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Green Buildings: A New Paradigm in Real Estate[©]

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Today, you can find “green” initiatives intertwined in all aspects of business. Eco-friendly operations and design have moved into the mainstream of real estate and are changing the way the market approaches renovation and new development. Real estate owners and operators are now fully engaged in the “green” movement as they have witnessed a positive market response and an increase in consumer demand. This paper will outline what “green” means today; what are the costs and benefits of sustainable buildings and explore how to address these new “green” issues in real estate valuation.

I. Introduction to “Green” or Sustainable Buildings

What is a “green” building?

Today, there are many definitions for a “green” building that are widely used in the marketplace. One definition of “green” used by the Appraisal Institute in their Seminar: *An Introduction to Valuing Green Buildings* is “buildings and/or building attributes that contain or are intended to contain sustainable design features, building materials, building systems, and operating protocols.”¹ The Urban Land Institute’s definition of a green building is the practice of increasing the efficiency with which buildings use resources while reducing building impacts on human health and the environment during the building’s lifecycle, through better siting, design, construction, operation, maintenance, and removal.² The reference to and definitions of “green” are many but the basic principle of *sustainability and high performance in the built environment* should be the underlying basis of any accepted definition.

Market participants use different terminology primarily because the “green” practice is in its infancy stage and the standards of “green” fluctuate between professions. Architects and designers tend to reference “green” based on a building’s materials and design, while owners and developers focus more on building systems and operations. As valuation experts and property tax professionals, we should know the difference and become familiar with commonly referenced terms.

¹ Appraisal Institute: *An Introduction to Valuing Green Buildings – Part 1 – Pg1*

-Developed by Theddi Wright Chappell, MAI and Timothy R. Lowe, MAI

² Frej, Anne B., editor. *Green Office Buildings: A Practical Guide to Development*. Washington, D.C.: ULI--The Urban Land Institute, 2005. Pp 4-8

How do we measure “green”?

There are many organizations and programs targeting sustainable buildings that provide ratings and accreditation for the commercial building industry. The United States Green Building Council (USGBC), Green Globes, and ENERGY STAR are the most widely recognized rating programs in the U.S. commercial building industry.

The Leadership in Energy and Environmental Design (LEED)TM standard established by the USGBC is the most widely accepted basis for measuring the inclusion of sustainable design features, materials, and building systems in buildings. The USGBC introduced the LEED Rating System in 1998 and has continued to develop and update certification criteria based on a point system in order to classify different levels of sustainability in various types of buildings. There are four levels of sustainability under the LEED rating system which are:

- LEED Certified: 26-32 points or >37% of max.
- LEED Certified Silver Level: 33-38 points or >47% of max.
- LEED Certified Gold Level: 39-51 points or >56% of max.
- LEED Certified Platinum Level: 52-69 points or >75% of max.

It is important to note that all levels of LEED buildings based on their point system will not produce the same green components or systems in every building. Points at each level can be achieved in many different ways, which means that one LEED Gold certified building is not exactly like another LEED Gold building in design, operation or performance. Valuation experts and property tax professionals should be keenly aware of the different levels of LEED certification and a specific building’s “green” components in order to adequately assess a building’s performance profile.

The Green Building Initiative (GBI) is a not for profit organization whose mission is to accelerate the adoption of building practices that result in energy-efficient, healthier and environmentally sustainable buildings by promoting credible and practical green building approaches for residential and commercial construction.³ The Green GlobesTM system uses a construction document questionnaire to establish the basis for their rating system.

ENERGY STAR is a joint program introduced in 1992 by the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to protect the environment through energy efficient products and practices. ENERGY STAR has been promoting the more widespread use of such technological innovations as efficient fluorescent lighting, power management systems for office equipment, and low standby energy use.

It is important to note that there are sustainable buildings that exist without any certification or accreditation and property tax professionals should be able to identify the green elements that are different from the conventional “to-code” buildings. Non-certified “green” buildings incorporate many of the same principles outlined by the ratings agencies, but the developer/owner chooses to avoid the cost and complexity of a formal certification process. Even newer buildings must be examined with care because many local and state governments are changing their building codes to require green elements for new construction and renovation. About 14 percent of U.S. cities with populations of more than 50,000 have green building programs, according to a recent survey of

³ www.thegbi.org

the American Institute of Architects. The number of counties with green building programs has grown by nearly 400 percent since 2003.

What are the elements of sustainability?

The underlying principles and criteria tend to be the same regardless of the specific ratings agency, but the best source for the elements of sustainability is the USGBC LEED checklist. The elements of a “green” building (based on LEED) are:

- Sustainable site
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation and design process

These elements have many prerequisites that are part of the rating system and are required to meet minimal goals at each level of certification. Professionals should be aware of specific requirements for each certification level and how the costs and benefits of the each requirement affect the value of a “green” building.

II. “Green”: Changing the Face of the Market

The current “green” landscape

“Green” buildings are changing the landscape of commercial and residential construction around the world. New research presented by McGraw Hill’s SmartMarket Trends 2008 report indicates that “green” has become a global phenomenon, with 53% of respondents expecting to be dedicated to “green” on over 60% of their projects in the next five years. “Green” has become very visible in construction markets in every global region, with 32% of construction industry professionals estimating that “green” already makes up over 10% of domestic construction output. Although the commercial market’s awareness of “green” and LEED has increased dramatically over the last few years, the actual number of LEED certified buildings in the United States still remains small. As of May 2008, there are only 1,540 (186 million sqft.) LEED certified commercial buildings in the United States. Most commercial projects take years to develop and the market shift to “green” is clearly apparent in the number of registered LEED commercial buildings. The USGBC currently has approximately 13,500 (over 3.6 Billion Sqft.)

registered LEED commercial buildings in the pipeline or under development.⁴ The value of “green” building construction is projected to increase to \$60 billion by 2010.⁵

The costs to going “green”

There is little published data about the actual cost of “green” buildings and particularly about actual cost premiums for LEED-rated “green” buildings. The USGBC does not require that cost information be included with submissions for LEED certification. Based on market opinions and research, it is clear that the capital costs of design and construction vary significantly and depend on the specific project goals and level of certification. Current research indicates that LEED certified and Silver level certification adds 0% to 4% to the actual construction costs for a project. At the higher levels of LEED certifications (Gold and Platinum), the range of costs expands and market consensus shows 3%-15% of additional costs versus a similar conventionally built project.

“While there are some green building measures that may be achieved as a matter of course with no change in cost (e.g., recycled content structural steel), some green building features involve a change in practice that effectively moves costs from one budget to another, usually shifting costs from operation and tenant budgets to design and construction.”⁶

The cost to achieve LEED certification can depend upon a variety of factors and assumptions, including:

- Type and size of project;
- Timing of introduction of LEED as a design goal or requirement;
- Level of LEED certification desired;
- Composition and structure of the design and construction teams;
- Experience and knowledge of designers and contractors or willingness to learn;
- Process used to select LEED credits;
- Clarity of the project implementation documents;
- Base case budgeting assumptions.

Each of these factors will contribute to the overall cost of implementing LEED, and because each factor can vary significantly on a project-by-project basis, the cost of each LEED project is different. In addition, the costs will vary, depending upon whether only capital costs are considered or if costs are calculated over the life of the building.

⁴ USGBC – “Green by the Numbers” September 2008 Fact Sheet

⁵ McGraw-Hill Construction Analytics, SmartMarket Trends Report 2008

⁶ “Managing the costs of greens buildings” October 2003 – report by KEMA

Benefits of “green” buildings

Market participants in the green industry have coined the term “triple bottom line” that references the economic, environment, and social benefits of a project. In order for these benefits to contribute to market value in real estate the benefits must be monetary, exclusive, and direct to the subject property.

The economic benefits of a green building (i.e. reduced energy requirements) are easily quantifiable and thus easily measurable for stakeholders. Green economic benefits that fall to the bottom line will typically affect market value and reduce future obsolescence to the real estate. It is important to note that *some benefits may affect market value of the real estate to different degrees, but not all benefits affect market value.*⁷

Environmental and social benefits of “green” buildings include reduced storm water runoff, lower heat island effect and reduced natural resource depletion. Some environmental and social benefits may affect the market value of the real estate, but a direct benefit does not always increase the market value of real estate. For example, the ability of a green building to lower the heat island effect (urban air and surface temperatures that are higher than nearby rural areas) is an environmental and social benefit of a specific green building but it retains no direct monetary benefit to the owner. A building attribute that does not create a net monetary benefit may create obsolescence that should be recognized in a market value conclusion. Environmental and social benefits of “green” buildings are usually more difficult to measure in their overall contribution to market value and may significantly change in the future.

III. Valuation Considerations for “Green” Buildings

Basic valuation principles still hold, but one approach leads the way

The three approaches to value (income, cost, and sales) continue to be the starting point for valuing “green” buildings.

The cost approach to value can be difficult to quantify because of limited “green” cost information currently available. The market value of the real estate “in exchange” versus “in use” is the commanding requirement for local property tax codes. Green elements in specific building would have to be evaluated based on whether the market would pay a premium for the “green” components. It is important to remember that “green” buildings, constructions methods, and their components are still in their infancy and the standards are changing rapidly. Green buildings, at this stage of their lifecycle, have more exposure to the reevaluation of “green” products, high performance systems, and accreditation standards that could potentially cause significant obsolescence in relatively new “green” buildings.

⁷Appraisal Institute: An Introduction to Valuing Green Buildings – Part 1 – Pg1

-Developed by Theddi Wright Chappell, MAI and Timothy R. Lowe, MAI

At this time, the sales approach is extremely limited in its application to derive a market value conclusion. Most “green” buildings in the marketplace today have been built for company owned use or public-sector use, and may not be reliable comparables. The investment community has only recently started viewing “green” as a qualified investment vehicle for profit. As more “green” buildings attract investment dollars we should be able to develop credible market data that should assist us with establishing a market supported sales approach to value. Conversations with local real estate brokers and professionals will give a better understanding of what the market is paying for “green” real estate.

Valuation experts will have to rely heavily on the income approach to value because of limited sales data and the difficulty in applying the cost approach to derive market value. At this time, *a discounted cash flow (DCF) analysis should be the preferred methodology versus using a direct capitalization approach.* In DCF analysis, income and value changes are captured in the cash flow forecast; in direct capitalization, income and value change are reflected in the cap rate. The difficulty in developing a cap rate for “green” buildings and the lack of survey or market data make the direct cap method less reliable until the market can produce more measurable information about “green” buildings.

Conclusion

Contemporary property valuation practice fails to account for all the factors that determine the competitive position of property assets in the changing marketplace. Nonetheless, current valuation techniques do have the capacity to reflect sustainability issues, but valuation experts are left alone when forming an opinion of value for the foreseeable future. It will take years to accumulate the data necessary to empirically support a valuation experts’ decision to provide a ‘valuation bonus’ for a sustainable building or a ‘valuation reduction’ for a conventional one.⁸ Until then, valuation professionals can support a credible market value claim by developing a true understanding of what “green” is and isn’t and how the marketplace’s drive toward sustainability might affect real estate market value.

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⁸ Sustainable Property Investment & Management-Key Issues & Major Challenges by David Lorenz
