

VALUE BEYOND COST SAVINGS

*How to Underwrite
Sustainable Properties*

**Expanded Chapter I:
Introduction**

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GREEN BUILDING FINANCE CONSORTIUM
www.greenbuildingfc.com

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About Expanded Chapter I

This publication is Expanded Chapter I of the Consortium's book: *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*. *Value Beyond Cost Savings* presents the key findings and conclusions regarding the valuation and underwriting of sustainable properties based upon three years of independent research by the Green Building Finance Consortium.

Chapter I is one of six Expanded Chapters from *Value Beyond Cost Savings: How to Underwrite Sustainable Properties* which together provide 400 additional pages of in-depth research, analysis, and performance information, all available without charge to the public from the Consortium's website and other locations.

This Expanded Chapter has the same table of contents as the book, enabling readers wishing to delve into more depth on a topic to easily find the appropriate sections in the Expanded Chapters. This book also references many checklists, databases, documents, and resource links in the Expanded Chapters and in the Consortium's web-based Research Library. This Chapter and the book include some color, but the publications are designed to print in black without loss of information.

The Green Building Finance Consortium maintains a searchable Research Library and Industry Links database on its website: <http://www.GreenBuildingFC.com>. The Research Library and Industry Links databases include thousands of documents coded using the GBFC's unique index designed for the sustainable finance and investment industry. The structure of the index is consistent with the organization of *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*. Future sustainable performance and related research updating the book on an ongoing basis will be available in the Research Library.

The mission of the Consortium is to enable private investors to evaluate sustainable property investments from a financial perspective. To accomplish this, we have identified and developed suggested modifications to valuation and underwriting methods and practices and are widely communicating the results of our work through our book, other publications, web-based research library, speeches, and collaborations.

The Consortium is financed independent of green building product or professional organizations, relying on funding from The Muldavin Company, Inc. and Consortium Members which include leading real estate industry trade associations and companies, governments, and non-governmental organizations. Trade association members include BOMA International, the Mortgage Bankers Association, the Urban Land Institute, the Pension Real Estate Association, and the National Association of Realtors.

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The Green Building Finance Consortium wants to acknowledge the leadership and support of its Consortium Members, Implementation Team, and Advisory Board, who together with the contributions of scores of other individuals and groups have made the Consortium's work possible.

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Collaborators/Other Contributors

We are and have been involved in important collaborative efforts addressing database development, energy research, valuation practice, and many other areas critical to financial assessment of sustainable properties with at least the following organizations:

- **Lawrence Berkeley National Laboratory**—energy and health issues
- **CoreNet Global**—energy issues
- **Royal Institute of Chartered Surveyors**—valuation and policy issues
- **Appraisal Institute**—valuation issues, training
- **National Association of Realtors**—sustainability curriculum
- **North American Commission for Environmental Cooperation**—policy, finance
- **Vancouver Valuation Accord**—valuation and regulatory issues
- **Database for High Performance and Sustainable Buildings**—database design and development
- **Rutgers Green Building Research Center**—REIT valuation research, other
- **International Youth Leadership for a Sustainable Future**—youth education
- **World Business Council for Sustainable Development**—analytics and communications
- **California Energy Commission**—transaction disclosure documents

We also appreciate the scores of other individuals and companies who have provided significant input and assistance in the project through their research and data, review of Consortium work product, and participation in interviews and surveys.

About the Author

Scott Muldavin is Executive Director of the Green Building Finance Consortium, a group he founded in 2006, and President of The Muldavin Company, Inc. For over 25 years, Mr. Muldavin has advised leading real estate companies including CalPERS, RREEF, Bank of America, Mitsui Trust and Banking, Great West Life, Prudential Real Estate, Ohio State Teachers Retirement System, Wells Fargo Bank, The Government of Singapore Investment Corporation, Catellus Development Corporation, Equitable Real Estate, and Standard Insurance Company.

Mr. Muldavin has been a lead real estate consulting partner at Deloitte & Touche, co-founded the \$3+ billion private real estate company Guggenheim Real Estate, served on the Advisory Board of Global Real Analytics, an advisor for \$2 billion of REIT and CMBS funds, and completed over 300 consulting assignments involving real estate

finance, mortgage lending, investment, valuation and securitization. Mr. Muldavin's engagements and work experience provide him with broad experience in equity and debt transaction structuring, underwriting, due diligence, investment fund design, and corporate real estate.

Mr. Muldavin has advised scores of equity investors and developers. As a co-founder of Guggenheim Real Estate, Mr. Muldavin has been involved in capital formation, investment strategy, due diligence and served on the investment committee. He has assisted pension funds including CalPERS, Ohio State Teachers, and Alaska Permanent Fund in their investment and organizational strategies. He has advised investment managers including RREEF, Prudential Real Estate, Amstar, Hunt Realty, and others on strategy, capital formation, organizational change, and due diligence practices.

Mr. Muldavin has been involved in the Real Estate Investment Trust (REIT) market since the early 1980s advising clients including Merrill Lynch, CalPERS, Kilroy Realty and others concerning new REIT securities offerings and investment issues. As an investment committee member of Guggenheim Real Estate, he monitored the REIT market and participated in investment decisions concerning the allocation of hundreds of millions of dollars of REIT investments.

Mr. Muldavin has been involved in mortgage underwriting for over 25 years. He was the lead consultant that developed the first commercial mortgage risk-rating system for Standard & Poor's Corporation in the early 1980's and was a national leader of the Real Estate Financial Institutions practice for Deloitte & Touché, where he worked with financial institutions to improve their underwriting and servicing systems, assess risks in their mortgage portfolios, and estimate loan losses. He also authored the quarterly "Real Estate Finance Update" in *Real Estate Finance*, for 16 years; developed the Real Estate Capital Flows Index, which was published quarterly for many years by the Pension Real Estate Association and Institutional Real Estate Inc.; and authored key articles and reports on mezzanine financing, mortgage servicing, risk management, capital volatility, and other topics.

Mr. Muldavin was also a leader of the corporate real estate practice at Deloitte and Touché and during his career has advised corporations such as Texaco, Phoenix American Corporation, Nissan Motors, Pacific Enterprises, Universal Studios, House of Blues Corporation, Johns Manville, and many others on their leasing, acquisition and real estate strategies.

Mr. Muldavin has been involved in the structuring and due diligence of real estate property and business transactions for over 25 years. He has completed due diligence engagements involving the acquisition of office buildings, retail properties, hotels, multi-family properties, industrial properties, large land parcels, mortgage portfolios, mortgage companies, commercial banks, real estate service companies and other real estate assets.

As an advisor and Investment Committee member of Guggenheim Real Estate, Mr. Muldavin reviewed hundreds of retail, office, industrial and multi-family investment opportunities throughout the United States, as well as investments in mezzanine loans, B-piece investment funds, preferred equity, and REITs.

Mr. Muldavin is a frequent speaker on real estate finance, investment, valuation and sustainability. He has authored over 225 articles published in *Real Estate Finance*, RICS Property World, *Bankers Magazine*, *Urban Land*, *European Real Estate Yearbook*, *The Journal of Property Management*, *The Pension Real Estate Quarterly*, *Real Estate Issues*, *The Investment Property and Real Estate Capital Markets Reports*, *Institutional Investor*, *Builder and Developer*, *The Real Estate Accounting and Tax Journal*, and other industry publications.

Mr. Muldavin is a graduate of UC Berkeley and Harvard University, and has been recognized by the American Society of Real Estate Counselors and the Royal Institute of Chartered Surveyors, each of who have awarded him their highest level of professional certification. Mr. Muldavin is also on the Advisory Board of the Journal of Sustainable Real Estate and an Honorary Fellow of the Institute of Green Professionals.

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This topical index is a guide to help locate information on select topics that are covered in multiple locations within the Book and six Expanded Chapters. Select other topics of interest are also identified.

1. Development Costs/Initial Cost Analysis

- Chapter IV, Section E-1: Building Performance, Development (“First” Costs)
- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis, Comparative First Cost Analysis
- Appendix F: Financial Analysis Alternatives: Comparative First Cost Analysis
- Chapter V, Section F-3: Assessing the Net Impacts of Sustainable Costs/Benefits, Development Costs

2. Green Leases/Split Incentives

- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis, DCF Lease-Based Cost/Benefit Allocation Models
- Appendix F: Financial Analysis Alternatives: DCF Lease-Based Cost/Benefit Allocation Models
- Chapter VI, Section G-3: Property Management, Leasing Agreement Review
- Chapter VI, Section G-5: Property Operations and Cash Flow; Lease Structure and Review, Green Leases and Addressing the Issue of Split Incentives

3. Energy Investment

- Chapter III, Section C-1: Sustainable Property Features
- Chapter III, Section C-2: Sustainable Property Resources
- Chapter III, Section C-3: Sustainable Property Features and Building Outcomes
- Expanded Chapter III, Appendix III-A, Sustainable Property Features List
- Expanded Chapter III, Appendix III-D, Sustainability Assessment Systems/Tools

- Chapter IV, Section C-4: Process Performance, Energy Use Forecasting
- Chapter IV, Section C-6: Process Performance, Commissioning
- Chapter IV, Section C-7: Process Performance, Measurement & Verification
- Chapter IV, Section D-1: Feature-Based Financial Performance
- Chapter IV, Section D-2: Performance of Daylighting, Lighting Controls
- Chapter IV, Section E-2: Whole Building Performance Studies
- Chapter IV, Section E-3: Building Energy Use (Performance)
- Chapter V, Section C-2: Financial Analysis Alternatives, Energy Star
- Appendix F: Financial Analysis Alternatives: Energy Star
- Chapter VI, Section E: Underwriting Energy-Carbon Reduction Investment

4. Health and Productivity Benefits Analysis

- Chapter IV, Section D-2, Performance of Under floor Air Distribution and Daylighting
- Chapter IV, Section E-4: Occupant Performance, Health and Productivity
- Expanded Chapter IV, Appendix IV-C: Studies of Productivity and Health Cited by Industry
- Expanded Chapter IV, Appendix IV-D: Additional Studies of Productivity and Health
- Chapter IV, Section F: Market Performance, Space User/Investor Surveys and Tenant Demographics and Market Research
- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis; Productivity Benefits Analysis; Health Benefits Analysis
- Appendix F: Financial Analysis Alternatives: Productivity Benefits Analysis; Health Benefits Analysis
- Chapter V, Section G-3: The Process for Determining Financial Model Inputs

- Chapter VI, Section F: Underwriting Space User Demand

5. Key Trends in Performance Measurement

- Chapter III, Sections D-2 and D-3

6. Public Benefits of Sustainable Properties

- Expanded Chapter III, Appendix III-D, Measuring Sustainability: Assessment Systems/Tools
- Chapter IV, Section C-5: Process performance, Regulations and Code Compliance
- Chapter V, Section C-2d: Public Sustainability Benefits Analysis
- Appendix F: Financial Analysis Alternatives: Public Sustainability Benefits Analysis
- Chapter V, Appendix G, GBFC Sustainable Cost/Benefit Checklist, Public Benefits
- Chapter V, Section F-3: Assessing the “Net Impact” of Sustainable Costs and Benefits, Public Benefits

7. Risk Analysis and Mitigation

- Much of the book focused on this topic. Key sections include:
- Chapter IV, Section C: Process Performance
- Chapter IV, Section D: Feature Performance
- Chapter V, Section C-2, Financial Analysis Alternatives, Risk Analysis and Presentation
- Chapter V, Section E: Assess Costs/Benefits of Sustainability
- Chapter V, Appendix G: GBFC Sustainable Property Cost/Benefit Checklist
- Chapter V, Section H: Risk Analysis and Presentation
- Chapter VI: Sustainable Property Underwriting Guidelines

8. Service Provider Risks and Underwriting

- Chapter III, Section D: Measuring a Property's Sustainability, Service Provider Certifications and Assessments
- Expanded Chapter III, Appendix III-D: Measuring a Property's Sustainability, Service Provider Certifications and Assessments
- Chapter IV, Section C-3: Process Performance, Service Provider Quality and Capacity
- Chapter V, Appendix G: GBFC Sustainable Property Costs/Benefits Checklist
- Chapter VI, Section D: Underwriting Service Providers
- Chapter VI, Section E-9: The Impact of ESCOs on Underwriting Energy/Carbon Reduction Investment

9. Space User Demand- Enterprise Value

- See references above to Health and Productivity Benefits Analysis, a component of Space User Demand
- Chapter IV, Section E-4: Occupant Performance
- Chapter V, Section C-2c, Sustainability Sub-Financial Analysis, Enterprise Value Analysis
- Chapter V, Appendix F: Financial Analysis Alternatives, Enterprise Value Analysis
- Chapter V, Appendix G: GBFC Sustainable Property Cost/Benefit Checklist, Space User Demand Analysis
- Chapter VI, Section F: Underwriting Space User Demand
- Chapter VI, Appendix I: Space User Underwriting Checklist

10. Sustainable Features Choices and Analysis

- Chapter III, Section C-1: Sustainable Property Features
- Chapter III, Section C-2: Sustainable Property Resources

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 - Chapter IV, Section D: Feature Performance
 - Chapter VI, Section E-4: Sustainable Property Features/Strategies
 - Chapter VI, Section E-5: Sustainable Property Features and Building Outcomes
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11. Three Principles for Applying Sustainable Property Market Performance Research
- Chapter IV, Section F-2: Three Principles for Applying Sustainable Property Market Performance Research
12. Underwriting Differences for Sustainable Property
- Chapter VI, Section C: Key Differences in Sustainable Property Underwriting
13. Valuation Issues for Sustainable Properties
- Chapter V, Section I: Valuing Sustainable Properties

Introduction

<i>Value Beyond Cost Savings</i>					
Chapter I Introduction	Chapter II Sustainable Property Investment Decisions	Chapter III Evaluating Property Sustainability	Chapter IV Sustainable Property Performance	Chapter V Sustainable Property Financial Analysis	Chapter VI Sustainable Property Underwriting Guidelines

The real estate industry has made substantial strides in the integration of sustainability into property decisions since the Consortium was formed in 2006. The strategic question of whether investors should consider sustainability issues in their property decisions has largely been asked and answered, with the majority of asset managers and corporate real estate directors now struggling to assess the performance of their properties, identify opportunities for improvement, and make necessary changes in their organizations to address new sustainability priorities.¹

While strong progress has been made, the real estate industry is struggling to quantify and articulate the value of sustainable property investment. The vast majority of investment decisions, even by sophisticated investors, are being made based on simple payback or simple return on investment (ROI) calculations.² Most investors, and many tenants, today understand that sustainable properties can generate health and productivity benefits, recruiting and retention advantages, and reduce risks, but struggle to integrate benefits beyond cost savings into their valuations and underwriting.

The failure by property investors to appropriately incorporate revenue and risk considerations into sustainable investment decisions has led to underinvestment in sustainability. Today, with increasing government regulations and incentives and rapidly growing tenant and investor interest in sustainability, failure to properly incorporate value considerations beyond cost savings will increasingly result in sub-optimal financial results for investors. As a consequence, society will not be able to achieve its carbon reduction goals.

In accordance with its mission and the needs of the industry, the Green Building Finance Consortium (GBFC) presents *Value Beyond Cost Savings: How to Underwrite Sustainable*

¹ We use the term investors in many parts of the book to reference the many types of investors including corporations, equity investors (pension funds, REITS, private owners, etc.), lenders, tenants, and developers.

² For example, if I invest \$100 and get \$33 per year in energy savings then my payback will occur in 3 years and my ROI is 33%.

Properties, a book designed to assist private investors in making better financially based sustainable property investment decisions.

This book describes how to address the role of certifications in financial analysis; presents GBFC's Sustainable Property Performance Framework, which identifies the "missing link" in performance assessment critical to valuation; introduces GBFC's Sustainable Property Cost/Benefit Checklist, a comprehensive 40+ page assessment of the positive and negative risks of sustainability; introduces a six-step sustainable property financial analysis methodology; details special considerations in the underwriting of energy efficiency investment and space user demand, and provides specific recommendations for modifications to underwriting and due diligence guidelines for sustainable properties.

Due to the volume of the Consortium's writing, and to make the major findings and conclusions more accessible, *Value Beyond Cost Savings: How to Underwrite Sustainable Properties* is presented as a 300-page book and Six "Expanded" Chapters with 400 pages of additional data and analysis can be downloaded as separate publications from the Consortium's website along with other more targeted special publications and articles. (www.GreenBuildingFC.com).

In the rest of Expanded Chapter I we:

- Describe the Consortium's mission;
- Summarize the content of each of the book's six chapters; and
- Provide detail to assist readers in applying the book's findings and conclusions

A. Consortium's Mission

The Green Building Finance Consortium is a research organization founded and led by The Muldavin Company, Inc. The Consortium's work is funded by the real estate industry, select government and non-governmental organizations, The Muldavin Company, and by the efforts of unpaid contributors. The Consortium is an independent research organization that does not accept funding from green building product companies or trade groups for its research.

The Consortium's mission is to enable private investors to underwrite sustainable property investment from a financial perspective. To accomplish this mission, GBFC has developed the underwriting methods and practices required to independently assess sustainable property investment and is widely disseminating the results of its work.

More detail on the Consortium can be found at www.GreenBuildingFC.com.

B. Overview of *Value Beyond Cost Savings*³

Sustainable property underwriting does not require fundamental changes in traditional underwriting or valuation practice, but underwriters, acquisition analysts, appraisers and others will need to collect new information and learn new analytic techniques in order to properly address how some of the special considerations of sustainable properties impact property value.

While the knowledge and information required to value and underwrite sustainable property investment is substantial, the challenge is similar to that which the industry faced with the Americans for Disabilities Act, the influence of out-sourcing of manufacturing and back office work to India and other countries, adapting to post 9/11 security requirements, “smart building technologies”, or even adapting to new post “sub-prime” economic and finance realities. Sustainability trends, like all of these issues, affect different regions, users, and buildings differently, and it is the responsibility of valuers and underwriters to understand and measure these differences.

Sustainability is not a property type. Sustainability is a combination of sustainable features with or without a sustainable property certification like LEED or BREEAM. As a combination of building features or attributes affecting the function and utility of the entire property, sustainability permeates the underwriting and valuation processes. An important context for understanding all of the Consortium’s work is that sustainability is just one of many underwriting and valuation issues. The influence of sustainable property attributes on financial performance can only be understood through a simultaneous evaluation of all the issues influencing value including location, market demand, project competitive strengths, pricing, etc.

A summary overview of *Value Beyond Cost Savings* is presented below in Exhibit I-1.

Exhibit I-1 <i>Value Beyond Cost Savings</i> Overview	
Chapter I Introduction	<ul style="list-style-type: none"> • Purpose • Applying the book’s findings • Sustainability and property value • Overview
Chapter II Sustainable Property Investment Decisions	<ul style="list-style-type: none"> • Level of decision • Organizational context • Investor type • Investment decision: property life cycle • Property type • Geography, other factors

³ The term “underwriting” in this book refers broadly to the independent due diligence that lenders, equity investors, developers, corporate real estate executives and other real estate decision-makers undertake prior to their sustainable property acquisition, construction, financing, or leasing decisions.

Chapter III Evaluating Property Sustainability	<ul style="list-style-type: none"> • Sustainable attributes • Certifications and performance assessments • Regulator perspective • Space user perspective • Investor perspective
Chapter IV Sustainable Property Performance	<ul style="list-style-type: none"> • GBFC Sustainable Property Performance Framework • Process performance measurement and evidence • Feature performance measurement and evidence • Building performance measurement and evidence • Market performance measurement and evidence • Financial performance measurement and evidence
Chapter V Sustainable Property Financial Analysis	<ul style="list-style-type: none"> • Selecting financial model • Assess costs/benefits • Determine financial model inputs • Perform cash flow risk analysis Risk analysis and presentation • Valuation considerations
Chapter VII Sustainable Property Underwriting Guidelines	<ul style="list-style-type: none"> • Underwriting perspectives by investor type • Key differences in sustainable property underwriting • Underwriting service providers • Underwriting energy/carbon reduction investment • Underwriting space user demand • Existing building underwriting guidelines • New/major retrofit underwriting guidelines

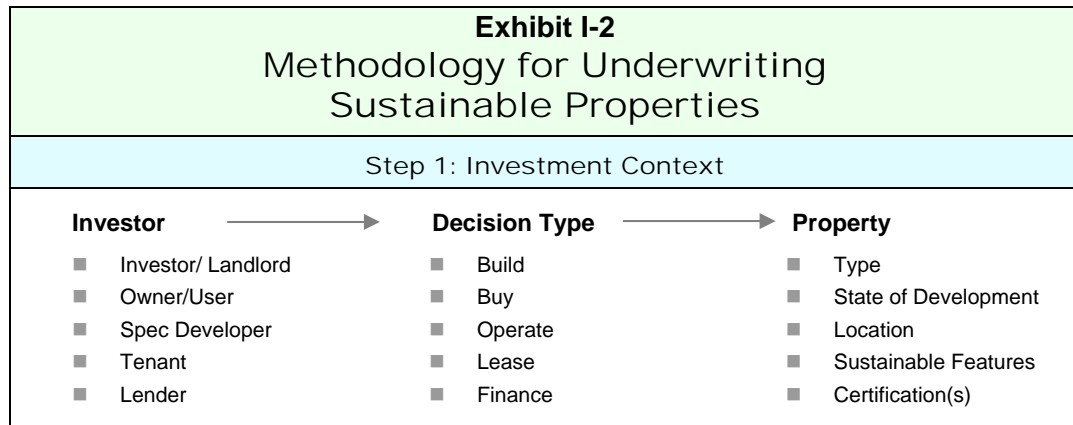
More detail about each of the six chapters of the book is provided below.

Chapter I: Introduction

This chapter provides an overview of the entire book, with guidance on how to access and apply the book’s contents.

Chapter II: Sustainable Property Investment Decisions

Chapter II specifies that, as shown below in Exhibit I-2, the first step in conducting a proper financial analysis is to clearly understand the investment context. The specific analytic methods, data, and decision metrics required will be determined based on the type of investor and investment decision. Additionally, the specific type of property (office, retail, etc.), stage of development (new, existing, etc.), location, set of sustainable features and sustainability certifications will also critically affect the analysis.



Chapter III: Evaluating Property Sustainability

Sustainable property certifications play an important role in the financial assessment of sustainable properties. Certifications provide a basis for investors to measure and compare properties, a critical foundation for financial analysis. This part of the book provides a framework for understanding sustainable property certifications and related measurement systems and how to address their importance in financial analyses and valuation.

Importantly, existing green building certifications like LEED, BREEAM, GreenStar, CASBEE, or LEED India measure environmental outcomes, not financial outcomes, and thus cannot be the sole basis for underwriting from a financial perspective. Practically, investors will also be confronted with underwriting properties with varying sustainable features, performance, and sustainable certifications.

Accordingly, financial analysis of a specific property requires a more sophisticated understanding of the linkage between how a property is defined as “sustainable” and related value. More focus must be put on specific sustainable features and processes. No single certification or rating will suffice. At a minimum, the specific threshold sustainability requirements necessary to obtain benefits from regulators, space users, lenders and investors must be identified and evaluated for each property.

Chapter IV: Sustainable Property Performance

This chapter presents a reasoned and practical approach to thinking about sustainable property performance and “value” that corresponds with traditional real estate property analytics and decision-making. The Consortium’s approach moves away from the quest to design and implement the “killer” quantitative study that proves the incremental value of sustainability, to instead focus on the process and data needed to assess value for specific properties.

Assessing the incremental value of sustainable attributes or outcomes still has a key role in performance assessment, but when viewed in its proper context as a contributor to

estimating financial variables like rent, occupancy cap rates, etc., a different picture emerges about the form and content of required data and analytics.

This chapter introduces GBFC's Sustainable Property Performance Framework, a new framework for organizing and evaluating sustainable property performance that directly supports financial analysis, valuation and underwriting. Using this framework, we present the results of our research on sustainable property performance.

While many green building publications, when discussing performance, focus on presenting case studies or other presentations of successful projects, this chapter will present both evidence of positive performance as well as evidence of sustainable property failure or underperformance, and select best practices that have been adopted to address problems that have arisen. Contrary to the belief of some, presentation of underperformance and related sustainable building risks—and best practices to mitigate these risks—will not scare investors, but actually significantly increase sustainable investment due to improved confidence by capital sources in their ability to appropriately price and mitigate risk.

Chapter V: Sustainable Property Financial Analysis

In this chapter we present a six-step process for sustainable property financial analysis, present checklists and tools to assist financial analysis, and discuss key considerations in the role and implementation of sustainable property valuation.

Regardless of the type of decision, an independent financial assessment of a sustainable property investment decision typically involves a financial model. We identify financial modeling methods currently being employed for a range of sustainable property investment decisions for new construction, acquisitions, corporate real estate decisions, and investments in specific sustainable property features. We also discuss how to select the best method and data for a given decision.

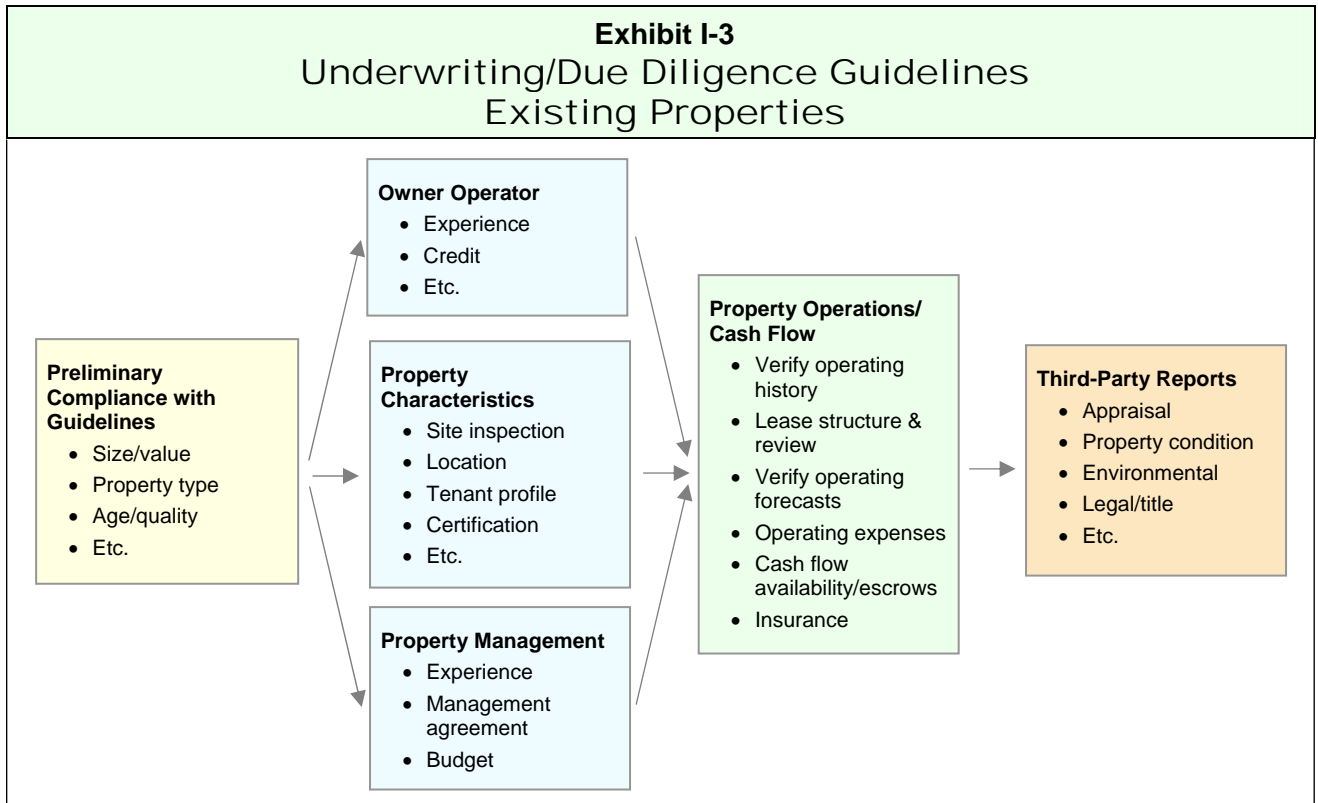
We focus our presentation on discounted cash flow analysis, the most common approach used for underwriting and valuing real estate, and the central analytic model required to understand the financial implications of sustainable property investment.

Chapter VI: Sustainable Property Underwriting Guidelines

This chapter outlines the process for conducting underwriting/due diligence on sustainable property investments. While Chapter V focuses on creating pro forma financial models and property valuation reports, Chapter VI focuses on the underwriting/due diligence process that investors undertake prior to making new or existing property sustainability investment decisions. Accordingly, the focus is on risk mitigation and compliance with underwriting guidelines.

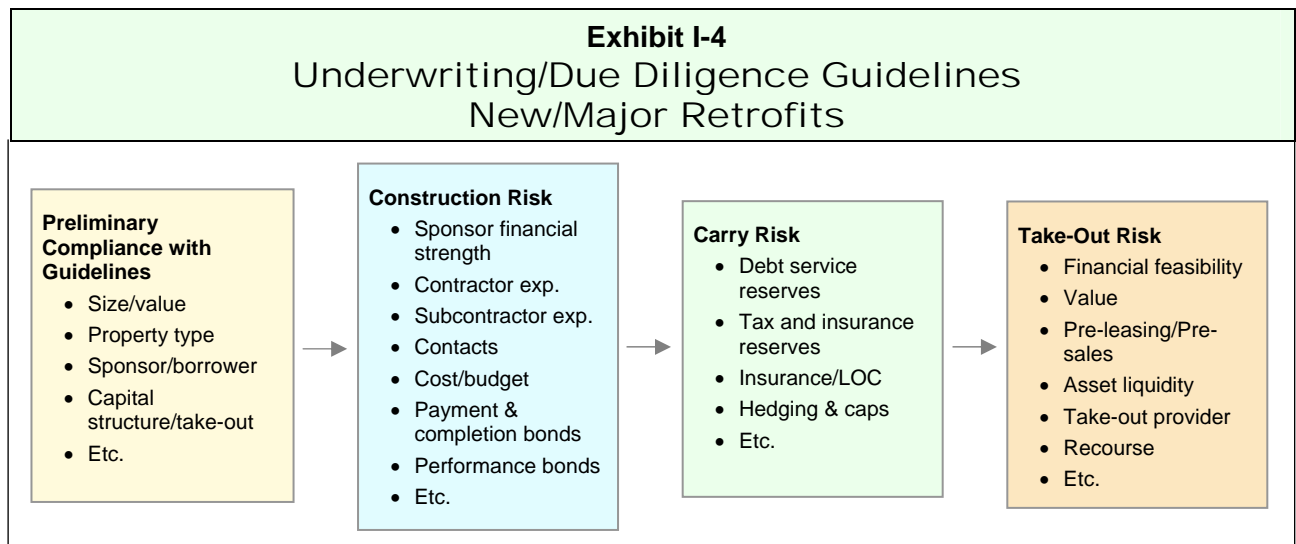
We also identify and discuss eight key differences in underwriting sustainable properties and present special sections on the unique challenges in underwriting service providers, energy use, and space user demand.

The underwriting guidelines we address for existing buildings are summarized below in Exhibit I-3. These guidelines will generally be applicable to both lenders and investors, although lenders and investors may emphasize or de-emphasize particular issues given their specific needs and requirements. In all cases, lenders will be more focused on downside risk, because they do not fully share in the potential upside that equity investors obtain by taking additional risk (they just get the mortgage payment). A key focus in existing buildings for both lenders and investors is on verification of the property operations and cash flow as well as debt service coverage and value.



The key underwriting and due diligence issues for new construction or major retrofits are shown in Exhibit I-4. These issues will be addressed in this section from the perspective of a lender or equity investor that is evaluating a capital investment in a new development or major retrofit project. New projects are subject to very different risks related to the construction process, construction completion, cost control, costs to carry construction interest prior to lease-up (or sale), and achieving the market acceptance necessary to achieve an effective take-out by a permanent lender or buyer.⁴

⁴ Typically, construction lenders require a permanent lender to commit to pay-off (“take-out”) the construction loan once certain performance criteria have been met.



Appendices

The appendices to each chapter are an important substantive component of the book. For example:

- Appendix A provides an Annotated Outline of the Research Library Index
- Appendix B provides a Detailed Table of Contents of all Expanded Chapters
- Appendix III-A is a 30-page menu of sustainable property features. (In Expanded Chapter III)
- Appendix III-D identifies and describes over 100 certification and assessment systems from around the world. (In Expanded Chapter III)
- Appendix IV-A presents a detailed overview of GBFC's Sustainable Property Performance Framework. (Presented as Appendix C in the book)
- Appendices IV-C and IV-D identify and describe the main findings from over 200 sustainable property-related health and productivity benefits studies. (In Expanded Chapter IV)
- Appendix V-A identifies and describes over 40 pages of alternative sustainable financial models and analyses. (Presented as Appendix F in the book)
- Appendix V-C presents GBFC's 40-page Cost-Benefit Checklist. (Presented as Appendix G in the book)
- Appendix V-D presents a DCF Analysis (In Appendix H in the book)
- Appendices VI-A, VI-B, and VI-C present GBFC's Underwriting Checklists for space users, existing buildings, and new/major retrofits. (These appendices are included in Chapter VI and Appendix H in the book)

C. Applying the Book's Findings and Conclusions

This book has broad applicability to sustainable property investment decision-making. However, the book is directed to specific audiences and decisions in the private commercial real estate market as discussed below.

Target Audiences: The target audiences for this book are corporate real estate decision-makers, equity investors, lenders, developers, appraisers, and commercial property brokers. Sustainable service providers and groups seeking capital for sustainable property investment will also benefit from this book, as well as students and industry practitioners seeking to understand the financial underpinnings of sustainable property investment.

Commercial Real Estate Properties: The Consortium focuses on commercial and multifamily properties. While many of the frameworks and methodologies will have some applicability to the single-family market, single-family property issues will not be addressed in detail. Select single-family resources are also available on the Consortium's website under Research Library code 19.2.

Geographic Applicability: Individuals and organizations throughout the world have influenced the Consortium's work. Additionally, the Consortium's focus on fundamental methods and practices make its work particularly transferable across national boundaries. However, the book does have a North American bias given the author's background and experience.

Property-Specific Investment Decisions: This book focuses on underwriting and valuation of a specific property.

Property Life Cycle: This work is applicable, in varying degrees, to sustainable property investment decisions involving new buildings, existing buildings, and tenant improvements.

Private Investment Decisions: The Consortium focuses on the underwriting of private investment decisions. However, understanding the types and magnitude of public benefits generated by a specific sustainable property investment is important to a private investor because of the potential to monetize public benefits by extracting the value they create for governments and tenants-investors.

Sustainable properties can have substantial social and environmental (public) value, and it is important to quantify and understand such benefits. Methodologically, public and private benefits should be assessed separately. From the perspective of valuation, it is critical to separate the concept of public and private value when evaluating a sustainable investment decision from a private sector perspective. This does not mean that public values and benefits cannot be considered by the private sector when making investment

decisions, but only that such decisions should be made with a clear understanding of the differences between private and public values.

D. Conclusions

Rapid regulator, user, and investor change regarding sustainability requires underwriters and valuers to increase their knowledge base and improve their practices to appropriately value and underwrite properties with sustainable features and certifications. Fortunately, due to the qualitative nature of traditional methods and practices, the real estate industry is well positioned to meet the challenges to underwriting and valuation.





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