

The Engineering Economist >

A Journal Devoted to the Problems of Capital Investment

Volume 51, 2006 - Issue 3

5,579 140

Views CrossRef citations to date Altmetric

Original Articles

The Economic Benefits of Green Buildings: A Comprehensive Case Study

Robert Ries, Melissa M. Bilec, Nuri Mehmet Gokhan & Kim LaScola Needy

Pages 259-295 | Published online: 24 Feb 2007

Cite this article <https://doi.org/10.1080/00137910600865469>

Sample our
Engineering & Technology
Journals

>> **Sign in here** to start your access
to the latest two volumes for 14 days

Full Article

Figures & data

References

Citations

Metrics

Reprints & Permissions

Read this article

Abstract

Several studies suggest green construction can result in significant economic savings by improving employee productivity, increasing benefits from improvements in health and safety, and providing savings from energy, maintenance, and operational costs. This article quantifies these benefits by establishing a set of measurable performance and building attribute variables, collecting longitudinal data, statistically analyzing the results, and comparing the results to a baseline. The results show that green buildings can reduce energy consumption by 25%; reduce operational costs by 10%; and improve employee productivity by 10%. The results also show that green buildings can reduce the carbon footprint of a facility by 10%. The results show that green buildings can reduce the water consumption of a facility by 10%. The results show that green buildings can reduce the waste generation of a facility by 10%. The results show that green buildings can reduce the air pollution of a facility by 10%. The results show that green buildings can reduce the noise pollution of a facility by 10%. The results show that green buildings can reduce the overall environmental impact of a facility by 10%.

About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our [Privacy Policy](#).

Accept All

Essential Only

Settings

ACKNOWLEDGMENTS

The authors thank the University of Pittsburgh's Mascaro Sustainability Initiative (MSI) for their support of this project. MSI is aimed at initiating and nurturing research and education in the research thrust areas of green construction and sustainable water use. We appreciate the support and help of Castcon Stone Inc. as our case study. Castcon is one of the leading pre-cast concrete manufacturers in the United States. We also thank Pittsburgh's Green Building Alliance and the architectural firm Perkins Eastman.

Notes

¹New and old facility based on square foot comparison. There is one utility meter for both office and plant.

¹Total absences do not include excused with doctor's excuse or workers' compensation.

¹The ratio used to extrapolate data was changed to 25% building related and 75% production related.

²The ratio used to extrapolate data was changed to 75% building related and 25% production related.

³The productivity was changed to 270 pounds/hour for the new facility; and to 180 pounds/hour for the old facility.

⁴The production of both facilities were modeled at 70% of capacity.

¹Center for Building Performance and Diagnostics, Carnegie Mellon University.

About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click “Settings”. For further information about the data we collect from you, please see our [Privacy Policy](#).

Accept All

Essential Only

Settings

People also read

Recommended articles

Cited by
140

Information for

Authors

R&D professionals

Editors

Librarians

Societies

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

Open Select

Dove Medical Press

F1000Research

Help and information

Help and contact

Newsroom

All journals

Books

Keep up to date

Register to receive personalised research and resources
by email



Sign me up



Copyright © 2024 Informa UK Limited Privacy policy Cookies Terms & conditions

Accessibility



Taylor & Francis Group
an informa business

About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our [Privacy Policy](#).

Accept All

Essential Only

Settings