

Green Leases and Green Leasing in Theory and in Practice:

A State of the Art Review

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Abstract

Purpose of this Paper: This paper intends to identify the state of the art in Green Leases and Green Leasing in theory and practice, whilst also identifying how the roles and motivations of the stakeholders of 'Owner/Landlord', 'Lessee' and 'Facilities Management' are different in a building that employs Green Leasing and Green Leases, as opposed to one without.

Design/ Methodology/ Approach: Through existing literature and existing case studies from 1995 to the present day, this paper will identify the state of the art of Green Leases and Green Leasing, and the extent to which literature based discussions have played out in their practical application in the real estate sector. The roles of key stakeholders will be analysed and then compared to the interactions and roles identified in a theoretical model that describes the same stakeholders, but from a more traditional stakeholder perspective. This will be achieved through using literature from journal papers mostly from the disciplines of the built environment, facilities management, finance, investment, law, management and real estate.

Findings: The literature and case studies found in literature demonstrate a gradual move towards advancing Green Lease adoption and development. Whilst the roles of key stakeholders do see a change in Green Leased buildings in terms of for example, changing competencies for Facilities Managers (FM's) and more user engagement with their buildings sustainability, the literature indicated most of the changes are realised through a strengthening of existing interactions already evident in buildings without a Green Lease or Green Leasing.

Research implications: This paper provides a state of the art review on the development of Green Leasing and Green leases in theory and practice from a stakeholder perspective. It provides possibility to expand further on the changing roles of these stakeholders in Green buildings, which in turn could also positively affect the further development of Green Leases themselves, as well as sustainable certification methodologies such as Europe's leading certification 'Building Research Establishment Environmental Assessment Method' (BREEAM).

Keywords: Sustainable development, green leasing, green buildings, commercial offices, sustainable facilities and services, sustainable buildings

1. Introduction

With an increasing global trend focusing on sustainable development in the context of the built environment, focus and attention inevitably goes beyond issues that are dealt with exclusively by architecture and city planning. The user of the built environment is also a vital consideration when it comes to a more holistic understanding of sustainable development, with this consideration also being true of commercial or publically owned rental offices, where the behaviour of their tenants have a significant impact on developing a sustainable built environment which in turn impact the

environmental expectations of these tenants (Eichholtz et al., 2009, p.1). There are numerous approaches being undertaken by various stakeholders that endeavour to inform and influence positive green and sustainable behaviour and decision making within rental offices. Green certification methodologies are one example of this. Certifications such as the United Kingdom (UK) founded but globally franchised 'Building Research Establishment Environmental Assessment Method (BREEAM)', and the United States (US) developed Leadership in Environmental Design (LEED) have sought to holistically cover many sectors concerning the sustainable built environment from the architectural design needs and requirements of green buildings, to its operational phase, later decommissioning and possible reuse. In terms of initiatives aimed at improving the sustainability of the built environment, so called 'Green Leases' are an emerging trend aimed at taking sustainable development directly into the language of leasing agreements of rental properties, sometimes with clauses as significant in obligation as those of rent and the payment of utilities. Due to comparatively recent establishment of Green Leases being used as a term in the past decade and lack of widespread adoption at the present moment, 'pinning down' a more universally accepted definition of the term currently eludes both academia and practice.

The aim of this paper is to investigate the current state of the art in Green Lease research in commercial rental offices, structured around a theoretical framework aimed at illustrating the forms of interaction that take place between the key stakeholders in rental offices in relation to their lease and building. The model pinning the theoretical framework consists of the stakeholders of 'Owner/ Landlord', 'Lessee', 'User', and 'FM' and their relationship with the non-agency actors of their 'building' and associated lease. Data for this paper is sourced from relevant academic literature from books and journals from the fields of the built environment, facilities management, finance, investment, law, management and real estate along with relevant and substantial case studies from existing academic and practice literature.

The overall objective of the paper is to answer the following research question in the form of an extensive review of theoretical and case study literature:

To what extent do the roles and motivations of the key stakeholders of 'Owner/ Landlord', 'Lessee' and 'Facilities Management' in Green Leased commercial and public rental offices differ compared to their roles in non-Green Leased buildings?

Over the course of the paper, the research question will be considered by analysing each of the key stakeholders in turn with regards to their role in Green Leased rental offices, how these roles are realised in Green Leased buildings when compared to the 'Rental Office Stakeholder Interactions Model' used as the theoretical framework. In each stakeholder section, academic literature will first be considered, then demonstrated in how this is reflected in literature from practice.

2. Theoretical Background

2.1 Defining Green Leases and Green Leasing

When considering the choice of literature, case studies and process of analysis, a contextual definition of a Green Lease is required to understand better how these choices were informed. As mentioned earlier, there is currently not a standard definition of the term, however several institutions have attempted to broadly define the concept, despite the term only beginning to enter the real estate market in around 2007 (Bright et al., 2014, p.7) . It is also important to understand the difference between the terms 'Green Lease' and 'Green Leasing'. In the context of this study, a 'Green Lease' can be considered to be a Green Lease document itself, whilst 'Green Leasing' is the process and considerations surround this issue. Green Leasing can be considered to encompass all levels organisational management (strategic, tactical and organisational levels) as well the majority of phases

of a buildings lifecycle. Green Leasing can encompass many aspects of a Green Building, from a buildings development, right through to the data collection and monitoring needs mandated by a Green Lease itself during a buildings operational phase.

One of the more commonly cited definitions was drafted by a British collaboration of building owners who operate under the banner of the 'Better Buildings Partnership' (BBP). In their 'Green Lease Toolkit' they define such a lease as "*a standard form lease with additional clauses included which provide for the management and improvement of the Environmental Performance of a building by both owner and occupier(s). Such a document is legally binding and its provisions remain in place for the duration of the term*" (Bugden et al., 2013, p.2) . They cite example Green Lease clauses containing elements such as an aim to "*agree targets and strategies to improve the Environmental Performance of the Premises and/or the Building on a regular basis*", or "*reduction in or improved efficiency of water consumption*"(Bugden et al., 2013, pp. 14, 16 and 22).

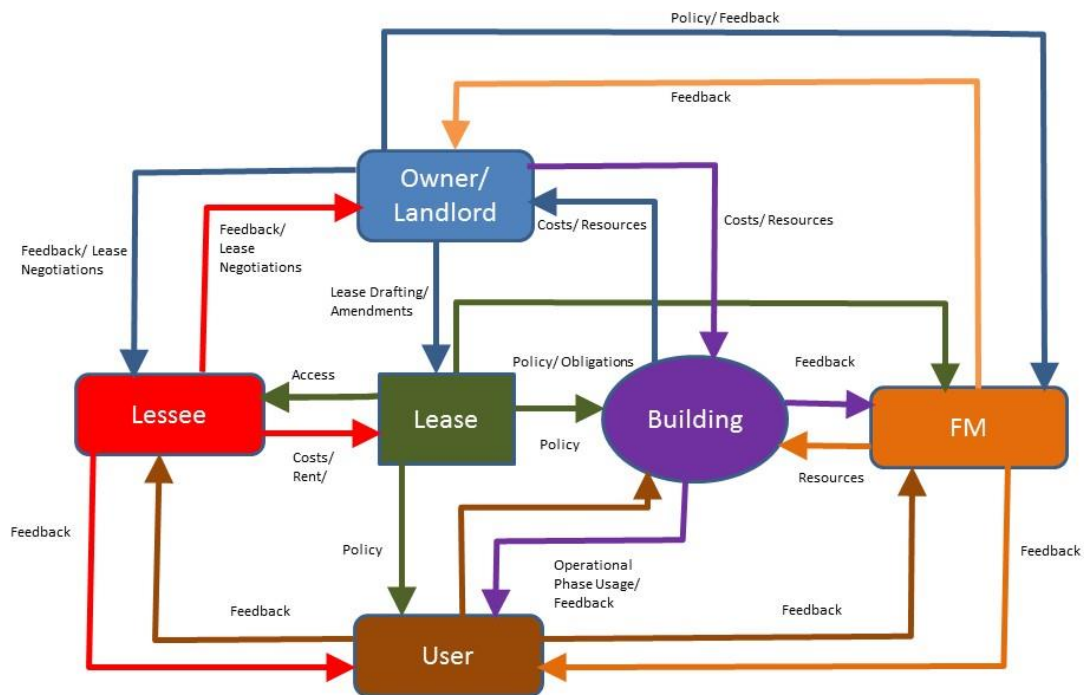
Whilst a Green Lease is not exclusively signed in Green or Sustainable buildings alone (Kaplow, 2008, p.101), a definition of what constitutes such a building is relevant for many of the buildings that employ Green Leases. Berardi (2013) for example described a sustainable building as "*a healthy facility designed and built in a cradle-to-grave resource-efficient manner, using ecological principles, social equity, and life-cycle quality value, and which promotes a sense of sustainable community*" (Berardi, 2013, p.76). A definition is also offered by the Environment Protection Agency in the US, who define a sustainable building as "*the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. Green building is also known as a sustainable or high performance building*" ("Green Building - Basic Information," 2014). The needs of these buildings can be a starting point toward increased stakeholder engagement, which may result in the signing of a Green Lease, or the implementation of a more informal Green tenancy.

Due to Green Leases and Green Leasing inevitably being linked to 'Sustainability' issues, a basic definition as to what this means in the context of this paper is important. The most common definition of sustainable development comes from the Brundtland Report (1987) and states that sustainable development is development that "*meets the needs of today without compromising the ability for future generations to meet their own needs*" (Brundtland, 1987, p.15). However, in terms of a more holistic and simpler understanding as to what constitutes sustainability, in this paper it will be more linked to John Elkington (1994) and his 'Triple Bottom Line' of sustainability that encompasses 'Economic', 'Environmental' and 'Social' sustainability that moves beyond the likes of simply energy efficiency (Elkington, 1994).

2.2 Theoretical Framework

In order to offer a better understanding as to the roles and interactions present in a rented office building, a theoretical model has been developed to map many of the common flows and interactions between the key stakeholders in standard rented offices.

Figure 1



Rental Office Stakeholder Interaction Model

(Collins 2016)

With the ‘lease’ itself and the ‘building’ near the centre of the model as non-agency/ physical actors, the agency stakeholders of ‘Owner/Landlord’, ‘Lessee’, ‘Facilities Manager’ (FM) and ‘User’ are placed around it with arrowed branches demonstrating the main kinds of interaction that occur within the elements of the model. The ‘Lessee’ and ‘User’ are separated in figure 1, as those who sign the lease for a rental office may not necessarily be the same as those who occupy the building. This separation is relevant in the context of this paper, as the conditions for the Green Lease that could be negotiated between the Owner/Landlord and the Lessee may result in different sets of interactions once the Green Lease comes in to operation, meaning that the separation between the ‘business’ aspect of the agreement and the buildings ‘operational phase’ require wholly different sets of interactions, ensuring that the stakeholder separation is still relevant even if the lessee themselves also occupies the building. This model is primarily focused on more traditional building infrastructure, as Smart Buildings will provide more feedback to different stakeholders (despite their intrinsic lack of agency) when compared the traditional relationship with a standard building. In the case of standard building (or non-smart sustainable building), the feedback relationship from the building itself is more likely to be based on its relationship with its Facilities Management infrastructure.

The interactions described in the model focus on the primary interactions that concern each relationship, such as the prescription and drafting of building policy, the obligation to pay rent and the term

‘feedback’ representing direct communication with the stakeholder in their given direction, communicating the reaction and experience of either a stakeholder or non-agency actor.

3. **Methodology**

This paper takes literature from academia and practice in order to demonstrate the academic discussions surrounding the concepts of Green Leasing and Green Leases, as well as how these have played out in practice. A combination of both sets of literature will aid in answering the research question to develop a greater understanding not just of the role of key stakeholders within such a leasing arrangement, but also in further developing an understanding as to what constitutes a Green Lease.

The purpose of this review of the literature was to identify recent theoretical and academic discussions concerning Green Leasing as a process, the Green Leases themselves, and periphery issues surrounding these matters. The secondary purpose is to seek further case study literature to identify the degree to which these theoretical discussions are reflected in real world contexts.

For this paper, academic literature consists of academic journals and books from the disciplines of the built environment, facilities management, finance, investment, law, management and real estate. These disciplines were chosen due their relevance in the development of the sustainable built environment from the perspective of rental non-residential buildings and the considerations in this regard during the operational phase of a buildings lifecycle. The literature featured was written from 1995 to the present day to account for not just Green Lease development, but also discussion on the sustainable built environment in the context of offices before this. This literature was sourced primarily from Google Scholar using the search terms “*Green Lease*”, “*Sustainable Rental Offices*”, “*Energy Aligned Leases*” and “*Landlord Tenant Sustainable Office*” with minor variations made in order to improve the results. As per the work of Okoli *et al* (2010), this was done in a systematic manner in order to be distinct and rigorous enough to qualify as a standalone review (Okoli *et al.*, 2010, p.37). Search word pruning was also conducted in order to remove from the study literature that would not be relevant, such as the leasing of ‘green’ vehicles, whilst also ensuring that the search term relevant literature primarily focused on non-residential buildings. Whilst it could be possible in some limited contexts to compare the cases of sustainable residential buildings to those that are non-residential, they were not included for practical and time focused reasons. Furthermore, Green Leases are seldom found in residential buildings at the time of writing, making the procurement of relevant literature limited. Literature was also sourced from the literature library of the author amassed over the course of their academic career. All of the literature was also screened to ensure that all of the journal publications featured in the Norwegian Register for Scientific Journals (NSD) at either level 1 or 2, that books were published by respected authors and publishers, and practice based literature was from known institutions and was primary where possible. Owing to the relatively few amount of articles existing in this field, almost all of the relevant literature discovered was used, with the exception of several items of practice literature that discussed the topic, but did not provide information relevant to the discussions in this paper. A few pieces of academic literature were excluded under similar criteria.

Case studies from Australia, Europe and the US will also form a key aspect of the data for this paper with the aim of providing a better understanding as to how theoretical discussions have played out in the industry when considering the role of key stakeholders. Literature case sources for this paper have come from practice literature as well as documented Green Lease case studies in academic literature. Case studies found in academic journals and books were sourced through the same method and keywords as the academic literature used for the academic and theoretical discussion noted in the previous paragraph. Cases sourced from practice literature were found through the standard Google

search engine using the keywords of ‘*Green Leasing Offices*’ and ‘*Green Lease Offices*’ with some minor variations made to prove the results and find cases more specific to the countries for analysis. The reason for choosing Australia, Europe and the US is due the understanding that these regions are a prominent market for the development of Green Leases and other similar initiatives, a point that was recognised through the author’s ongoing Doctoral research. The prominence of these markets was also noted by Pivo (2010), who noted these countries as being leaders in sustainable property investing in his own case studies (Pivo, 2010, p.183). Both literature perspectives will be dealt with in turn under the headlines of “*Owner/ Landlord*”, “*Lessee*” and “*Facilities Management*” with the aim of using the contents of the literature to provide a way forward in answering the research question.

It is uncertain as to whether academic literature on Green Leases and Green Leasing have development in parallel to real world application of the concepts, or vice versa. However, owing to the dates on the literature included in this article, the more common scenario is academic research and commentary on the development and application of Green Leases and Green Leasing in practice.

4. **Results**

4.1 *Owner/ Landlord*

With regards to the broader role of building owners and landlords in a rented commercial or publically owned office, their role can be considered in their essence to consist of the creation of value for their building stock throughout its lifecycle (Haugen, 2008, p.15). The ‘Rental Office Stakeholder Interaction Model’ in figure 1 notes how this value is created, by the development of attractive leasing options in the context of a negotiated and signed lease for a well maintained and attractive building, resulting in remuneration (rent) along with placing other obligations (e.g. some levels of maintenance) in the hands of the lessee and user. The creation of this value is also a key aspect of their role if their property has a Green Leasing arrangement.

Concerning academic literature on Green Leasing and Green Leases, scholarly writing places significant emphasis on the role of owners and landlords in Green Leased buildings. In terms of the negotiation and the building policy development phase of the leases drafting, there is scope to rethink how this is managed. According to Brooks *et al.* (2008), there are two ways to attempt Green Lease negotiations with a prospective lessee. Firstly, there is the so-called ‘*paternalistic*’ approach, where the sustainable clauses in the lease are prescribed to the lessee. The second approach is the ‘*co-operative*’ model where mutual objectives are discussed along with the liabilities and obligations of both parties (Brooks *et al.*, 2008, p.14). A more balanced dialogue with a lessee on mutual objectives in the face of potentially burdensome or complex Green Lease clauses could have the scope to improve some of the tensions and disagreements associated with the likes of ‘split incentive’. Furthermore, a more draconian approach to the development of Green Lease agreements could be due to the legislative compliance obligations placed on landlords by legislation such as the UK’s ‘Carbon Reduction Commitment’ (Bright, 2010, p.2). Recent research by Collins *et al.* (2016) however suggested that legislative compliance may not be a significant driving factor for Green Lease development at the present time (Collins *et al.*, 2016, p.7).

Concerning how this plays out in practice and case studies, there are numerous examples of how the roles of landlords and owners play out in Green Lease negotiations. Pivo (2010) for example, notes the case of the property company ‘Land Securities’ and how they understood that the more significant energy savings that could be achieved were only possible through tenant cooperation. By incorporating these needs into their tenancy agreements (including investment by the tenants), they could reduce

energy consumption between 15% to 20% in one year (Pivo, 2010, p.186). This was an attitude understood also by the Norwegian state property company Statsbygg, however more from the perspective of building policy. In their 2013 environmental strategy, they stated that they wanted to reduce the energy consumption of their 2.7 million m² of existing building stock to 200 kWh/m² using what they called a ‘Green Lease Riders’ program. This was employed solely in existing building stock, as they felt that their new buildings could hit their energy consumption targets through technology and without significant intervention from users (Statsbygg, 2013, pp.4-5). This example reflects the work cited previously by Christensen *et al* (2010), as they have adopted a companywide policy of reducing emissions, which they intend to spread across all of their buildings, and are achieving this in existing buildings by marketing pilot Green Leases to tenants.

The development of a corporate brand both inside and outside the organisation for both the owner/landlord and their tenant are also key Green Lease drivers in practice (Collins et al., 2016, p.7). A case study example is the Chicago based property portfolio owners and managers Jones Lang LaSalle (JLL), who use their advertising literature to appeal to tenants in this manner. Their literature states that such a lease can support the sustainability objectives of the prospective tenant, as well as be important in enhancing their corporate brand. They push these possibilities further by noting that a Green Leased building can be a demonstration of that tenants ‘vision’, even using language such as “*you could be the first in your industry*” to encourage lease up (Jordan, 2013). Whilst not exactly taking up the role of a public relations office, owners and landlords of Green Leased buildings often engage with the corporate social responsibility (CSR) and branding needs of their prospective and current tenants to add further, albeit less tangible benefits to this type of lease agreement.

The role of a landlord in a Green Leased building can be considered to expand on the traditional role of the landlord, as they now may have to contribute a ‘consulting’ role to help the tenant meet the new green clauses mandated by their Green Lease, often through a sustainable facilities management (SFM) approach (Collins et al., 2015, p.132). In terms of a case study example, the Swedish property owner ‘Kungsleden’ has taken this approach to the heart of the way that they operate their Green Lease strategy. Their leases mandate that the tenant cooperates in improvements in the buildings energy consumption and procurement, exchange information on sustainable issues and manage separate waste streams. On Kungsledens part, they assist the tenant in these processes such as helping them to choose green energy suppliers and make energy assessments of the property (Sandell, 2016). Whilst this is an example of the more ‘Paternalistic’ approach suggested by Brooks *et al* (2008), it also demonstrates the need for landlords to use their expertise to support their own regulations, such as the example of helping their tenants find a green energy supplier. Whilst facilities management (FM) to a greater or lesser degree is common place in rented offices, sustainability often mandates an expansion of this role beyond its traditional boundaries (Anker Jensen et al., 2014, p.860), and the needs of Green Leased buildings are no exception in this context.

4.2 Lessee

On the opposing side of the relationship, the lessee and user is the key customer in a rented office, with specific relationships in that role that are defined in the ‘Rental Office Stakeholder Interactions’ model as the payment of rent in exchange for access to the building, along with adherence to policy prescribed by the landlord and/or owner, its associated services, and the taking on of extra costs if the lease demands it. On this note, there has also been significant literature from academia and practice as to the degree to which this holds true in a Green Leased building. Haugen (2008) goes further into a bolder definition of the Lessee (or ‘user/tenant’ as they are referred to in the text) noting that they “*support*

their own activity to the greatest possible degree” and the “efficiency of the building according to how it meets their own requirements per cost unit” (Haugen, 2008, p.16).

The broader role and motivations of tenants in Green Leased buildings has numerous mentions in academic literature. Research already claims that sustainability is increasingly becoming a key factor with tenants concerning how they choose their office spaces (Sharp, 2009, p.3), which can result in them renting a space in a Green building with a Green Lease. Collins *et al.* (2016) suggest in the case of BREEAM certified offices that this is driven primarily by the attractiveness of the certification itself as well as the cost savings associated with a green tenancy (Collins et al., 2016, pp. 6-7). In terms of the lease negotiation stage, and as is also the case with the landlord and owner, the lessee has the prospect of using their position in negotiations to impact positively on their relationship with their landlord. With Green Leases as a concept still in its early days of wider spread adoption, lessees have the possibility to provide feedback on the feasibility of green clauses, as well as the costing and logistical negotiations if their lease involves co-financial investment with the owner or landlord (Sayce et al., 2009, pp.279-280) .

Much of the research on the roles and motivations of lessee’s in academic publications have been seen to play out in practice. With regard to a case study example, a Green Lease was negotiated by the Northwest Energy Efficiency Alliance (NEEA) when they moved their office to the Portland’s Commonwealth Building in Oregon in the US, an existing but recently refurbished building built in 1944 and LEED Gold certified. The move to this location along with the choice of a Green Lease was made in order to be in keeping with the sustainable policy of the building as well as maintain the LEED certification. As suggested by the research, this required obligations from the tenants not seen in traditional lease arrangements. The tenant was mandated to only conduct tenant improvement works in keeping with the agreed sustainability policies of the building along with the assistance of a third party sustainability consultant, and even had to begin the process of pursuing a LEED Commercial Interiors certification for their space. There were even restrictions on their operational hours in order to reduce the energy consumption of the building, and have to give 24 hours’ notice if they needed HVAC services on a Saturday (BetterBricks, 2015).

4.3 Facilities Management

In the ‘Rental Office Stakeholder Interaction Model’, FM is considered to be a stakeholder that not only interfaces with the buildings mechanisms themselves, but also as a further mediating body between the user and the Owner/ Landlord, being a bilateral feedback loop between the two whilst also have resources and policy dictated at the strategic level from the Owner/ FM. Haugen (2008) offers a description of FM based on their traditional relationship, in that they ensure “*that the buildings’ function optimally for their users, owners and surroundings over time*” (Haugen, 2008, p.16).

Whilst not researched to the same degree as the other stakeholder elements in figure 1, they are given some attention, even if contextually more indirectly. Atkin and Brooks (2015) note how FM and Green Leases are important in the context of soft landings, a process by where the buildings design team stay on after completing the project to make changes or solve problems with the building. This they claim this helps in developing a “*unified approach*” in working out these issues, which includes other elements such as designers which can improve the readiness of the building and its associated Green Lease by the time the building is ready to be occupied (Akin et al., 2015, p.34) . Further to this approach of unifying building that operate a Green Lease, Hinnells *et al.* (2008) states that FM is moving forward to adapting their services to the needs of these types of buildings by expanding their services beyond

the management of energy, but also moving into to low carbon generation done on site. According to the author, this means that some elements of the FM industry are moving towards becoming ‘*energy service contractors*’ (Hinnells et al., 2008, p.548). This approach however does present problems, as contracts can be as short as three years. This could result in inconsistent methods of management and FM policy between changing providers, meaning that measures of energy management need to have a payback of around a year to make the process viable and worthwhile for the contractor (Hinnells et al., 2008, pp. 547-548). In terms of practical application however, energy suppliers can serve a role in Green Leasing type arrangements, such as providing useful feedback on energy consumption through technologies such as ‘smart meters’ (Janda et al., 2015, p.10).

Although still only discussed seldom in the context of directly addressing FM and Green Leases, practice is beginning to consider the needs of Green Leases and their associated obligations and needs in the services they provide. An example of a more tailored approach in a case study can be found in the work being done by ‘Energy and Technical Services’ (ETSL), a New Zealand based but globally operating facilities company offering tailored FM bespoke for Green Leased buildings. They operate a holistic approach to handling Green Lease orientated contracts, assisting in areas such as the build out of tenant improvements, assisting in keeping sustainable principles and regulations, disposal of waste and materials as well as developing environmental management plans. Their promotional material notes that they provide a variety of services depending on the Green Lease deployed at a specific building, with the goal of ensuring that “*both parties are meeting their obligations under the green lease*” (ETSL, 2016). DLA Piper (2014) in their literature on Green FM place particular emphasis on capitalising on the existing knowledge of FM’s when implementing a Green Lease. They even recommend a sample clause which states – “*immediately after concluding or amending Green Leases, the Principal shall inform the Facility Manager about the provisions agreed therein to achieve a Sustainable Use and shall in particular announce any deviations from the specimen clauses*”, and ensuring direct communication with the tenant in order to better serve needs of the lease (Piper, 2014, p.3).

5. Discussion of Findings

Whilst the roles and motivations of the key stakeholders do not exclude their roles from a traditional relationship, there is none the less changes that are representative of the kinds of changes found in the Green Leases and Green Leasing itself.

When reflecting on the results from theory and practice, the roles of the Owner/ Landlord have seen some fundamental changes in how they deal with the development of their rental spaces. The ‘*Paternalistic*’ and ‘*Cooperative*’ approaches to the development of the leases themselves represents a marked change in how lease terms are dictated or negotiated with a prospective Lessee. The ‘*Cooperative*’ model particularly is representative of the new way that Green Leases can attempt to overcome potential problems by creating a more a balanced approach to lease development and drafting. In terms how this impacts the change in relationship based on the ‘Rental Office Stakeholder Interactions Model’, it shows a strengthening of the ‘feedback’ and ‘negotiations’ arms of the model linking the ‘Owner/ Landlord’ and ‘Lessee’, as opposed to representing a new action entirely. Beyond using this method to make such leases more attractive to prospective Lessee’s, it also offers the Owners or Landlord an opportunity to negotiate Green Lease terms that offer clauses that both stakeholders can realistically meet. For the landlord, it also represents a new form of promotion and commercial incentive. Both academic and practice literature states the increasing importance of CSR

and branding in the development of these lease agreements, which in turn results in Owners and Landlords having to redress the way their properties are presented to prospective Lessee's.

The roles of Lessee have also seen a degree of change in a Green Leased building. The 'Rental Office Stakeholder Interactions Model' places the Lessee at the point of lease negotiation as discussed in the previous paragraph, but also notes the obligations of the Lessee in terms of rent in exchange for the right to access the building. Based on the literature from academic and practice, these roles remain the same, but are also expanded upon. In a Green Leased rental office the Lessee may also have legally binding responsibility to operate the building in a particular manner and meeting the likes of energy and recycling targets along with other sustainability orientated obligations. This in essence requires a different approach to how the Lessee may govern the users. Whilst the model in figure 1 already encompasses the prospect of a two-way feedback system between the user and lessee, a Green Lease may require this relationship to be more Draconian in nature to ensure and understanding of the consequences should Green Lease targets not be met. When considering the motivations for Lessees in adopting a Green Lease, some research suggests that the motivations are not entirely clear across the board, however lower operating costs are likely to be an important factor, as well some CSR considerations related to both the offices sustainability credentials, and a BREEAM or LEED certification if the building has one (Collins et al., 2016, pp. 7-8).

Facilities Managers in Green Leases buildings see a strengthening of their role when compared to office buildings without such a lease agreement. When considering the model, the overall needs of FM and FM's see little change in a Green Lease agreement; however, the literature instead suggested a change in approach. In a building with a Green Lease, there is a strengthening of the relationship between the user and the FM if the leasing agreement includes targets and clauses that require specific actions by the user to maintain. The FM could also be responsible for data collection from sub metering to meet this target, and may also be a key player in the procurement of greener and more sustainable procurement of equipment, essential maintenance and have a key role in energy management. A Green Lease can also place performance restrictions on the FM, relating both to Green Lease clauses themselves along further regulatory restrictions resulting from the likes of a Passive House building, or even a BREEAM or LEED certification. This situation however can be complicated to some of the FM services that are outsourced by the tenants to perform specific tasks such as cleaning or certain forms of maintenance. It remains to be seen in further research the degree to which outsourced FM services paid for by the tenants will also do some of the data collection and related roles mandated by a Green Lease, or if effectively two FM systems will be in place with one paid for by the landlord.

6. **Conclusion**

Despite the increasing level of research into Green Leases and its associated issues, it still not entirely certain as to the defined 'benchmarks' that make clear to academia and practice as to what the defined roles of stakeholders in Green Leased buildings are. This research deficit is partially due to the disengagement between 'Green Buildings', 'Green Leases' and 'Green Leasing', where both are aiming for similar environmental goals, but do not often share a method by which this achieved. Whilst a Green Building will use the technology and infrastructure of the building to improve its environmental credentials, this does not necessarily mean that these considerations are always made at the lease level. Despite this, it is clear that Green Leased buildings require a strengthening of many of the feedback and dialogue elements found in the theoretical model, and in some cases changes such as new competencies for FM's, and the potential of sustainability burden sharing on the part of users. This now suggests that

a more thorough empirical study of these roles is needed that goes beyond the scope of the evidence in existing literature discussed in this paper.

In terms of wider scope, the results in this paper and the possibilities for further research are not just useful in Green Lease development, but can also be of use to other sectors. The field of architecture could benefit from a greater understanding of the needs of key stakeholders in the sustainable buildings they design, as well as the needs of the leases that may be designed for them. Buildings Owners and Landlords could also benefit from further work in this area, not only to solidify an understanding of the experiences of stakeholders, but also to help in the development of their own Green Leasing arrangements. The study and application of Green Buildings both new and existing could benefit greatly from a better understanding of needs and ideal roles of the stakeholder in their buildings, both to help in removing potential human and technical ‘snags’, as well as increase the possibility for a building to reach its technical potential earlier in its operational lifecycle.

To conclude, whilst both academia and practice are moving steadily forward in the marrying of sustainable development and the built environment, the ‘human factor’ in Green and Green Leased buildings is an important component in the spectrum of research and development in the built environment. As these buildings develop further, a balance between reliance on technology versus further human involvement remains uncertain, yet clarity on the needs and possibilities of stakeholders remains an essential point of understanding.

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