Editorial Board

Editor
Norman G. Miller
University of San Diego

Associate Editors
Kwame Addae-Dapaah
National University of Singapore

Nico B. Rottke
European Business School

Robert Simons
Cleveland State University

Michel Boudrias
University of San Diego

Isaac Megbolugbe
Johns Hopkins University

Steven Bourassa
University of Louisville

Helen Neill
University of Nevada–Las Vegas

Pernille Christensen
University of Technology, Sydney

Andrew J. Nelson
RREEF Real Estate

Sofia Dermisi
Roosevelt University

Gary Pivo
University of Arizona

Tim Dixon
Oxford Brookes University

Darren Prum
Florida State University

Frank Fuerst
University of Reading

Richard Reed
Deakin University

Angela Guggemos
Colorado State University

Stephen Roulac
Roulac Global Places

Rebecca Henn
University of Michigan

Karl-Werner Schulte
University of Regensburg

Jerry Jackson
Texas A&M University

Grant I. Thrall
Business Geography Advisors

John Kilpatrick
Greenfield Advisors LLC

Ron Throup
University of Denver

Dan Kohlhepp
Johns Hopkins University

Charles Tu
University of San Diego

Nils Kok
Maastricht University

Bing Wang
Harvard University

Steve Laposa
Sara Wilkinson

Alvarez & Marsal Real Estate
Royal Institution of Chartered
Advisory Services, LLC
Surveyors

Richard Loope
Arizona State University

Elaine Worzala
College of Charleston
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ix</td>
<td>Preface</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>The Relationship between the Occupation of Residential Green Buildings and Pro-environmental Behavior and Beliefs</td>
<td>Sara J. Wilkinson, Paul Van Der Kallen, and Leong Phui Kuan</td>
</tr>
<tr>
<td>23</td>
<td>LEED and Energy Efficiency: Do Owners Game the System?</td>
<td>Roshan Mehdizadeh, Martin Fischer, and Amelia Celoza</td>
</tr>
<tr>
<td>35</td>
<td>The Feasibility of Reducing Greenhouse Gas Emissions in Residential Buildings</td>
<td>Stephen Sewalk and Ron Throupe</td>
</tr>
<tr>
<td>66</td>
<td>Impact of Energy and Environmental Factors in the Decision to Purchase or Rent an Apartment: The Case of Sweden</td>
<td>Agnieszka Zalejska-Jonsson</td>
</tr>
<tr>
<td>86</td>
<td>The Operating Expense Puzzle of U.S. Green Office Buildings</td>
<td>Nikodem Szumilo and Franz Fuerst</td>
</tr>
<tr>
<td>111</td>
<td>Willingness to Pay for Green Buildings: Empirical Evidence from Switzerland</td>
<td>Andreas Wiencke</td>
</tr>
<tr>
<td>131</td>
<td>The Green Building Technology Model: An Approach to Understanding the Adoption of Green Office Buildings</td>
<td>Arvin Malkani and Mark Starik</td>
</tr>
<tr>
<td>149</td>
<td>The Effect of Sustainability Features on Mortgage Default Prediction and Risk in Multifamily Rental Housing</td>
<td>Gary Pivo</td>
</tr>
<tr>
<td>171</td>
<td>Does Greater Energy Performance have an Impact on Real Estate Revenues?</td>
<td>Magnus Bonde and Han Suck Song</td>
</tr>
<tr>
<td>206</td>
<td>Investigating Deep Retrofits for Toronto’s Financial District Office Towers</td>
<td>Alita Jones</td>
</tr>
</tbody>
</table>
The Board of Directors of the American Real Estate Society extends its deep appreciation to:

- **University of San Diego**, Burnham Moores Real Estate Center for its support of the editorial functions of the American Real Estate Society;
- **Florida Gulf Coast University**, for its support of the editorial functions of the American Real Estate Society;
- **Florida International University**, for its support of the Director of Publications functions of the American Real Estate Society; and
- **Kennedy Wilson**, for its support of the Executive Director functions of the American Real Estate Society.

2014 Membership

Academic ($175 print, $135 electronic), Professional ($350 print, $300 electronic), Academic Library ($675 print, $600 electronic), Corporate Library ($675 print, $600 electronic), Student or Retired Academic ($105 print, $85 electronic), Corporate ($675 print, $600 electronic), Sponsor ($1,500), Regent ($3,000) and President's Council ($6,000). Additional membership options are available. See the 2013 Membership Form in the back of the journal. Checks should be made payable to ARES and correspondence should be addressed to: Diane Quarles, Clemson University, College of Business & Behavioral Science, Dept. of Finance, 2-210 Lee Hall, Clemson, SC 29634-1323. Phone: 864-656-1373; Fax: 864-656-7519. Website: www.ARESnet.org or equarle@clemson.edu.

The *Journal of Sustainable Real Estate* (1949-8276) is published annually by the American Real Estate Society at Clemson University, School of Business and Behavioral Science, Department of Finance, 2-210 Lee Hall, Clemson, SC 29634-1323. Postmaster, please send address changes to: Diane Quarles, Clemson University, School of Business and Behavioral Science, Department of Finance, 2-210 Lee Hall, Clemson, SC 29634-1323. Changes of address, claims and all correspondence dealing with subscriptions should be sent to Diane Quarles, Manager of Member Services, Clemson University, School of Business and Behavioral Science, Department of Finance, 2-210 Lee Hall, Clemson, SC, 29634-1323. Phone 864-656-1373, Fax 864-656-7519 or email equarle@clemson.edu. For more information, visit our website: www.ARESnet.org.
2013 American Real Estate Society

President’s Council
Altus Group
Appraisal Institute
CCIM Institute
Cornerstone Real Estate Advisers, Inc.
CoStar Group
Counselors of Real Estate (CRE)
Institutional Real Estate, Inc.
Prudential Real Estate Investors
REALTOR® University/National Association of Realtors® (NAR)
Royal Institution of Chartered Surveyors (RICS)
The Appraisers Research Foundation (TARF)

Regents
ARGUS Software, Inc.
Blackrock Financial Management
CBRE Econometric Advisors
Charles River Associates
Colvin Institute of Real Estate Development
Homburg Institute
Institute of Real Estate Management (IREM)
LaSalle Investment Management
National Association of Real Estate Investment Trusts (NAREIT)
National Investment Center for Seniors Housing & Care Industry (NIC)
Real Capital Analytics (RCA)
Sarasota Capital Strategies (SCS)
UBS

Sponsors
Bailard, Inc.
Burnham-Moores Center for Real Estate–University of San Diego
Carter Real Estate Center, College of Charleston
Dearborn Real Estate Education
Dividend Capital Research
Dr. P. Phillips School of Real Estate–University of Central Florida
Emerald Group Publishing Ltd.
GIC Real Estate Pte.
Graduate School of Real Estate Studies–KonKuk University
Jerome Bain Real Estate Institute at Florida International University
Johns Hopkins-Carey Business School–Edward St. John Real Estate Program
Kennedy Wilson
Lehigh University
NAIOP
National Multifamily Housing Council (NMHC)
NYU Schack Institute of Real Estate
OnCourse Learning
Real Estate Center at DePaul University
Richard H. Pennell Center for Real Estate Development–Clemson University
USAA Real Estate Company
Daniel M. DiLella Center for Real Estate–Villanova University
James R. Webb ARES Foundation

Endowed International Scholar Sponsorship
Arthur L. & Helen Beckett Schwartz

Endowed Doctoral Sponsorships
Youguo, Lucy, Michelle, and Mia Liang
Glenn R. and Jan H. Mueller
Theron R. and Susan L. Nelson
Michael J. and Vicky L. Seiler

Marc A. Louargand Endowed Manuscript Prize
Peter Burley
Mark Dohrmann
William G. Hardin, III
Ronald Johnsey
Colin Lizieri
Christopher A. Manning
Norman Miller

Joseph Pagliari
Stephen Pyhrr
Raymond Torto
John Williams
Robert White
Elaine Worzala
David Wyman

Benefactors
Christopher A. Manning
Loyola Marymount University
Stephen A. Pyhrr
Kennedy Wilson

John E. Williams
Morehouse College

Distinguished Fellows
Sulaiman T. Al-Abduljader
Gulf University for Science and Technology
Joseph D. Albert
James Madison University–Emeritus
John D. Benjamin
American University–Emeritus
Joseph W. Coleman–In Memoriam
Wright State University
Jan deRoos
Cornell University
Don Dorechester
RICS Americas
Roland D. Freeman
Capital Consultants Realty Services
Paul R. Goebel
Texas Tech University
Karl L. Guntermann
Arizona State University–Emeritus

David Harrison
Texas Tech University
Forrest E. Huffman
Temple University
Alex Klatskin
Forsgate Industrial Partners
Mark L. Levine
University of Denver
Karl-Werner Schulte
University of Regensburg
Robert A. Simons
Cleveland State University
G. Stacy Sirmans
Florida State University
Michael C. Truebestein
University of Kufstein
Richard Wincott
Altus Group

Fellows
John S. Baen
University of North Texas

Edward A. Baryla
East Tennessee State University
2013 Fellows (continued)

Charles Carter
Colorado College
Ping Cheng
Florida Atlantic University
Marvin F. Christensen
RREEF
Karen G. Davidson
Davidson & Associates/UCLA Extension
Geoffrey Dorman
Institutional Real Estate Inc.
Donald R. Epley
University of South Alabama
Andrew C. Florance
CoStar Group Inc.
Karen M. Gibler
Georgia State University
Thomas Gibson
Holladay Properties
Kimberly Goodwin
University of Southern Mississippi
Otis E. Hackett
Otis E. Hackett & Associates
Thomas W. Hamilton
University of St. Thomas–Minnesota
Michael J. Highfield
Mississippi State University
David K. H. Ho
National University of Singapore
L. Jide Iwarere
Howard University
Thomas O. Jackson
Texas A&M University
Ken H. Johnson
Florida International University
G. Donald Jud
University of North Carolina–Greensboro
John Kilpatrick
Greenfield Advisors, LLC
Steven P. Laposa
Alvarez & Marsal Real Estate Advisory Services, LLC
Joseph B. Lipscomb
Texas Christian University
Emil Malizia
University of North Carolina–Chapel Hill
John F. McDonald
University of Illinois–Chicago
Willard McIntosh
USAA Real Estate Company
Norman G. Miller
University of San Diego
Graeme Newell
University of Western Sydney
Joseph L. Pagliari, Jr.
University of Chicago
Rudy R. Robinson, III
Austin Valuation Consultants
Mauricio Rodriguez
Texas Christian University
Stephen E. Roulac
Roulac Global Places LLC
Ronald C. Rutherford
University of South Florida
Sean P. Salter
Middle Tennessee State University
David Scribner, Jr.
Baruch College, CUNY
Thomas M. Springer
Clemson University
Mark A. Sunderman
University of Memphis
Grant I. Thrall
Business Geography Advisors
Ko Wang
Baruch College/CUNY
H. Shelton Weeks
Florida Gulf Coast University
Margot B. Weinstein
MW Leadership Consultants
Anthony Welch
Sarasota Capital Strategies
Daniel T. Winkler
University of North Carolina–Greensboro
Kimberly Winson-Geideman
University of Melbourne
Larry Wofford
University of Tulsa
Elaine M. Worzala
College of Charleston
Zhonghua Wu
Florida International University
James Young
University of Auckland
JOSRE Advisory Board

Scott Anders          | Charles B. Leitner III
University of San Diego | Greenprint Foundation
Grant W. Austin       | David R. Lorenz
American Valuation, Inc. | Lorenz Property Advisors
Aaron Binkley         | L. Hunter Lovins
AMB Property          | Natural Capitalism Solutions (NCS)
Stuart Brodsky        | Asieh Mansour
GE Real Estate        | Townsend Group
Jack Crews            | Scott Muldavin
Jones Lang LaSalle    | The Muldavin Company, Inc.
Dale Dekker           | David Pogue
Dekker/Perich/Sabatini | CBRE
Brian Dunbar          | Jay Spivey
Colorado State University | CoStar Group
Richard Epstein       | Leanne Tobias
RNL Design            | Malachite LLC
Andrew Florence       | Cathy Turner
CoStar Group          | New Buildings Institute
Doug Gatlin           | Vance Voss
U.S. Green Building Council | Principal Real Estate Investors
Lydia Jacobs-Horton   | Alan Whitson
Procter & Gamble      | RPA
Kent Jeffreys         | Sally R. Wilson
International Council of Shopping Centers | CBRE
David M. Jellison     | Jim Young
Liberty Property Trust | Realcomm
Stephen L. Kapp       | Jerry Yudelson
Siemens Industry Inc. | Green Building and Sustainability Consultant
Preface

We are pleased to present the fifth volume of the Journal of Sustainable Real Estate. We continue to believe that electronic journals will prove superior to hard copy journals in several ways; authors can use color in pictures and charts, and embed links and even videos. We accept, edit, and publish papers within a given year’s volume as they are processed and then format them into a final issue.

We continue to benefit from the financial support of CoStar for this publication, but next year will also receive support from the Land Economics Foundation with a special issue on environmental factors affecting real estate. Volume 6 will be printed as well as online and will include two guest editors, Frank Clayton and Dan Winkler.

In this volume we have some papers on behavior such as the one by Wilkinson, Der Kallen, and Kuan, one on efficiency of LEED credits and the question of gaming the system by Mehdizadeh, Fischer, and Celoza, one on residential property and the feasibility of reduced greenhouse gas emissions by Sewalk and Throupe, one on the willingness to pay for green set in Sweden by Zalejska-Jonsson and a similar topic studied in Switzerland by Wiencke, one on the adoption of green technology by Malkani and Starik, one on transportation efficiency, walkscores, and sustainability by Pivo, one on European energy efficiency and revenue impact for owners by Bonde and Song, one on transpired solar air collectors compared to solar cells for efficiency and cost/benefits by Sewalk, Liston, and Maher, and one on deep retrofits in Toronto by Alita Jones.

We thank all of you who read, discuss, disseminate and submit new papers to this journal.

Norman G. Miller, Senior Editor
University of San Diego, Burnham-Moores Center for Real Estate

Myla Lorenzo-Wilson, Managing Editor
University of San Diego

Robert Simons, North America Editor
Cleveland State University

Kwame Addae-Dapaah, Asia-Pacific Editor
National University of Singapore

Nico B. Rottke, European Editor
European Business School