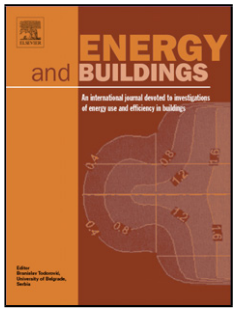

Title: Value impacts of energy efficiency retrofits on commercial office buildings in Toronto, Canada

Authors: Kaitlin Carlson, Dr. Kim D. Pressnail

PII: S0378-7788(17)32958-4
DOI: https://doi.org/10.1016/j.enbuild.2017.12.013
Reference: ENB 8206

To appear in: *ENB*

Received date: 30-8-2017
Revised date: 2-12-2017
Accepted date: 6-12-2017

Please cite this article as: Kaitlin Carlson, Dr.Kim D.Pressnail, Value impacts of energy efficiency retrofits on commercial office buildings in Toronto, Canada, Energy and Buildings https://doi.org/10.1016/j.enbuild.2017.12.013

Value impacts of energy efficiency retrofits on commercial office buildings in Toronto, Canada

Kaitlin Carlson, Dr. Kim D. Pressnail

Dept. of Civil Engineering, University of Toronto, 35 St. George St. Toronto, Ontario, Canada, M5S 1A4

Corresponding Author: Kaitlin Carlson, carlson.kaitlin@gmail.com

390 Queens Quay West Apartment 1810

Toronto, ON, Canada M5V 3A6

Highlights

- Previous comparable studies are discussed.
- Case study building pre- and post-retrofit rental and occupancy data are analyzed.
- It was determined that occupancy data are critical in the analysis of value impacts.
- It was concluded that higher rent does not necessarily indicate a higher value.
- A method for incorporating rent data into building value calculations is discussed.

Abstract

This study strengthens the business case for building energy efficiency retrofits in Canada by studying the relationship between building energy efficiency and value. This is accomplished through a detailed examination of four large Toronto commercial office building retrofit case studies using pre- and post-retrofit energy and financial data. To assess the change in asset value with retrofit improvements, the income capitalization approach to building appraisal is adopted. This model for provides a link between energy efficiency and value through net operating income. Due to the challenges of obtaining energy-use and financial data, the sample size is small. However, even though the data is limited, the analysis reveals that energy retrofitting buildings can decrease operating costs, increase occupancy rates, and increase effective rent (rental revenue), thereby increasing net