valuation evidence for the link between green building features and related performance. A range of factors account for this and the study concludes:

- Work is needed by the real estate, financial, appraisal and green building sectors to improve how green building value is appraised. Independent assessment and communication of the value is desirable
- Valuers and appraisers need better impartial evidence of the value generated by green features and related performance. Gaining such evidence would accelerate adoption of green buildings
- Green rating systems need to take fuller account of valuation issues. This is key to demonstrating the value of green buildings

- Appraisal guidance and standards could be improved to cover green buildings features and related performance more specifically
- Leasing contracts should be changed to encourage tenants to reduce operating costs and so contribute to ongoing green building performance
- The integrated design process, a team-based approach for achieving green benefits without high cost, could be broadened to include valuers/appraisers to help ensure that value is a consideration in building design, and that appraisals properly reflect the attributes of green buildings
- Building codes and other regulations are holding back Green Value. They should be reviewed and changed
- Communication of Green Value to occupiers must improve. This should focus on personalising the benefit of green buildings to occupiers, tenants, real estate agents, valuers and appraisers
- Accounting standards should move to market valuation methods, currently advocated by many Accounting Standards Boards. Cost approaches do not properly value green features.

GREEN OBJECTIVES	GREEN STRATEGIES/FEATURES	GREEN IMPACT	THEORETICAL LINKAGE TO VALUE
Sustainable site development	<ul style="list-style-type: none"> Reduce site disturbance and soil erosion during construction Use of natural drainage systems (e.g., swales) Preserve or restore natural site features. 	<ul style="list-style-type: none"> Improved site aesthetics Greater public support for the development and accelerated local approval process, hence lower carrying costs. 	<ul style="list-style-type: none"> Reduced development costs, improved marketability, reduced ongoing maintenance costs, improved natural appearance, higher sales/rents, absorption and re-tenanting, NOI*/ROI** benefits.
	<ul style="list-style-type: none"> Landscape and orient building to capitalize on passive heating and cooling. 	<ul style="list-style-type: none"> Lower energy costs. 	<ul style="list-style-type: none"> For gross leases, higher NOI. May have impact for net leases*** if benefit can be demonstrated to tenants.
Water efficiency	<ul style="list-style-type: none"> Use captured rainwater for landscaping, toilet flushing, etc Treat and re-use greywater, excess groundwater, and steam condensate Use low-flow fixtures and fittings (pressure-assisted or composting toilets, waterless urinals, etc.) and ozonation for laundry Use closed-loop systems and other water reduction technologies for processes 	<ul style="list-style-type: none"> Lower water consumption/costs. 	<ul style="list-style-type: none"> Lower tenant CAM**** charges. Direct NOI benefit for gross leases, potential for net leases requires communicating benefit to tenants.
Energy efficiency	<ul style="list-style-type: none"> Use passive solar heating/cooling and natural ventilation Enhance penetration of daylight to interior spaces to reduce need for artificial lighting Use thermally efficient envelope to reduce perimeter heating and size of HVAC. 	<ul style="list-style-type: none"> Lower capital costs Occupant benefits Lower energy costs. 	<ul style="list-style-type: none"> Reduced operating costs, longer life cycle, lower development costs Improved occupant productivity, lower churn, turnover, tenant inducements, etc Higher net income for gross leased buildings, improved yield.
	<ul style="list-style-type: none"> Use energy management systems, monitoring, and controls to continuously calibrate, adjust, and maintain energy-related systems. 	<ul style="list-style-type: none"> Operational savings (can offset higher capital costs) Reduced capital cost of mechanical systems because control systems reduce the need for oversizing. 	<ul style="list-style-type: none"> Lower operating costs. On gross leases, higher ROI/NOI. On net leases, potential for improved ROI/NOI.
	<ul style="list-style-type: none"> Use third-party commissioning agent to ensure that the installed systems work as designed Develop O&M manuals and train staff. 	<ul style="list-style-type: none"> Lower operating costs Lower maintenance costs. 	<ul style="list-style-type: none"> Marginally higher initial soft costs should be offset by long term operating cost benefits, higher ROI.
Indoor environmental quality	<ul style="list-style-type: none"> Control pollutant sources Use low-emission materials Ventilate before occupancy Enhance penetration of daylight and reduce glare Provide outdoor views Provide individual occupant controls when possible. 	<ul style="list-style-type: none"> Superior indoor air quality, quality lighting and thermal quality Fewer occupant complaints Higher occupant productivity. 	<ul style="list-style-type: none"> Risk reduction Greater marketability Faster sales and lets Improved churn/turnover Higher ROI/NOI.
Reduced consumption of building materials	<ul style="list-style-type: none"> Select products for durability Eliminate unnecessary finishes and other products Reuse building shell from existing buildings and fixtures from demolished buildings Use salvaged/refurbished materials Design for adaptability. 	<ul style="list-style-type: none"> Longer building lifecycle Lower maintenance costs. 	<ul style="list-style-type: none"> Lower depreciation typically after higher investment costs. Lower construction costs, probable lower operating/maintenance costs, higher ROI/NOI.

KEY

* **NOI:** net operating income

** **ROI:** return on investment

*** **Net lease:** a lease that requires a lessee to pay all their operating costs resulting from their occupation of the premises.

**** **CAM:** common area maintenance

Note:

To view a larger version of this table, please go to www.rics.org/greenvalue



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