The Effects of Green Building Certifications on Low Income Communities

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

From rampant wildfires in Australia, Brazil, and California to unexpected snow storms in the southern United States, the effects of climate change have begun to appear. (Harvey,ClimateWire, n.d.) In an effort to minimize the current and future effects of climate change, green building certifications and the technologies associated with them have gained popularity due to their ability to reduce negative impacts on the environment.(Retzlaff, 2009) The benefits of these technologies range from better air quality to reduced fossil fuel use. Everyone wants to be protected from the negative effects of climate change, but will all groups be protected given the current system?

The paper has critically examined the ways that green building certifications encourage gentrification. The green certifications reviewed in this paper include the Leadership in Energy and Environmental Design (LEED) and Leadership in Energy and Environmental Design – Neighborhood Development (LEED-ND) created by the United States Green Building Council (USGBC) and the Living Building Challenge and the Living Community Challenge created by the International Living Future Institute (Living Future). This paper begins by introducing green building certifications and examining the benefits they offer. Then it will critically examine the effects of such certifications and the green technologies those certifications on gentrification. While investigating the effects of certifications on gentrification, the negative effects of gentrification will also be examined. After that it will investigate the cases of two redeveloped neighborhoods in San Francisco, California that were affected by green building certifications. San Francisco has been a hot spot for gentrification in recent years with 62% of low income households at risk for displacement in 2015. (*Urban Displacement San Francisco Map | Urban Displacement Project*, n.d.) There are two sections of San Francisco that both had LEED

certified projects, but the projects affected the neighborhoods very differently. Based on the differences in approach to the projects discussed in the case studies, the paper will consider the current state of green building certifications and seeks to outline means of improvement for aforementioned certifications.

Literature Review

A Look into Green Building Certifications

The section explores the benefits of green building certifications and introduces several USGBC and Living Future certifications. The general goal of green building certifications, or sustainable building assessment systems, is to provide a standard for green buildings to assess the environmental impact of the buildings. The motivation for green building is generally to reduce environmental impact and negative human health impacts. Green building accomplishes that by exploring the fallacies in a building's life cycle. Green building certifications build upon that by creating a means of easily comparing, standardizing, and researching the environmental impact of a building. (Retzlaff, 2009)

Two examples of green building certifications include the LEED certification by the USGBC and the Living Building Challenge (LBC) by Living Future. These two certifications will be compared because LEED is one of the most widespread certifications with 60,115 certified projects in USA, and LBC is one of the strictest with only 21 fully Living certified projects in the USA and most intersectional with sections on equity and beauty in addition to the typical environmental standards. (*LEED rating system | U.S. Green Building Council*, n.d.; *Living Building Challenge Certification | Living-Future.org*, n.d.) Each of these certifications are only designed to be used for a single structure. LEED is a points-based system with a few

items that are considered mandatory. LEED also has different levels of certification available based off the number of points achieved from a basic certification up to a platinum certification. From fewest points to most points, the certification levels are certified, bronze, silver, gold, and platinum. The LEED items are all related to either environmental impact or human health impacts with no equity, affordability, or community building based criteria. (*LEED rating system | U.S. Green Building Council*, n.d.) LBC is not a points-based system like LEED. Instead LBC is based off of different sections or petals of requirements. The petals include place, water, energy, health and happiness, materials, equity, and beauty. There are different levels of the LBC, similar to LEED, however they are based on petals instead of points. There are three levels of certification: full Living, petal, and net zero. Full Living means that all requirements for all petals were met. Petal indicates that several of the petals' requirements were met, and zero energy indicates that all of the energy for the building is net zero with on-site renewable energy and the added requirement for no combustion. (*Living Building Challenge Certification | Living-Future.org*, n.d.)

There are also green community design and building certifications. These certifications are designed with the goal of guiding improvements to new communities and existing communities, and even guide policy. (Welch et al., n.d.)Two examples of these include the Living Community Challenge (LCC) by Living Future and LEED Neighborhood Development (LEED-ND) by the USGBC. The LCC requirements are sorted into petals similar to the LBC, but the petals have different requirements within them. The LEED-ND requirements are structured into 5 categories: Smart Location & Linkage, Neighborhood Pattern & Design, Green Infrastructure & Buildings, Innovation & Design Process, and Regional Priority Credits. Notable differences between the two certifications are that all the LCC requirements are required while

LEED-ND has a few required items and is otherwise points based with various levels of certification awarded for increasing point values. LEED-ND has a lot of point items under the Neighborhood Pattern & Design section that relate to equity, such as Housing Types & Affordability, Connected and Open Community, and Community Outreach and Involvement.(*LEED v4 for Neighborhood Development*, 2018) The LCC differs from the LBC in that the LCC includes information about community resource accessibility in the Equity petal, however there is no discussion of neighborhood retention or maintaining affordability. This seems especially relevant to the Living Future given that they include information about community development through creating art that reflects the community and its history, but there is no mention of how the community can or should maintain affordability for its current residents. (*Living Community Challenge Certification | Living-Future.org*, 2016) Both the LCC and LEED-ND discuss the importance of walkability, or community members' ability to walk instead of using other means of transportation to community hubs like grocery stores, gyms, and libraries, and recreational buildings.

So why should people be interested in green certifications? What do they really do? How could they affect society? According to Donella Meadows, there are 12 main leverage points at which to intervene in a system: constant parameters (taxes, subsidies, etc.), the size of stabilizing stocks, the structure of material systems (such as transport networks), the lengths of delays in system change, the strength of negative feedback loops, the gain around increasing positive loops, the structure and access available for information, the rules of the system, the power to manipulate the system structure, the goals of the system, the original source of the system, and the power to change or overrule that source. The closer the point of leverage is to changing the direct source of the system, the more effective it will be. In the case of the green certifications,

their goal is to intervene at the leverage point of increasing the gain of the positive feedback loop of using green building techniques. There is already a positive feedback loop of decreased emissions, energy use, and healthier spaces when using green building techniques, but by adding the benefit of being able to say how 'green' you are and having a standard for others to follow in that path, the benefits of going into that loop increase. Another added benefit of the certifications in the feedback loop are that people who are interested in living green know how to find places that are certified as green buildings, and as the demand for certified green buildings increases, the use of green building technology increases and our communities become greener and healthier. (Meadows, 1999)

Environmental Gentrification

If green building certifications are designed to guide design for more environmentally friendly technology, what could possibly be wrong with them? How could making somewhere healthier "gentrify" it? The problem is that green building initiatives aren't always motivated with just environmental and social concerns in mind. Frequently, the social aspect of sustainability is swept under the rug, and thus the environmental aspect is focused sometime to an exclusive extent. Environmental gentrification is urban redevelopment aimed at environmental and ecological protections that is designed to serve higher-income communities and displace lower-income communities. (Agyeman, 2016) Evidently, environmentally minded design and construction can be accomplished without catering to the market. There was a case study done in Greenpoint, Brooklyn where there was an extensive history of pollution, toxic fumes, and sewage harming the community. The neighborhood hoped to accomplish cleaning up the neighborhood and the pollution issues without eliminating all industry and the working-class people that lived there. Part of the issue with that is simply by cleaning up the dangerous

elements of the community, the neighborhood's marketability goes up, the market worth goes up, and suddenly there are people willing to pay more money to live there than the current residents. As the neighborhood was partially cleaned up and new buildings went up, gentrifiers moved in. Having gentrifiers wasn't all bad because they were able to bring more attention to the existing problems in the community, such as an oil spill that was never properly cleaned up. With the original community and the gentrifiers working together, they were able to more effectively have the area cleaned up and were able to increase the number of available green spaces, which had previously been lacking, in a way that may not have been the most scenic, but was most beneficial to the community. In the end, it wasn't a standardized environmental policy or a green neighborhood certification that lead the neighborhood to a healthier place, but an approach catered to the community with lot's of input and work from the community to come to a fairly physically and socially healthy balance point, or "green enough" as it's referenced in the article. The moral of this case study according to the author, is that a sustainable city doesn't look the same way everywhere. (Agyeman, 2016)

To look at a neighborhood from the perspective of green gentrification, one would look not only at the possible ways to improve the environmental and health states but also the general built environment. By looking to improve the general built environment, one is essentially looking at how to make the area more desirable and thus marketable. There have been studies around how properties around new green developments change in market value, and the results are that the there is a large gap in price between the properties near the green development and similar properties elsewhere. This gap has been called the green gap. The green gap shows that green gentrification is not only an issue because it's not sustainable socially, but it's also not

sustainable economically. For example, rents were 30% higher near new green infrastructure than over a mile and a half away. (Anguelovski, Connolly, Garcia-Lamarca, et al., 2019)

Top-down design further exacerbates the lack of social sustainability because without the input of the existing community, there is no way to know what the social needs for that community really are. The case study in the paragraph above is labelled a "green compromise" due to the "compromise" between the original, low income class community and the "creative class" gentrifiers. This has been called a way for neighborhoods to improve and get cleaned up from pollution while still maintaining some of the original community members, however it doesn't address the green gap. The idea behind these "green compromises" is that they supposedly help address some of the social issues of green gentrification while still allowing the environmental improvements of the green gentrification to continue. Anguelovski et al claims that green gentrification may not even provide the health benefits boasted of green development projects. They say that studies around green development projects and increased green space in regards to health frequently leave out communities that may have negative reactions to more open space or ground cover, such as those that have experienced discrimination or violence in the past. The studies also leave out communities that have rejected green space programs or don't look at how social and health problems may have changed instead of disappearing. For example, there were studies done on the pre-term health and the self-reported health of a community after a green development project and while most of community had a net positive health experience, the black community had an overall negative experience. The author does mention a need for more research about the effects of green gentrification on the different communities. In the last section of the article, Anguelovski et al addresses possible ways that the effects of green gentrification affect people such that we can better understand how it should be

addressed. Possible ways that the research could be improved include identifying the scope of green gentrification within the city, defining the qualities and characters of a “green space” within a city, and analyzing the physical areas and boundaries of green gentrification and the associated privilege. This article in general criticizes the current urban planning view of making cities “green,” and suggests that more research on the current method and exploration of a more social justice based approach to sustainable cities could solve a lot more problems than green gentrification. (Anguelovski, Connolly, Garcia-Lamarca, et al., 2019)

Green gentrification may actually be bad for the environment. Studies show that greenhouse gas (GHG) use is higher in neighborhoods after they have been green gentrified, when GHG due to consumption are concluded. (Rice et al., 2019) The reality of green gentrification is a walkable neighborhood with multi use, low carbon housing. The goal of the development is to decrease the green house gas (GHG) emission so as to be more environmentally friendly or sustainable. In fact, the goal of green building certifications, like LEED, is to define “sustainable” development. The irony is that those neighborhoods that have gone through green gentrification likely output more GHG emissions than before the green gentrification. The fact is that the main people using these “green” developments are the tech class, a class of young, university educated technology or creative workers with high incomes. The tech class wants to be “green” and do their part to reduce GHG emissions, which they frequently do through dense, green housing. The housing is built because all the big tech companies want the tech class to want to work and live there. That means all the people who lived in those neighborhoods before the tech class are pushed out of the walkable areas with an abundance of public transportation. When surveys are done on GHG emissions using consumption in addition to means of transportation and housing, it has been found that the

reduction of GHG emissions from the increased density of a low carbon, mixed use neighborhood does not outweigh the increase of GHG emissions from the consumption patterns of the tech class. A case study in Seattle indicated that green gentrification increased the GHG emissions overall because of the increased consumption of the upper income class now living in the city because there was an overall decrease in the population of lower income class citizens living there. The overarching idea from this article is that green gentrification means sustainability is only for the rich. (Rice et al., 2019)

The issues with green gentrification are not only an issue socially, economically, and environmentally, but also can cause health problems. Given that climate change is an issue and will become more of an issue in the future, many cities have been building infrastructure to protect against flooding and storms. Even though this infrastructure isn't part of a green neighborhood or other more obvious gentrifying project, these climate protection projects contribute to green gentrification all the same. Considering that low income class people are frequently displaced in the process of green building projects, lower income communities won't have access to the same climate protections that higher income class people will have. The main idea of this article is that all green infrastructure projects should have social awareness and research aspects. (Anguelovski, Connolly, Pearsall, et al., 2019)

If we look at how green building certifications came about in terms of technological transitions and multi-level perspectives, the landscape was that climate change was first becoming an issue and the USA is a very capitalistic society with a history of racial issues. The main regime was that tech companies had a lot of power and green building technologies were expensive. The niche was environmental justice groups and environmental planning groups vying for more sustainable cities. Given the interest in the environment, green building

certifications developed at first as a niche pressuring potential developers. Overtime a new class of actors began to develop, the tech class. They were young, university educated workers with high income tech jobs that cared about being green. They pressured the tech companies over time to be green because that's where the tech class wanted to work. In order to prove their dedication to green, these tech companies built green certified buildings and the developers nearby built green certified buildings because that's what the tech class wanted and could pay for. However, there was another group that wanted the green certified buildings at first. There were environmental justice advocates and environmental planners trying to improve and clean up polluted neighborhoods. Unfortunately, since the tech class, who have likely become a regime at this point, were interested in the green developments, the original community members in these neighborhoods were often times displaced. Essentially, green certifications were a tool for urban planners and those interested in catering to the tech class to both improve areas environmentally and encourage wealthier people to live there.

Case Studies – San Francisco, California

Mission District

Mission District is unfortunately an example of green gentrification. There have been about 10 LEED certified buildings built in Mission District. (*Projects | U.S. Green Building Council*, n.d.) Mission District is the exact hub that the tech class are looking for. Tech companies have been cited as the main reason for the gentrification of Mission District. According to a map by City Lab, Mission District was in advanced gentrification in 2015. (Misra, n.d.) There are articles that date gentrification in 1999 (Bishari, 2019). From what the towns people say in news articles, there isn't any kind of outreach being done by new businesses or developers in the area. The communities have to fight for every inch of their rights. For

example, a human rights coalition known as United to Save the Mission organizes morandums of understanding (MOU). These are

agreements made with new businesses to make sure they're friendly to the community of Mission, such as by including Spanish menus or having lower priced items. According to the San Francisco local government, Mission District had lost 27% of its Latinx community between 2000 and 2015. (Bishari, 2019) The fight has slowed some, but it still continues as residents recently won a fight against a giant residential development. (*The "Monster in the Mission" development listed for sale*, n.d.) Even with supposed successes against gentrification, there's evidence of the effects of gentrification on the community, such as almost weekly listings in *The Five Saddest Restaurant Closings of the Week* (*The Five Saddest Restaurant Closings of the Week*, n.d.).

An example of a way that the local government is at odds with the culture is with a recent building requirement for new seismic protection to be installed on certain types of buildings. Unfortunately Mission District is one of the districts it occurs most in. Some businesses are able to pay for the new addition, however for more than one local businesses this is the final straw. (*Zeitgeist returns after a brief closure in San Francisco's Mission District*, n.d.) There were no reports of the local government reaching out to any of the older or lower income class communities to see how the new seismic protection could best be installed, and there were also no payment plans or stipends available. This is an example of supposed "sustainable" and environmental protections that displace communities.

Hunter's View in the Hunter's Point-Bayview Neighborhood

The first thing that's worth mentioning about Hunter's View is that when I was researching the neighborhood and the effects of the development project, there was nothing about gentrification to be seen. This is the opposite of my research for Mission District, where the first couple headlines were all about the community's fight against gentrification. After the debacle that was the development in Mission District, the San Francisco government decided to take a different approach to development. They chose to create a partnership between the Mayor's office of San Francisco, the San Francisco Foundation, and Enterprise Community Partners now called HOPE SF. The goal of HOPE SF is to revitalize dangerous and unhealthy communities through community outreach and redevelopment without displacement. Their biggest goal for the project was for there to be no displacement. The neighborhood of Hunter's Point and Bayview was their first project. Their goals are about inclusion and advancement for the people of the neighborhood with the environment and health secondary. (*Revitalize Hunters View*, n.d.) One of the ways that HOPE SF planned to reduced displacement was by having the units reserved for all the old residents. They have had about a 70% return rate, which is much higher than any of San Francisco's previous revitalization attempts. It's worth noting that this is a fairly recent project with Hunter's View II opening in 2019 and construction starting on Hunter's View III this year (Brinklow, 2019). Hunter's View as an entire development was also selected as a pilot for the LEED-ND certification by the USGBC (*Full-Project-Description.pdf*, n.d.)

There are two main testimonies I could find from residents of the Hunter's View neighborhood. The first one is from a woman named Lottie and although she doesn't appear to be affiliated with HOPE SF, it comes from the HOPE SF page, thus there may be some inherent

bias toward HOPE SF. She discusses how she really appreciates the amount of involvement the community was able to contribute and that she and the other community members appreciate the revitalization that much more. ("Lottie's Story," n.d.) The other testimony came from Sims, who was a resident and worked with Hunter's View as a housing specialist. She talked about how much safer she felt in the revitalized neighborhood and how she would feel comfortable letting her children play outside, given that there had been issues with violence in the neighborhood previously. (*Hope SF focuses on public housing development without displacement*, 2017)

Discussion

I have researched the connections between green building certifications and low-income communities, and unfortunately the result is frequently green gentrification. Green gentrification seems not to be an effective way to decrease our environmental impact or make our cities healthier physically or socially. This has been exemplified through both theoretical discussion and several case studies thus the way green building certifications are currently designed should be revised or alternatively green building certifications should not be used. After I researched the two neighborhoods in San Francisco, California, I realized that it's not necessarily the green building certifications that are the problem, but how we as a society approach green building improvements. In both cases, LEED was influencing the design, but the results were very different. One community feels threatened and fear of displacement, while the other community has been thriving and original residents say they feel more comfortable and safer after the revitalization. It's not necessarily about what the requirements are, but how they are enacted.

In this thesis, I have added further information to the green gentrification discussion by comparing two neighborhoods of similar initial standing that were renovated with LEED buildings and principles in mind. The important part of this comparison is that in one of the neighborhoods a "green enough," bottom-up approach was taken, while in the other project a standardized, top-down approach was taken. In many of the articles I viewed, emphasis was placed on making green urban planning localized and minimally green. The research I have done indicates that you can use standards and green building certifications for green urban planning without green gentrification occurring, given that there is also a group, such as HOPE SF, doing community outreach. The Mission District case also proved this point with one of the ways they support their community, MOU agreements. The MOU agreements were a way the community reminded new businesses that they should interact actively with local community instead of passively against it.

In the situation of Mission District, given that the individual buildings were LEED certified and there weren't any large-scale community development projects, I would think that Mission District would go through the same problems with LBC certified projects as they have had with the LEED buildings. The LBC projects would be just as problematic because there's no requirements in the LBC manual about a community outreach program and needs. Living Future does case studies of some of their projects, however none of the case studies include information about the impact on the community such as retention rates or other changes in the community, like affordability.(*Living Building Challenge Case Studies | Living-Future.org*, 2016) Community research could be a good way of assessing the success of possible changes to green building certifications or efforts to make an area "green enough" as stated earlier in the Literature Review section.

There still needs to be more research done about how different types of community outreach groups affect green gentrification. For example, do community organized groups or client organized outreach groups lead to the least gentrification with the greenest benefits? Which part of the gentrification and green benefits ratio is more important? I would argue that minimizing or eliminating gentrification should be the primary goal because gentrification frequently causes many bad effects for the people living there, even when there is also green building there. There also needs to be more research done on ways to make green urban planning with outreach more accessible because evidently green gentrification is still a problem in many parts of the country.

After conducting my research, I would recommend that all green building certifications require a designated public outreach group for each project and a caveat within the certification that states something to the effect of a requirement may be replaced with the approval of the community undergoing the change. The public outreach group would make sure the design team understands and respects the needs of the community, and the caveat would allow the green building certification to be flexible and cater to the needs of local communities instead of the average needs of the communities they hear the most.

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