

# **BARRIERS AND BREAKTHROUGHS FOR MULTI-TENANT DEVELOPMENTS**

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## ABSTRACT

In owner-occupied facilities, it is easy to justify the incorporation of high-performance building features because commonly recognized hard and soft benefits (cost savings, productivity gains, improved occupant health, etc.) are directly recovered by the investment entity. Developers or owners of multi-tenant office buildings and retail developments, on the other hand, encounter both perceived and real barriers that often prevent the inclusion of high-performance, climactic responsive features in new or retrofit projects. Good design, proper lease formulations, market education and intelligent operation will help overcome these barriers and allow the benefits of high-performance buildings to be realized and shared amongst various stakeholders.

Successful “green” relationships are not merely legal engagements; they require a new perspective and the integration of the project design, analysis, marketing, and measurement and verification processes. Investments and savings must be quantifiable and qualified by both owner and tenant. Both owner and tenant should receive triple bottom line incentives (environmental, financial and social) to create and operate high-performance spaces.

Ultimately, developers of high-performance buildings will garner higher rents while tenants will pay less in total occupancy costs for better spaces – a win-win approach to reducing the negative environmental impact of multi-tenant buildings.

## 1. INTRODUCTION

### 1.1 Moving Beyond the Status Quo

The rapidly growing green building movement has evolved to tackle the challenges of climate change and resource scarcity by re-envisioning the built environment. Buildings (in both construction and operation) emit over 38 percent of total U.S. CO<sub>2</sub> emissions<sup>1</sup> and use 70 percent of the nations electricity,<sup>2</sup> making them a key contributor to global warming.

Thus far, government-, institution-, and corporate-owned and operated buildings have led the movement while commercial multi-tenant office and retail facilities have been slow to follow. Although there are structural hurdles generated by existing leasing structures, the industry’s misperception of the processes to realize the benefits of high-performance multi-tenant spaces is the primary reason for the lack of multi-tenant high performance buildings.

This paper analyzes current industry practice and the perceived hurdles that this practice generates. Subsequently, key financial benefits of high-performance multi-tenant buildings are presented. Lastly, a selection of structural solutions that distribute these financial benefits to tenants and owners so as to accelerate the adoption of high-performance building in the multi-tenant industry is provided.

## 2. CURRENT INDUSTRY PRACTICE

### 2.1 Net and Gross Leases

Net leases, in which the tenant pays for operating costs including energy use directly, have grown in popularity since the energy crisis of the 1970's and now represent at least \$20 billion per year, a majority of the U.S. leasing market<sup>3</sup>. Gross leases, in which operating costs, including utility costs, are included in the total rent amount paid to the building owner, have decreased as building owners want to reduce their liability against rising energy costs.

At first glance, net leases seem to incentivize the tenant to pay more attention to energy-efficiency during a tenant improvement (TI) project, as the tenant directly recovers any investments in efficiency over their lease term. Alternatively, gross leases would appear to incentivize the building owner to invest in efficiency, as any savings in this instance accrue back to the owner.

Yet, in reality, as most gross leases “true-up” operating costs annually over the base year, there is less difference between net and gross leases than most acknowledge, and the financial benefits associated with energy and water efficiency affect both parties.

### 2.2 A New Paradigm

Opportunities exist for both owners and tenants to reduce operating expenses through high-performance building – regardless of lease structure. As shown in Table 1 and

Table 2 below, benefits can accrue to both parties regardless of net or gross lease structures. The end goal in either arrangement is to ensure building owners realize higher net operating incomes (NOI) and return on investments (ROI) than they would in a “typical” or business-as-usual building, while tenants reduce their total cost of occupancy (TOC).

The “High-Performance Building” and “Win-Win High-Performance Building” scenarios both assume the building was constructed using an integrated design process to whole system solutions, which does not typically result in capital cost increases for high-performance or LEED-rated buildings. The integrated design process captures synergies from various high-performance investments to “tunnel through the cost barrier” to larger energy savings with no increase in capital investment or even a capital savings.

In the tables below, the “High-Performance Building” and “Win-Win High-Performance Building” scenarios both required \$1000 per square foot of initial investment – the same required to acquire or build the “Typical Building.” At the same time, they require only \$8 per square foot per year to operate – less than the “Typical Green Building.” Therefore, both have a higher NOI and ROI than both the “Typical Building” and the “Typical Green Building.” However, the “Win-Win” building, in which the savings are shared between the owner and tenant, provides the largest incentive for *both* owners *and* tenants to invest in and occupy high-performance buildings.

**TABLE 1: NET LEASE BENEFITS**

Note: Numeric values are fictitious and are not intended to reflect a current U.S. market. Instead values are intended to be compared across the leasing scenarios presented.

	Typical Building	Typical Green Building	High-Performance Building	Win-Win High-Performance Building
	(per sq. ft./yr)	(per sq. ft./yr)	(per sq. ft./yr)	(per sq. ft./yr)
Tenant Base Rent	\$100	\$102	\$106	\$104
Tenant Operating Expenses	\$15	\$12	\$8	\$8
Tenant Total Cost of Occupancy	\$115	\$114	\$114	\$112
Owner NOI	\$100	\$102	\$106	\$104
Owner Investment	\$1000	\$1020	\$1000	\$1000
Owner ROI	10%	10%	10.6%	10.4%

TABLE 2: GROSS LEASE BENEFITS

	Typical Building	Typical Green Building	High-Performance Building	Win-Win High-Performance Building
	(per sq. ft./yr)	(per sq. ft./yr)	(per sq. ft./yr)	(per sq. ft./yr)
Tenant Total Cost of Occupancy	\$115	\$114	\$114	\$112
Owner Operating Expenses	\$15	\$12	\$8	\$8
Owner NOI	\$100	\$102	\$106	\$104
Owner Investment	\$1000	\$1020	\$1000	\$1000
Owner ROI	10%	10%	10.6%	10.4%

Both tables demonstrate generalized examples of how high-performance buildings reduce the total cost of occupancy for tenants while increasing the net operating income and return on investment for the building owner. Note that the bottom three rows are identical in both tables demonstrating that the financial benefits of high-performance multi-tenant buildings are largely independent of the type of lease – net or gross.

2.3 Current “Green” Leasing

High-performance buildings, those that dramatically reduce energy and water consumption while improving indoor environmental quality, are transforming current real estate industry practice. A 2007 CoStar report confirms that buildings with the Energy Star label garner higher rents than non-Energy Star labeled buildings of the same age and type.<sup>4</sup> In addition, a 2007 study from CoreNet and Jones Lang LaSalle confirms that the majority (79 percent) of real estate executives believe sustainability is an important business issue now or in the next two years.<sup>5</sup> Therefore, the demand for high-performance buildings is increasing, yet the process for creating and marketing them is far from optimized.

The architecture and engineering fields have been fastest to fully understand the benefits of high-performance buildings, while service providers (lenders, appraisers, developers, lawyers, etc.) and internal departments (finance, marketing, human resources, corporate real estate, etc.) are often only beginning to understand and realize these benefits. To achieve widespread adoption of high-performance construction and whole-building energy-efficiency retrofits, *all* entities involved in the multi-tenant industry must understand the intent and real financial advantages of high-performance buildings – and, these benefits must be presented in a language that makes sense for each entity.

Rather than an integrated approach to high-performance building, most current attempts to convey the benefits of high-performance building in marketing documents or legal frameworks include:

- Recommendations for maximum lighting power density or plug load intensity
- Recommendations for minimum efficiency (Energy Efficiency Ratings) for tenant-installed HVAC equipment
- Support for tenants pursuing LEED for Commercial Interiors or other green rating systems
- References to green cleaning practices
- Recommendations for waste management and recycling programs (mandatory in some cities)

These individualized attempts lead to little benefit over regular building leases, because few requirements are mandatory and few tenants recognize the benefits of adhering to the guidelines or understand how to meet the guidelines without sacrificing quality.

3. PERCEIVED HURDLES TO MAXIMIZING PROFIT FROM HIGH-PERFORMANCE BUILDING

There are many perceived hurdles to creating high-performance multi-tenant office or retail buildings. Without addressing these hurdles, creating a successful “green” relationship is not possible. Challenges are evident during planning and design, marketing and lease-up, tenant build-out, and continued operations and follow this structure below.

The primary perceived hurdle in greening multi tenant buildings is the split between the initial construction costs shouldered by the developer, the operational costs shouldered by the tenant, and the management costs shouldered by the landlord (which in some cases is the developer). Three different entities with three different goals and three different areas of responsibility is a difficult challenge to reconcile.

3.1 Planning and Design

There are many decisions made during the planning and design process that can limit the future efficiency of the

building. Many of these hurdles are also present in owner-occupied facilities.

First off, missed opportunities abound when building owners give inadequate consideration to whole system integration and optimization. Most buildings constructed or retrofitted today are designed by optimizing individual components on a first cost basis without considering the impacts to other systems within the building or the long term operating costs. This design mentality often results in increased capital costs for green measures and increased operating costs for both base building systems and tenant systems.

Secondly, on the tenant build-out side, more is not necessarily equivalent to better. For instance, because of overly conservative estimates of and misconceptions about tenant utility demands, tenants have become trained to demand the highest possible resource allowances in lease documents. Frequently this desire for limitless resource consumption eclipses an emphasis on the quality of services provided or efficiency of equipment. In the example of lighting, systems demanded by tenants that consume a large number of watts per square foot frequently fail to create a comfortable visual environment, while more energy efficient systems achieve superior lighting performance. Unbeknownst to these tenants, they are sacrificing indoor environmental quality and increasing their operating costs in addition to increasing the building owner's construction, operating, and maintenance costs. By educating both parties as well as creating payment structures that reward efficiency, the trend of demanding more energy in multi-tenant buildings can be refocused to improved quality.

Thirdly, and perhaps the most critical success factor, is end use sub-metering. All too often, resource use in multi-tenant buildings (energy, water...) is not calculated per individual tenant but on a square foot basis. Taking care to envision early on in the design process how the owner will meter, verify, and charge tenants for energy and water use are critical elements towards creating a successful green lease.

### 3.2 Marketing and Lease-up

Building owners are in the business of leasing space and do not want to place requirements upon prospective tenants that may lose them business. Similarly, tenants pay building owners for space under the assumption they can fit it to their needs without overbearing constraints. Tenants do not like mandatory requirements and owners do not like to specify them.

In the business-as-usual model, however, incentives (i.e. payment for resources consumed) are not aligned, thus owners and tenants do not often realize the financial benefits

of high-performance building. Once financial benefits are aligned, mandatory measures can be avoided.

### 3.3 Tenant Build-Out

Building tenants range from small educational non-profits, to tour-guide companies, to travel agents, to Fortune 500 corporations, to title companies, to Wall Street investors. Few of these tenants have the in-house capability to recognize the benefits of integrated design, such as the savings that interior glazing or motion sensors at every workstation that shut off unused lighting and equipment would generate. Conversely, tenants often aren't informed enough to request improved base building efficiencies from their landlord. Without the ability to evaluate the financial benefits of green TI strategies, the tenants often do not have the 'know-how' to determine what the biggest opportunities are.

Almost always, the tenants' primary concern in fitting out and moving into a new space is time. Most tenant improvements are evaluated hastily, if at all, and need to be executed in a very short timeframe. Therefore, decisions are usually made with time as the primary concern, budget as a close second, and environmental performance as an afterthought.

Lastly, tenants can be confused with the lingo of high-performance building (and rightfully so). "Near net zero" . . . "green" . . . "high-performance" . . . "energy costs reduced by 45 percent" . . . "energy use reduced by 45 percent" . . . "healthier". "What do those claims really mean?" "How much is it going to cost?" and "How long is it going to take?" are common questions that often don't get answered. And, in the haste of the project, poorly understood goals translate to savings left on the table.

### 3.4 Continued Operations/Tenant Turnover

Upgrading existing multi-tenant buildings over time is challenging as numerous hurdles disincentivize integrated design.

The typical mode of operation for buildings is 'if it 'aint broke, don't fix it'. Therefore, retrofits usually occur when something does break forcing a quick solution to avoid unhappy tenants and ugly consequences. This scenario doesn't leave much room for evaluating options based on long-term whole-building performance, just short-term cost and availability.

The majority of building owners approach building retrofits by calculating cost savings for each efficiency or high-performance measure individually, typically rejecting items with paybacks greater than 3-5 years. This tunnel-vision

approach doesn't reflect the impacts certain measures will have on other building systems. For instance, an efficient electric lighting system (single lamp T-5HO compared to triple lamp T-8's) will result in less heat gain in the space and less required capacity for cooling and lower operating costs, in addition to reduced maintenance. The reduced impact on the peak operation of the cooling system and on maintenance costs is typically not factored into the 3-5 year payback.

Timing can also be a challenge in existing buildings. Once the building is leased up, each tenant has different lease durations and the start and end times rarely coincide with one another. This makes whole-building upgrades (e.g. window replacements) *operationally* challenging, as it is difficult to avoid disruptions to tenants. Additionally, building owners are reluctant to investigate whole-building retrofits as they frequently feel unable to recover the costs of the upgrades since operating costs are shouldered by the tenants, not the landlords (in the net lease scenario). This situation makes whole-building retrofits *financially* and *operationally* challenging.

#### 4. MOVING BEYOND THE HURDLES: UNDERSTANDING THE VALUE OF HIGH- PERFORMANCE BUILDING

The hurdles listed above are not barriers to implementation but rather challenges that can be overcome. In order to move the multi-tenant building industry towards a more sustainable and profitable future, it is important for all parties, from brokers to facility managers to owners, to have a clear understanding of how the benefits of high-performance building impact *their* bottom line and *their* typical processes. Gains in marketability, productivity, and the resulting increase in building value are the most compelling reasons for developers to construct high-performance multi-tenant buildings. These gains are created because the value of work that is conducted within a building far outstrips the cost of operating the building and even the value of the building itself. For this reason, the following section focuses on the value of high-performance building for all parties.

##### *Marketability*

Large developer/owner costs and risks are associated with vacancy and high-performance buildings decrease those costs and risks. CoStar reports indicate that Energy Star labeled buildings have about 1.8 percent higher occupancy rates than non-Energy Star labeled buildings of the same age and type.<sup>4</sup> This increase in demand for high-performance buildings represented by faster lease-up and higher occupancy rates is a result of better overall building quality, increased energy efficiency, and improved occupant health

and productivity, explains the prominent developer Gerald Heinz.<sup>6</sup> Not only are high-performance buildings in higher demand than standard buildings, well-designed or "cool" buildings that are also green, create a value that is larger than either "cool" or green alone (i.e. 1+1=2+) and create a product that sells quicker in a competitive marketplace.

##### *Owner Liability*

High-performance building also decreases owner liability and the risk of building obsolescence. High-performance buildings protect owners from future liabilities associated with toxic building products. Additionally, as energy costs rise, high-performance buildings will become more and more attractive due to their reduced energy requirements. Increasingly high-performance building and LEED rating is being embraced by owners and demanded by tenants. Therefore, non-green buildings will be in lower demand and will lose out in the competitive marketplace.

##### *Productivity Gains*

High-performance buildings increase the accuracy, quality, and speed with which work is completed. Additionally, worker absenteeism is decreased and retention is increased in high-performance buildings. Studies of quantifiable work tasks show that high-performance buildings produce a 5 to 16 percent gain in worker productivity.<sup>7</sup> Energy, ventilation, thermal comfort, and lighting improvements at electronic payment technology provider VeriFone, not only produced the above mentioned productivity gains, but also cut absenteeism by 40 percent.<sup>8</sup> Daylighting interior spaces (a key component of high-performance buildings) has also been shown to increase retail sales by as much as 40 percent.<sup>9</sup> These increases, while impressive on their own, are especially significant when one realizes that even a small gain in productivity or retail sales equals the entire utility cost of a building.

##### *Competitive Advantage*

These gains in productivity, accuracy, and absenteeism create a significant savings as well as a powerful competitive advantage. Many companies see a commitment to the environment as a key component to recruiting and retaining young talent.<sup>10</sup> For these reasons, many large corporations, such as Boeing, Lockheed, Wal-Mart, and Google, are adopting high-performance building strategies, primarily because of the competitive advantage it leverages.<sup>11</sup>

#### 5. COMMUNICATING THE VALUE OF HIGH- PERFORMANCE BUILDING

In addition to internally recognizing the benefits above, it is important to outwardly express the benefits to transform the industry. Communicating the value of high-performance

buildings is a critical success factor and case studies of the most successful high-performance multi-tenant buildings cite *education* as a key to their success.<sup>12</sup>

#### *Market the Costs and Benefits*

Tenants, owners, or developers discussing productivity gains, operational cost savings, market advantage, liability, and risk of obsolescence will be powerful tools to drive a high-performance building project. Building analysis data to support these claims are important validation in today's market. Documenting the project and tracking any extra "green" costs can also help make the case for the next high-performance building project a developer may undertake.

Buildings that will be triple-net leased it is critical that buildings are marketed using a "total cost" framework. Tenants must understand that decreased operational costs will make up for and exceed increased base rent. With an integrated design where high-performance building strategies generated neutral cost or a capital cost savings, an owner can charge a market-rate base rent and use a "total cost" savings framework as a competitive marketing advantage.

#### *Green your own office first*

A first-hand experience is the most compelling tool available to humankind. For example, show how comfortable efficient lighting can be in your own office where you negotiate the lease/building retrofit/financing.

### 6. SOLUTIONS THAT MAXIMIZE THE FINANCIAL BENEFITS OF HIGH-PERFORMANCE MULTI-TENANT BUILDING

As described in Sections 3 and 4, after the lack of complete understanding of the benefits of high-performance building, the primary hurdle to the adoption of high-performance building in the multi-tenant sector is fracture of responsibilities, costs, and benefits promoted under current leasing practices. Cost-effective high-performance buildings require a collaborative approach to deconstruct the dynamic where tenants' and owners' interests are perceived to be opposed. As an example, a given building owner may capture all savings created by a high-performance building feature, thus increasing their NOI. A second building owner passes some savings on to the tenants, also increasing that owner's NOI, but not as substantially as the first owner. However, in so doing, the second owner initiates a better relationship with tenants that leads to the ability to conduct additional (potentially slightly obtrusive) high-performance upgrades that have even larger savings. These shared savings and stronger business relationships also attract tenants faster and retain them longer, increasing occupancy rates. In this example, both owners increase their NOI in the

short term, but the second owner wins out in the long term because of strengthened business relationships. High-performance building makes good business sense in both the short and long term, but a *collaborative* green leasing process will yield the largest gains.

The benefits detailed in Section 4 make a strong case for high-performance multi-tenant buildings, regardless of the leasing mechanisms. There are, however, a number of strategies that either modify or work within current leasing practices that help facilitate those benefits and generate additional financial benefits. These strategies have been broken out into 4 main categories:

1. Optimized process methodology
2. Planning and design
3. Leasing, TI, and operation
4. Overarching opportunities

#### 6.1 Optimized process methodology

When considering constructing, leasing, and operating a high-performance building, keep these 4 essential process elements in mind:

1. Integrated Design: Use Integrated design and analysis to maximize performance and reduce costs
2. Smart Analysis: Use appropriate types of cost analyses that tell the story in a variety of ways to make the case to tenants . . . this requires developers/owners to thoroughly understand what they are building and how they can sell it
3. Aligned Leasing: Design appropriate lease structures that create incentives for both parties (owner/landlord) to save money through efficient design, construction, and operations
4. Distribute Results: Document and distribute the results for greater market penetration. Share the plan, program, and findings with the market.

#### 6.2 Opportunities during planning and design

##### *Tenant system feedback/"right-size" building systems*

During the initial design of the building, developers often plan for the worst-case scenario when future tenants are unknown (e.g. assuming tenants will require 8W/sq. ft. of electrical power). This mentality translates to expensive, oversized mechanical systems and an inability to realize capital savings from base building efficiency investments. Instead, owners should plan for tenant efficiency while allowing for system expansion through a tenant (in)efficiency up-charge. For instance, a building may require 300 tons of cooling under typical design and operating conditions, but only 250 under efficient design and operation. Therefore the developer should only install 250 tons of cooling capacity. If additional capacity is

needed (if a tenant installs inefficient lighting against developer recommendations), those tenants will be responsible for funding the additional capacity their inefficiency requires. The result is that owners will be able to offer a more cost-competitive product to most tenants, while tenants who refuse to embrace efficiency measures can continue their practices but are charged for necessary system expansion during the TI process.

#### *Tenant Upgrades to Base Building*

When tenants sign net leases or when a retrofit is scheduled, the tenant is presented with "Green Options" – upgrades to the base building that include first cost and estimated operating savings (which accrue to the tenant). The first costs could be paid either upfront by the tenant or financed by the owner. This mechanism allows for tenants to choose to reduce their operating expenses through an upfront investment. Any additional savings (once the initial cost is recovered) accrue to the tenant.

### 6.3 Opportunities during leasing, TI, and operation

#### *Green Tenant Criteria, Guidelines, Lease Terms and/or Lease Rider*

Providing information and resources in the tenant criteria manual regarding the opportunities for incorporating sustainable strategies will help tenants to better understand and take advantage of these opportunities. Tenant sustainability criteria could be in the form of prescriptive or performance-based criteria and should also include information about the mission of the project and green features incorporated into the base building that may easily accommodate tenant desires to be green. Although some developers are weary to make strong demands of their tenants, many tenants are increasingly demanding high-performance buildings. Leases should contain at least modest requirements including use of compact fluorescent bulbs, allowable temperature ranges, and use of low VOC building and cleaning products. Additionally, the lease should allow pass-throughs of efficiency improvements without reopening leasing negotiations for improvements for which savings generated are larger than amortized cost (see below).

#### *Tenant to Tenant Cost Pass-Through Clause*

Under this language, lease terms would create a mechanism for costs associated with cost amortization periods longer than tenant lease terms to be distributed between tenants over time. For example, if the owner has financed a building upgrade and is passing the cost of the upgrade through to the tenant on an amortized basis, then upon tenant turn-over, the new tenant would assume the remaining costs under the same amortization schedule. If the tenant directly funds an improvement that is either part of base building (such as a skylight) or will be re-used by a new tenant (such as an

upgraded HVAC system), then the owner would agree to reimburse the unamortized costs of the tenant's upgrade. The owner would then pass the remaining cost of the upgrade on to the next tenant amortized through their additional rent. If a tenant wishes to make an improvement under this arrangement, it would require the cooperation of the owner.

#### *Include Whole-Building Retrofits in Lease*

In both new and existing buildings, it is important to include language in the lease to allow for whole-building retrofits, including provisions providing for temporary occupancy of the tenant space. These terms should allow for both the owner's desire to conduct retrofits in a timely and cost-effective manner and tenants' desires to continue occupying their spaces without undue interruptions and inconveniences. Both parties' interests can be accommodated through good project scheduling. Even complex hospital facilities, which operate 24 hours per day, have been successfully retrofitted without suspending medical treatment.

#### *Tiered Utility Schedule for Non-submetered Buildings*

If the owner cannot sub-meter a net leased building, tenant energy use should be charged on a tiered schedule based on either energy model results or a prescriptive measure checklist. For example, tenants could be presented with 20 different energy saving measures and would be charge a different per square foot rate based on how many measures they implement in space.

### 6.4 Opportunities for Existing Buildings

#### *Tenant Retrofit Opportunities*

Each climate and building type has a unique recipe for retrofit opportunities that make financial sense. As a landlord, create a retrofit opportunity document for tenants that identifies projects that would likely make sense even with short lease terms, such as lighting upgrades, simple low flow fixture retrofits, etc. This document could also include other "green" opportunities such as owner/ESCO financing or volume purchasing programs.

### 6.5 Overarching opportunities

The following are some strategies that can be applied at any point of the tenant engagement, from the construction of a new building through operation.

#### *Volume Purchasing Programs*

The owner negotiates discounted contract rates for sustainable goods and services and promotes them to the tenants. By combining multiple tenants' needs, the owner becomes a more powerful market agent with larger buying power. This could be used for services ranging from

sustainability reviews of the tenant fit-out, to green cleaning, to purchasing of products such as occupancy sensors, waterless urinals, and sustainable furniture.

#### *Owner and/or ESCO Financing*

Under this model, the owner could either act as or hire an outside Energy Service Company (ESCO) for building retrofits. An ESCO is an organization that finances and installs operational upgrades on an amortized schedule based on the upgrades' useful life. Cost pass-through is limited to projected or measured operational savings enjoyed by the tenant. Pass-through costs should be tied to the space, not to the tenant to bridge between short-term leases. In new buildings the owner/ESCO finances green features in new construction by adding a premium to additional rent less than or equal to the decrease in operational costs created by the addition of high-performance/energy saving features.

#### *Green Branding*

This platform provides an additional incentive to tenants through recognition of their commitment to green. Green branding is ideal in a competitive retail environment and could be as simple as adding a special emblem aside the name of the retailer for executing certain green measures. Additional recognition could be provided through outreach brochures, online information and onsite directories. Another option to encourage tenant adoption while increasing marketability would be for the owner to cover the cost for LEED CI registration fees (approximately \$500).

## 7. CONCLUSION

The primary perceived hurdle (although not an impassable barrier) to the adoption of high-performance building in the multi-tenant sector is fracture of responsibilities, costs, and benefits under current leasing practices. However, through an integrated design approach, industry education, refined lease structures and operational procedures, and a variety of other innovative methodologies the multi-tenant leasing market will become a mechanism that sustainably supports generations to come while improving the triple bottom line. This transformation will be catalyzed as tenants, owners, and investors fully value the benefits of high-performance building from decreased operational costs to increased worker productivity.

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