AI Reports ®
Form 821.02*

Client File #:		Appraisal File #:	

Commercial Green and Energy Efficient Addendum

Client:		
Subject Property:		
City:	State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at
http://www.appraisalinstitute.org/education/green_energy_addendum.aspx

The appraiser hereby acknowledges that the information provided within this addendum:

- has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.
- is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.
- is the result of the appraiser's routine inspection of and inquiries about the subject property's green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinions or conclusions.
- is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.
- is not to be construed as a replacement for an appraisal report but is an Addendum to an appraisal report. This Addendum is not designed to assign value to each of the components identified. The Addendum is provided as a part of the description of the properties' special characteristics that have been included in the analysis and value conclusions in the appraisal report. It also serves the client in securing adequate information on the property type to assist in hiring the appraiser with knowledge and experience in this special property type.

Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort.[1] High Performance building and green building are often used interchangeably; however, they do have different definitions.

High Performance Building: A building that integrates and optimizes all major high-performance building attributes, including energy efficiency, durability, life-cycle performance, and occupant productivity.[2]

Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor air quality, and (6) maintenance and operation. A Green Building will be energy efficient but an energy efficient building is not synonymous with Green Building.

Property Type

Category of Property: (explain) _____

This Addendum is for property types that include multifamily, all types of commercial, and industrial use properties. The Addendum can be used for proposed or existing structures including retrofits.

Who may complete this Addendum?

The Addendum may be completed by any of the following:

- LEED AP serving on project's charrette
- Green Rater that rated the project
- Developer/builder involved in developing the project
- Investor with sufficient information and documents to support the data
- Appraiser

The appraiser must have sufficient knowledge and experience of the property type to review an Addendum completed by others and comment on any inconsistencies or omissions noted. The person completing the Addendum should complete the "Completed by" Section of this Addendum.

The objective of this Addendum is to standardize the communication of the green and/or high performing features of commercial properties. Identifying the features provides a basis for comparable selection and analysis of the features.

The Addendum will assist the client in extracting the documents necessary to expedite the appraisal process by having a better understanding of the special property features. This will assist the client in securing the appraiser with knowledge and experience in the property type.

The Addendum can be attached to the listing of the property, which will allow the appraiser more detail on sales and listings of similar properties.

The Addendum may be used in its entirety or only the pages that apply.

Intended Users of this Addendum: Lender as part of their scope of work, appraisers as a supplement to the appraisal report, investors as a summary of special green/energy features, and/or real estate agents as a supplement to a listing.

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[1] U.S. Environmental Protection Agency at www.epa.gov/greenbuildings/pubs/about.htm

[2] Energy Policy Act of 2005 (Public Law 109-058) at http://www.nibs.org/?page=hpbc

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Documentation to Appraiser

The client should supply the qualified real estate appraiser with the following documents and information for analysis. This information should be supplied in advance of the appraisal bidding process to allow the appraiser full disclosure of the potential scope of work. Check the items that will be made available to the appraiser.

1. **LEED checklist** (if appropriate). Alternatively, if certified by another organization the checklist used by the certifier should be provided to the appraiser. (The checklist is the worksheet used by the green certified to award points for the green rating. The green score may be presented as a preliminary score on proposed construction and subject to a final inspection upon completion of construction. The appraiser should be presented with the final rating prior to the final inspection.) The checklist will address the six elements of green building identified earlier in this Addendum.

   Comment: This document assists the appraiser in understanding the shade of green and areas that received most points. For instance, a commissioned building will have a checklist used by the rater. The checklist is extremely useful in documenting the details on the subject property. The checklist will address in detail the materials element that appraisers may not be qualified to identify.

   A property may be green but not have a green third party certification. The green features must be documented and presented to the appraiser. The valuation is of the construction and not the certification; therefore, if the property possesses green features it should be appraised for the features it possesses.

2. **Contact information for details of green,** (LEED consultant, architect(s), builder, charrette member, and engineer)
   Comment: This will help inform the appraiser about the components and makeup of the building. An appraiser should expect to receive all pertinent information from all parties of a transaction.

3. **Energy modeling results (or Third Party Energy Ratings for Residential)**
   Comment: The energy modeling results can be critical in analyzing cost implications due to various green energy strategies or components. The appraiser should verify that the projections used are realistic and that they fit the manner in which the facility will be used. The greatest risk with energy modeling is that the projections employed do not fit actual building use and will result in an under- or overestimate of utility costs. The energy modeling should provide an estimated energy savings. (A cost benefit analysis and/or engineering modeling report may explain the choice and benefit of the systems used.)

4. **Plans and specifications**
   Comment: Even in an existing building, these documents should be made available if possible. Specifications should include product descriptions from manufacturers. This helps inform the appraiser what is actually found at the property. If the property is proposed or new construction, the builder should provide the cost breakdown of the property.

5. **Intended goals of construction or retrofit**
   Comment: If the subject is an existing building that has been upgraded or retrofitted, it is necessary to have basically the same discussions regarding intended goals, projections, etc. Once the validity of the energy modeling projections is established, the appraiser can make projections about projected energy savings.

6. **Commissioning Report (for high performance building systems and/or solar photovoltaic systems)**
   Comment: Commissioning is a third-party verification process used to evaluate whether the systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the owner's project requirements. This process is viewed by a number of institutional investors as a prime mechanism of risk mitigation. This factor should be considered when comparing the subject with its competitive set. The nature and extent of the commissioning process should be considered in the risk analysis.

7. **Tenant leases**
   Comment: Among other things, this is important to analyze who benefits from energy efficient improvements – the owner or tenant. It is also helpful to determining whether the leases within the building are similar to and competitive with those signed at the comparable properties. In the area of green strategies, innovations in tenant improvements (TIs) and space design may impact longer-term costs and result in potential savings. There could be reduced downtime between leases and construction and material costs, as well as reduced risk levels associated with space delivery and construction—depending upon the strategies, design, and components used.

8. **Incentives** (such as property tax rebates, utility rebates or incentives: public sector, private sector or utility)
   Comment: Where incentives are substantially monetary in nature or result in monetary, direct, and exclusive benefits to the project or owner, there is a good chance that the market value of the real property may be affected. The appraiser should be prepared to understand and address the contributory value of incentives. The impact of rebates and incentives should be considered in all three approaches to value, as appropriate. The availability and duration of the incentive should be examined and appropriately incorporated into the relevant approaches. Rebates and incentives should not be confused with income tax effects, such as accelerated depreciation, federal Investment Tax Credits (ITC), or Renewable Energy Credits (RECs) which are generally not considered part of the real property for a market value appraisal. Tax effects may have a material influence on the financial feasibility of a project but care should be exercised to separate income tax effects that accrue to the ownership entity from rebates and incentives that accrue to the real property.

9. **Financing Benefits/Burdens**
   Comment: This is important to determining the extent that a discrete loan that stays with the upgrade package may be below or above market and attractive or unattractive to assume. The appraiser should also balance the non-financial attributes of the green project to determine how many, if any, property rights are burdened. Financing products such as PACE (Property Assessed Clean Energy) may reflect a priority lien to the first mortgage, similar to a bond assessment, and typically survive ownership transfers of the property. Appraisers and their clients should consider how to address and report the impact of such financing when developing the Scope of Work.

10. **Operating Expenses.**
    Comment: Operating expenses – both historical and pro-forma – are important to understanding the ongoing operating expense impacts of a green or high performance property. In addition to the typical two or three years of operating expenses, appraisers and their clients may require more detailed reporting of individual expenses.

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Certification or Verification of Green or Energy Efficient Features

Certification Program and Ratings Attach the rating worksheet that provides the ratings for each element to provide a better understanding of the features. The worksheet will assist in comparing the subject to sales rated by different organizations.	**USGBC LEED®**	**Certifying Organization:** ☐ USGBC (LEED®) _____*Define rating system http://www.usgbc.org/leed/certification ☐ Core & Shell Only ☐ Interior Design _____ ☐ LEED for Existing Buildings: Operations & Maintenance ☐ Other:_____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** ☐ LEED Certified: ☐ LEED Silver ☐ LEED Gold ☐ LEED Platinum ☐ Describe Score If not listed:_____
	Green Globes®	**Certifying Organization:** ☐ Green Globes® _____* *Define rating system http://www.greenglobes.com Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
	Energy Star®	□ **Energy Star®** http://www.energystar.gov/buildings/about-us Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
	Home Innovation Research Labs (NGBS)	□ **Home Innovation Research Labs (NGBS)*** http://www.homeinnovation.com/green ***Define rating system** NGBS New Construction:_____ NGBS Rennovation of Existing Buildings:_____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Version:** ☐ NGBS 2008 ☐ NGBS 2012 ☐ NGBS 2015 ☐ NGBS _____(year) **Rating:** ☐ NGBS Bronze ☐ NGBS Silver ☐ NGBS Gold ☐ NGBS Emerald
	Other Green Certifying Organization	□ **Name Certifying Organization:**_____ Green Certifying Organization URL (website) _____ Year Certified: _____ ☐ Report Attached or ☐ Certification viewed on site **Rating:** _____
Additions	Explain any additions or changes made to the structure since it was certified:	
	Do changes require recertification to verify rating is still applicable? ☐ Yes ☐ No	
Recycle Programs	☐ Tenant Recycle Program ☐ Green Operations & Management ☐ Composting Program on Site ☐ Other _____	

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Comments The worksheets will provide a review of all categories and address the six elements of green building identified on the previous page of this Addendum. The worksheet will more specifically identify the green materials included in the property.	If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. If no formal certification was obtained but the structure has green attributes, please describe in this area.

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Site Element

The following items are considered within the appraised value of the subject property:

Walk Score	Score:_____	http://www.walkscore.com	
Public Transportation	☐ Bus – Distance:_____ Blocks Transit Score _____ http://www.walkscore.com	☐ Train – Distance: _____ Blocks	☐ Subway – Distance: _____ Blocks
Site	Orientation - front faces: ☐ East/West ☐ North/South	Landscaping: ☐ Water Efficient ☐ Native ☐ ☐ Built on brownfield ☐ Wetlands – acres:_____	
On Site Water Retention	☐ Dry Pond (size) _____ Acres ☐ Wet Pond (size) _____ Acres ☐ Rain Garden ☐ Vegetated Roof	☐ Drip Irrigation ☐ Smart Irrigation Controllers ☐ Irrigation supplied by wet pond or onsite water source	
Parking	☐ On site _____spaces ___ /1,000 SF ☐ Surface material _____ (pervious concrete, grass, gravel, shell) ☐ Permeable pavement	☐ Parking spaces reduced based on public transportation proximity ☐ Public parking garage or lot _____ blocks from property	

Comments

Water Element

☐ Reclaimed Water System (Explain):_____ ☐ Greywater reuse system ☐ WaterSense® fixtures	☐ Waterless urinals ☐ Low flow or sensor water fixtures ☐ Cistern - Size: _____ Gallons for irrigation ☐ Rain Barrels Provide Irrigation ☐ Other: _____

Comments: Identify other features that may be included in the element of water that have not been identified under the Site or Water Efficiency Sections.

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Energy Element

The following items are considered within the appraised value of the subject property:

Insulation	☐ Fiberglass Blown-In ☐ Foam Insulation ☐ Cellulose ☐ Fiberglass Batt Insulation ☐ Other (Describe):_____ R-Value: ☐ Walls _____ ☐ Ceiling _____ ☐ Floor_____					
Roof	Construction type: _____ ☐ Vegetated Roof ☐ Reflective Roof ☐ Other:_____					
Windows	☐ ENERGY STAR®	☐ Low E ☐ U-Value ___	☐ High Impact	☐ Storm	☐ Double Pane ☐ Triple Pane	☐ Glazed	☐ Solar Shades
Day Lighting	☐ Skylights #:_____ ☐ Solar Tubes #:_____	☐ Other (Explain) _____ ☐ Daylighting _____ ☐ Daylighting –optimized fenestration design ☐ Daylight-responsive electric lighting controls ☐ Daylight-optimized interior design (such as furniture design, space planning and room surface finishes)					☐ ENERGY STAR Light Fixtures ☐ LED Lighting ☐ T-8 Florescent Lighting
Mechanicals **HVAC (Describe in Comments Area)**	ENERGY STAR® Appliances: ☐ Dishwasher ☐ Refrigerator ☐ Office Equipment ☐ Other_____	Water Heater: ☐ Solar ☐ Heat Pump ☐ Tankless ☐ Coil Size: _____ Gal.	Other features: chillers, boilers, industrial type mechanicals _____ _____			
	☐ High Efficiency HVAC SEER:_____ Efficiency Rating:_____% AFUE* _____% *Annual Fuel-Utilization Efficiency	☐ Heat Pump Efficiency Rating: _____ COP:_____ HSPF:_____ SEER:_____ EER: _____	☐ Thermostat/Controllers ☐ Other:_____ _____		☐ Passive Solar Design (Defined in Glossary)	
	☐ Programmable Thermostat		☐ Radiant Floor Heat		☐ Geothermal	
Utility Costs	Average Annual Energy Cost: $ _____ per kWh $____based on:_____(Utility Bills/I&E Statements)					
	Hours of Operation: _____ ☐ # Employees: _____ After Hours or weekend hours of use: _____ ☐ Daytime cleaning (reduces energy costs)				☐ Dashboards # _____	
Energy Audit	☐ Energy Audit attached Has an energy audit/rating been performed on the subject property? ☐ Yes ☐ No ☐ Unknown If yes, comment on work completed as result of audit.					
Comments (Include source for information provided in this section) Attach documents or reference source	Information was provided by:					

Indoor Air Quality Element

☐ Energy Recovery Ventilator Unit or Whole Building Ventilation System ☐ Other:_____	☐ Non Toxic Pest Control ☐ Co2 sensors
Comments: Describe additional features implemented that would affect the indoor air quality. Indoor air quality can be affected by building material choices as well as items listed herein. (See Rating Worksheet for items identified in this category)	

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Maintenance & Operations Element

☐ Operations & Maintenance Manual ☐ Demountable Walls ☐ Other _____

☐ Staff Training Program ☐ Daytime cleaning (reduces energy costs) ☐ Management has Green Training

Commissioning	☐ Post Occupancy Commissioning ☐ Date of PO Commissioning _____ **Note:** Certifications for certain standards, such as USGBC's LEED EB O&M, are valid for a limited time. In order to maintain that particular certification, the building must be reassessed every five years to determine whether it meets the then-current certification standards. It is essential to verify that a building's certification is valid.

Comments:
Note: The information provided on the operations and maintenance reflects details provided by others. Appraisers typically do not have sufficient detail to judge the operations and maintenance of the whole building as a system. Buildings that have been commissioned on a regular basis should have commissioning reports that provide operations and maintenance details by a qualified professional.

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Commercial/Industrial Solar Worksheet

Property Address or ID:		Date of value:			Appraiser:		
Zip Code:							
The worksheet inputs accommodate the PV Value® tool.		http://pvvalue.com					
Solar Electric (PV)		PV Array #1	PV Array #2	PV Array #3	PV Array #4	PV Array #5	PV Array #6
Leased or owned *							
Years remaining on lease							
Initial net cost if owned		Provide total cost for all arrays					
Current net cost		Provide total cost for all arrays					
RECs (Renewable Energy Credits)	$ per megawatt hr.:						
Real property tax for solar PV system		Solar PV is exempt from real property taxes in some states					
System size in watts (DC watts @STC)							
Array type							
Array tilt							
Array Azimuth							
Azimuth tool can be found at the following link:		http://tools.solmetric.com/Tools/roofazimuthtool					
Age of panels							
Energy production kWh per array or total in first cell	Total production for all arrays kWh						
Source for production							
Location (roof, ground, etc.)							
Type of mount							
Warranty term on PV							
PV panel brand name							
Is PV company still in business?							
Number of inverters							
Age of inverter(s)							
Warranty term on inverter	Years total:			Years remaining:			
Is inverter company still in business?		Company name:					
Utility company name		kWh $/charged by utility company:				$0.00	
Evidence of shading							
Evidence of deterioration							
Is there a battery backup system?							
Does the system include lightning protection on both sides of the inverter?							

Documents Reviewed	Reviewed?	In Workfile?
Load analysis		
Shade analysis		
Commissioning form		
Solar installer financial payback analysis		
Warranty terms for inverter		
Warranty terms for solar PV including parts and labor		
Solar PV output monitoring, alert, response, and repair process timing		
If leased, obtain copy of lease and provide terms in comment section below		

Comments:

Roof considerations: Was the roof warranty voided by the PV installation? If the PV installer does not work with the roofing company to ensure that the roof warranty is not voided, additional risk may apply.

Remaining roof life considerations: If the remaining roof life is less than the remaining panel warranty, then an adjustment may need to be made to account for removal and re-installation of the rooftop system.

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Incentives – Amount of Incentive and Terms	
The following items are considered within the appraised value of the subject property:	
Federal	
State	
Local	Note: Tax abatements are available in some areas and make a significant contribution to lower expenses.
Source (For example www.dsireusa.org)	
Comments Incentives offset cost and should be reported in the cost approach section of the report. Incentives	

Completed by:_____ Title:_____ Date:_____

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Commercial Addendum Glossary

Building Envelope: The building envelope is everything that separates the building's interior from the exterior. This includes the foundation, exterior walls, roof, doors and windows.

Energy Recovery Ventilation System: Often called Heat Recovery Ventilators (HRV). These systems replenish the indoor air without wasting all the energy already used to heat the indoor air. In some climates, these systems are also used to handle water vapor in the incoming air.

Earth Advantage Commercial: Earth Advantage Commercial is a green building certification program for small commercial buildings. http://www.earthadvantage.org/commercial/ **Note:** This program does not require energy modeling.

ENERGY STAR®: Energy Star, sponsored by the EPA, rates buildings based on their energy use relative to buildings of similar vintage, design, construction, use and occupancy. Through ENERGY STAR, the nation's most energy efficient buildings can earn ENERGY STAR certification http://www.energystar.gov/buildings/about-us **Note:** The program claims of 35% lower energy costs is not a basis for adjustment in an appraisal. The appraiser must evaluate the efficiency and develop appropriate adjustments using acceptable appraisal methodology.

- **Portfolio Manager:** EPA's online energy management and tracking tool calculates 1 – 100 ENERGY STAR scores for eligible commercial and institutional buildings, such as K-12 schools, office buildings, and many others. Portfolio Manager also allows you to track improvements over time, compare similar buildings within a portfolio, generate reports, and quantify greenhouse gas emissions.
- **Target Finder:** This tool is similar to Portfolio Manager, except it's used to estimate performance. By entering the estimated energy use of a commercial building design or renovation project, you can project its future 1 – 100 ENERGY STAR score.
- **Energy Performance Indicators (EPIs):** Available for 11 different types of industrial or manufacturing plants, EPIs enable energy managers and corporate executives to evaluate the energy efficiency of their plants relative to others in their industry.

National Green Building Standard (NGBS): NGBS is an ANSI-approved green building rating system and part of the International Code Council's (ICC) International Codes (I-Codes). The NGBS provides practices for the design, construction, operation, and certification of new and existing residential buildings, including single family homes and multifamily buildings. Home Innovation Research Labs is the national Adopting Entity and certification agency for the NGBS. www.homeinnovation.com/green

Green Globes®: Green Globes is an online green building rating and certification tool that is primarily used in Canada and the USA. http://www.greenglobes.com

- New Construction/Significant Renovations
- Commercial Interiors (i.e. Office Fit-ups)
- Existing Buildings (offices, multi-residential, retail, health care, light industrial)

Geothermal: A geothermal heat pump uses the constant below ground temperature of soil or water to heat and cool the building. http://energy.gov/energysaver/articles/geothermal-heat-pumps

LEED®: Leadership in Energy and Environmental Design is a green building rating system sponsored by the United States Green Building Council (USGBC). LEED provides building owners and operators with a framework measurable green building design, construction, operations and maintenance solutions. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988

- LEED for Building Design and Construction (LEED BD+C) rating systems
- LEED for Interior Design and Construction (LEED ID+C) rating systems
- LEED For Existing Buildings: Operations and Maintenance (LEED EB: O+M) rating systems

Life Cycle Assessment (LCA): LCA is a technique to assess the environmental aspects and potential impacts associated with a product, process, or service, by:

- Compiling an inventory of relevant energy and material inputs and environmental releases
- Evaluating the potential environmental impacts associated with identified inputs and releases
- Interpreting the results to help you make a more informed decision

Source: http://www.epa.gov/nrmrl/std/lca/lca.html

Passive Solar: Passive solar is technology for using sunlight to light and heat buildings with no circulating fluid or energy conversion system. http://rredc.nrel.gov/solar/glossary A complete passive solar building design has the following five elements: (1) aperture (collector) (2) absorber (3) thermal mass (4) distribution (5) control. http://www.nrel.gov/docs/fy01osti/27954.pdf

SEER: Seasonal energy efficiency ratio - The higher the SEER rating, the more energy efficient the equipment is. A higher SEER can result in lower energy costs. http://www.energystar.gov/index.cfm?c=tax_credits.tx_definitions&dts=ssps.mcs.seer.eer .

Water Sense: EPA released its Final Version 1.1 WaterSense New Home Specification. This specification will be effective January 1, 2013 and establishes the criteria for new homes labeled under the WaterSense program and is applicable to newly constructed single-family and multi-family homes. http://www.epa.gov/watersense/new_homes/homes_final.html

Water Heaters: Solar, Heat Pump, Tankless On Demand or Tankless Coil water heaters are described at the following location: http://energy.gov/energysaver/articles/solar-water-heaters.

WaterSense has developed WaterSense at Work, a compilation of water-efficiency best management practices, to help commercial and institutional facilities understand and better manage their water use, help facilities establish an effective water management program and identify projects and practices that can reduce facility water use. http://www.epa.gov/watersense/commercial/bmps.html

Whole Building Ventilation System: A whole building ventilation system assists in a controlled movement of air in tight envelope construction and may include air-purifying systems. Whole building ventilation equipment is often a part of the forced air heating or cooling systems.

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Client:		Client File #:	
Subject Property:		Appraisal File #:	

GREEN PROPERTY VALUATION RESOURCES

Appraisal Institute Introduction to Valuing Commercial Green Buildings
http://www.myappraisalinstitute.org/education/seminar_descrb/Default.aspx?sem_nbr=0L-800&key_type=OOS

Appraisal Institute Green Building Education
http://www.appraisalinstitute.org/education/green/default.aspx

Practical Applications in Appraising Green Commercial Properties
http://www.myappraisalinstitute.org/education/course_descrb/default.aspx?prgrm_nbr=877&key_type=C

Capital Markets Briefing Paper green building business case released at the NYSE
http://webstore.ansi.org/FindStandards.aspx?Action=displaydept&DeptID=3144#.UGjO2Y7XfQc

Green Building and Property Value – provides a review of the commercial green building property value identifying the components of green that may materially affect value. This document was developed by the Appraisal Institute and Institute For Market Transformation (IMT)
http://www.imt.org/resources/detail/green-building-and-property-value

Retail Green Lease Primer – This two-page document helps guide retailers and retail owners to improving the efficiency of their facilities. It can be helpful to appraisers in understanding green leases. http://www.imt.org/resources/detail/retail-green-lease-primer

Building Energy Performance Assessment News - This website offers many resources on green mortgage underwriting for commercial and residential properties. https://www.paceworxnews.com/

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