

Sustainability in Commercial Office Buildings

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Sustainability in the construction of commercial structures has been expanding through the recent years, largely in part due to the increasing ambitions to maintain a green and healthy planet. Regulations for including sustainable features in new or renovated commercial buildings have been growing throughout the country. In fact, many prospective buyers and lessees are even adding sustainable features to the list of what they look for in a potential place to buy or rent. This report will explore whether or not a building's sustainable aspects appeal to buyers and lessees of commercial buildings, and if these sustainable aspects contribute to the leasing/purchasing of that building. There is currently not much available research that analyzes what buyers and lessees truly care about when deciding to buy and lease a commercial building. Through conducting a survey and receiving responses from both tenants and potential tenants of office buildings in San Luis Obispo, CA, it was determined how essential it is to construct environmentally sustainable structures in order to understand market trends in the commercial sector concerning sustainable design and construction.

Key Words: Sustainability, Real Estate, Construction, Leasing, Commercial

Introduction

Sustainability in construction is incredibly essential, as construction is one of the top industries contributing to pollution, climate change, and the depletion of natural resources on our planet. This problem has become an increasingly pressing issue in our industry, and potential lessees and buyers are becoming more and more aware of the importance in constructing sustainable buildings.

The construction industry accounts for 38% of carbon dioxide emissions in the world (Environment Journal). Clearly, this percentage is alarmingly high; the construction industry is one of the world's leading industries in terms of carbon dioxide emissions. Due to such high emission rates, construction companies have decided to turn the page and begin to build more sustainable, environmentally friendly buildings rather than normal, conventional buildings that have led to such high carbon emission rates. Not only are construction companies deciding to build more sustainable buildings, but many organizations are beginning to push for more environmentally friendly structures.

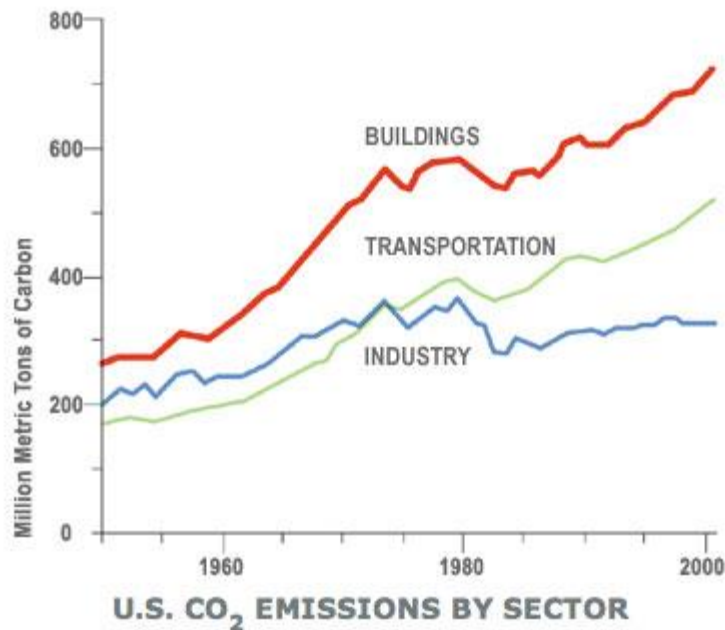


Figure 1 – U.S. CO₂ Emissions by Sector From 1950-2000
 Source: EPA

LEED Certifications

LEED (Leadership in Energy and Environmental Design) is just one of the many organizations that was created to maximize both efficiency and sustainability in construction. LEED works by having different levels of certification – based on how sustainable a building is, the building will receive a score and be recognized as either certified, silver, gold, or platinum certified. Constructing a building that is sustainable enough to be LEED certified is highly beneficial, especially due to the cost effective savings that comes along with building sustainably. For instance, LEED certified buildings brought in \$1.2 billion in energy savings, \$149.5 million in water savings, \$715.3 million in maintenance savings, and \$54.2 million in waste savings between the years of 2015-2018 (USGBC). Clearly, building sustainably is not only healthy for the environment, but it is highly lucrative as well – something buyers and lessees around the world are becoming increasingly aware of.

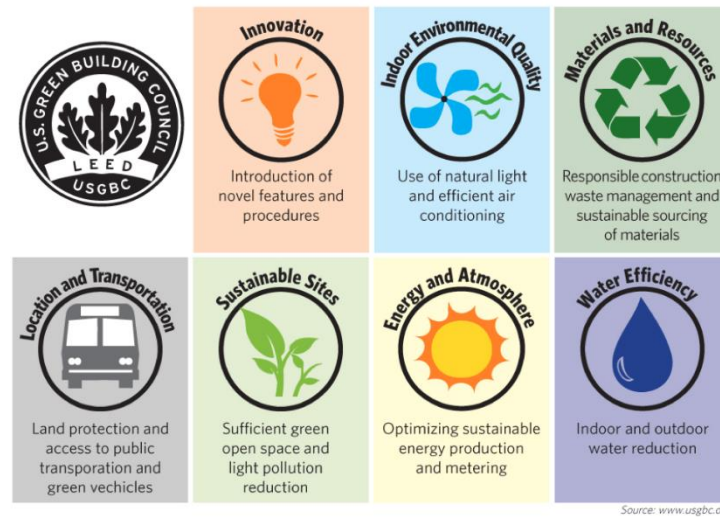


Figure 2 – LEED Categories
Source: Western Disposal Services

Sustainable Systems

Integrating environmentally friendly and sustainable practices in the construction of new buildings will lower the carbon footprint being imposed on our planet, and this is something potential lessees are becoming increasingly aware of. In fact, people around the world are beginning to view carbon emissions and climate change as a huge issue. According to Pew Research, majorities in most surveyed countries say global climate change is a major threat to their nation. For better perspective, 68% of people around the world today believe climate change and the overconsumption of energy is a major threat for our planet (Pew Research). The environmental awareness of people around the world is increasing, and so are their ideas about how we can create a greener, healthier planet, such as building more sustainably.

There are countless ways in which a building can be improved in terms of sustainability, such as sight design, low impact development, sustainable water features, minimizing impervious areas, and LED lighting (LEED Core). With the combination of society's awareness of the environmental impacts construction has on our planet and the increasing number of ways we are finding to build sustainably, there is a growing need and desire for sustainable buildings among potential buyers and lessees. Examples of sustainable systems in commercial structures include:

- Green space – an area of grass, trees, or other vegetation set apart for recreational or aesthetic purposes in an otherwise urban environment
- Water efficient fixtures
- Solar panels
- Cross-laminated timber – a wood panel product made from gluing together layers of solid-sawn lumber, i.e., lumber cut from a single log
- Green roof – roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane
- Greywater plumbing systems
- Electrochromic glass – eliminates the need for shades and other window treatments, while adapting to current conditions passively

Methodology

The methodology chosen for this study was conducting a quantitative survey in order to gather the necessary data in determining how aware lessees are of sustainability in construction, as well as how much lessees take sustainability in account versus location, cost, aesthetic appeal, etc. when looking to rent out an office space. 30 lessees (or potential lessees) of office buildings in the San Luis Obispo area were asked what attracted them to these buildings – whether it be cost, location, sustainability, etc. A survey was distributed to an email list of construction professionals within various sectors...

Sustainability in construction has advantages such as:

- Energy efficiency.
 - Water efficiency
 - Materials efficiency
 - Indoor environmental quality enhancement
 - Waste reduction
1. Please rank in order the aspects of a property that may make you want to lease it for business.
 - Location
 - Sustainability (Environmentally)
 - Cost
 - Aesthetic Appeal
 2. On a scale of 1-5, how important is it for you to rent a property that contains environmentally sustainable materials and systems?
 3. Would you prefer to work in a building that has been certified by a third-party environmental organization (i.e. LEED Certified)?
 4. Do you think your business would attract more customers/clients while working out of a building with sustainable features?
 5. On a scale of 1-5, how important do you think the construction of environmentally sustainable office buildings is for our future?
 6. On a scale of 1-5, how important do you think an environmentally sustainable office buildings is for the future of your business industry?

Results Via Survey

This survey data was obtained from 30 respondents throughout the greater San Luis Obispo area. The information collected from this survey will be analyzed following the data shown:

- 1. Are you currently leasing a commercial office space for your business? If not, please answer the following questions as if you were looking for a space to lease for your business.**

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 Insights

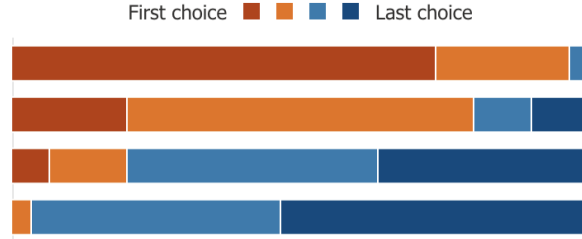


- 2. Please rank in order the aspects of a property that may make you want to lease it for business. (Use arrows on the right)**

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Rank Options

1	Location
2	Cost
3	Sustainability (Environmentally)
4	Aesthetic Appeal



- 3. On a scale of 1-5, how important is it for you to rent a property that contains environmentally sustainable materials and systems?**

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 Insights

30
Responses

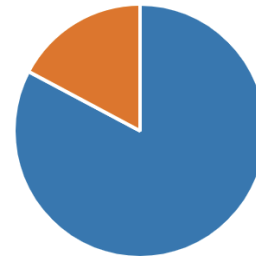
3.5
Average Number

4. Would you prefer to work in a building that has been certified by a third-party environmental organization (i.e. LEED Certified)?

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 Insights

 Yes	24
 No	5



5. On a scale of 1-5, how important do you think the construction of environmentally sustainable office buildings is for our future?

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 Insights

30

Responses

4.37

Average Number

6. On a scale of 1-5, how important do you think an environmentally sustainable office building is for the future of your business industry?

[More Details](#)

 Insights

30

Responses

4.27

Average Number

Analysis

Exactly half of this survey's respondents are currently leasing a commercial office space for business, and the other half are looking for a space to lease for their business. When it came down to which aspects of a property made one want to lease it for a business, the most essential facet was location, then cost, then sustainability, and finally, aesthetic appeal. Of course, location and cost are incredibly important when deciding where one prefers to work. However, the immense bias towards cost rather than sustainability portrays then when it comes down to it, people care far more about their money than the sustainability of the building they are working in. Since the topic of sustainability in construction is still somewhat new and on the rise, awareness of sustainable construction among the average person in San Luis Obispo may still need to increase in order for people to prefer sustainability over cost, as long as the cost is not overbearing.

When it came to how much people valued renting a property that contained environmentally sustainable materials and systems, the average answer was just about moderate (3.5/5). In other words, people are generally indifferent on whether they want to work in an environmentally sustainable building. However, when asked if they would prefer to work in a building that has been certified by a third-party environmental organization (i.e. LEED certified), 24 out of the 30 respondents said yes. Although the respondents of this survey would not necessarily go out of their way to work in an environmentally sustainable building (as seen in question #3), they would still prefer to work in one if given the opportunity. When asked how important they think the construction of environmentally sustainable office buildings is for our future, the survey's respondents showed they believe constructing environmentally sustainable

office buildings in the future is incredibly important. This is interesting, because although these people believe the construction of sustainable buildings is important for our future, they would still prefer to work in buildings that are better suited for their location and cost.

Lastly, when asked how important they think environmentally sustainable office buildings are for the future of their business industry, this survey's respondents' feedback showed that they believe environmentally sustainable office buildings are essential for the future of their respective businesses. Overall, although people's top priorities in deciding an office building to work in are location and cost, they are still aware of the importance in constructing and maintaining environmentally sustainable office buildings for our future.

Conclusion

With environmental awareness becoming increasingly prevalent among society throughout recent years, conscientiousness of sustainability in buildings is on the rise. Many organizations such as LEED are being created and are pushing for more sustainable practices in the construction of new structures, and states across the country are enacting policies and building codes to ensure these sustainable practices. Commercial buildings account for an immensely significant portion of greenhouse gas emissions, and building sustainably will help decrease these emissions, ultimately giving us the opportunity to have a greener and healthier planet. If we continue to increase the awareness of sustainable building practices among the average person, then we will be set for establishing a new norm for office spaces – one in which environmentally sustainable workspaces are accessible for all.

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