



GREEN BUILDINGS

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INTRODUCTION

The setting for human activity in this contemporary world is provided by buildings, one of the essential elements of the built environment. The place at which we live, work, and perform other activities is included. Buildings take away agricultural land and use naturally occurring building materials, some of which end up as waste. They are a big consumer of energy in many nations and are responsible for significant carbon dioxide emissions.

By generating living and working spaces and boosting the economy, buildings and construction activities play a significant part in urbanization. However, the natural environment and resources can also be severely harmed by buildings and related construction activities. Large-scale amounts of noise, dust, water pollution, and waste are produced during building construction, operation, and deconstruction. Additionally, buildings are the most energy-intensive industry, using 35% of the world's total final energy consumption. They also significantly increase CO₂ emissions. If nothing is done to increase building energy efficiency, the International Energy Agency estimates that by 2050, energy consumption in the construction industry will increase by 50%. (Nejat, P., Jomehzadeh, F., Taheri, M. M., Gohari, M., & Majid, M. Z. A. , 2015)

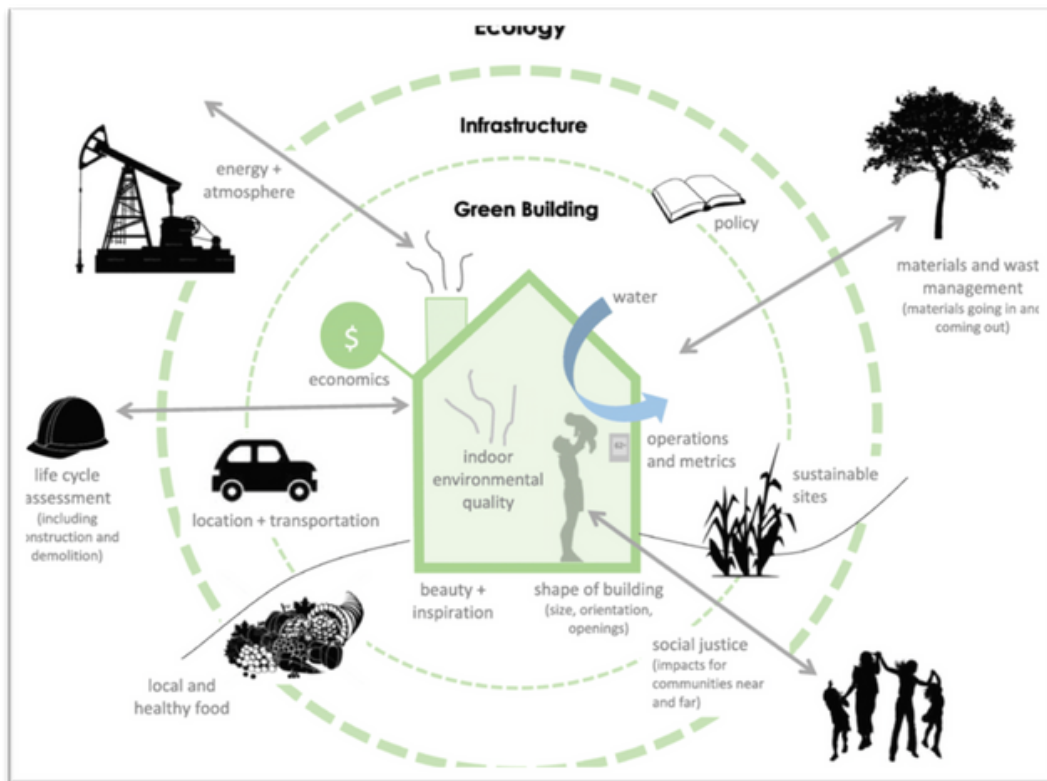
A community's economy, environment, and quality of life are all significantly impacted by the process of designing, building, and occupying structures. Therefore, through the use of sustainable or green buildings, it is imperative to balance the linkages between the built environment, the surrounding environment, and the habitation communities. 51% of construction companies have shifted their focus to green construction. However, many make an effort to do this by making sure the design and construction standards of several established sustainability evaluation procedures are met. The goal is to integrate the structures into the local ecology while also striving to reduce their negative effects on natural resources, reduce energy use and carbon dioxide emissions, utilize environmentally friendly products, and enhance operation and maintenance procedures (Shams, & Rahman ,2017). Making new and existing structures "green" is one of the best ways to combat the issues of CO₂ reduction in urban areas. As a primary definition, a green building is the result of a design that prioritizes improving resource use efficiency—including the use of energy, water, and materials—while minimizing the effects of buildings on human health and the environment over the course of their lifetimes. This is accomplished through better siting, design, construction, operation, maintenance, and removal (Heiskanen, E., Johnson, M., Robinson, S., Vadovics, E., & Saastamoinen, M.,2010).

METHODOLOGY

Understanding green buildings and the advantages of implementing them in our daily life can help us understand better what are the green building and how can we measure their effectiveness in terms of environmental performance. This approach, which is based on an in-depth and exhaustive investigation with several proposals, attempts to familiarize with the possibilities of new ones that are entirely eco-friendly buildings. This analysis also discusses the advantages and green buildings in Albania. In order to measure the "green" buildings in Albania, the evaluation was performed based on the four criteria of Leadership in Energy and Environmental Design (LEED), with a score of 6 indicating that the structure had all of the characteristics required to be classified as a green building. Moreover, a survey was used in order to better understand how well informed are people about what green buildings represent and their benefits.

TRYING TO GRASP THE CONCEPT OF GREEN BUILDINGS

Green building, also known as sustainable building, green architecture, or green construction, is the practice of using resources sparingly and with minimal impact on the environment. The goal of green buildings is to increase beneficial benefits over the course of a building's life cycle while simultaneously reducing negative effects on the environment and resource use. It is widely acknowledged that green building activities include the planning, design, construction, and operation of buildings with several primary considerations, including efficient use of energy, water, and material; improvement of indoor environmental quality; and minimization of negative impacts on the environment. Green buildings have a variety of definitions and rating systems around the world. It is important to remember that the idea of a "green building" encompasses both sustainability and high performance, meaning that energy efficiency cannot be sacrificed for a lower degree of comfort or indoor environmental quality.

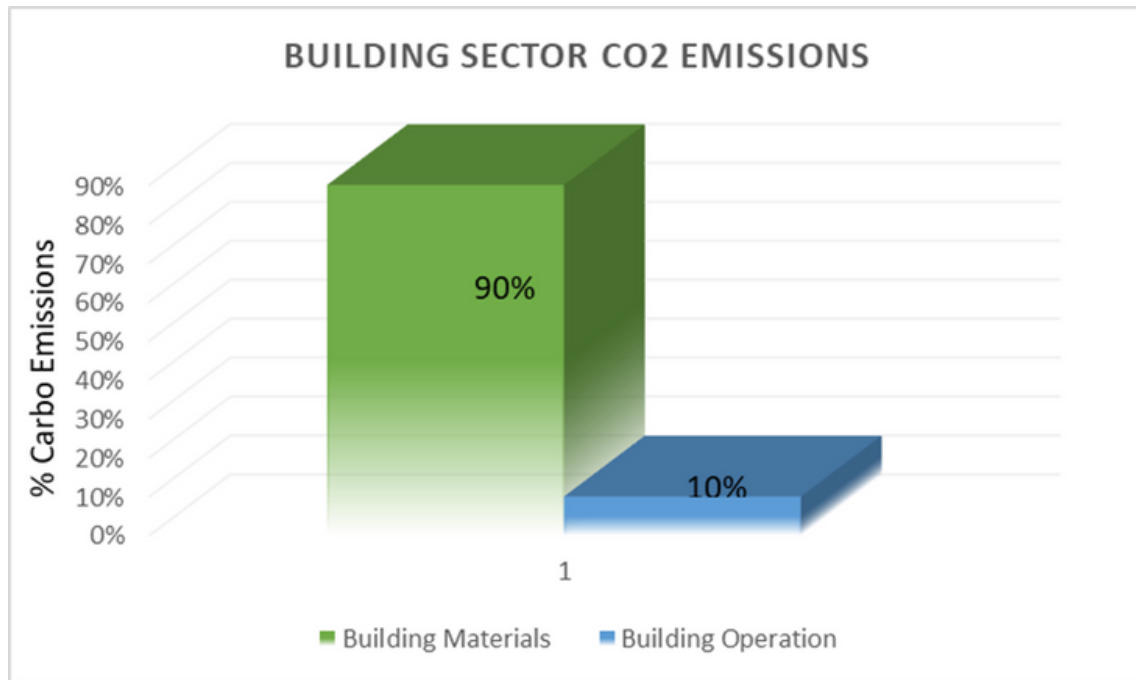


LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN - LEED

One of the biggest problems of our day is climate change. Virtually every area of life as we currently know it will be impacted by global warming, frequently disproportionately affecting our most vulnerable and least resilient societies. Through a comprehensive focus on efficiency and sustainability, LEED enables green buildings to demonstrate their enormous potential to mitigate climate change. Beyond simply reducing energy and resource use, LEED rewards projects that reach net zero or even produce positive energy returns to the grid.

The following are some ways that LEED-certified buildings help to mitigate climate change and emission attributed to construction emissions:

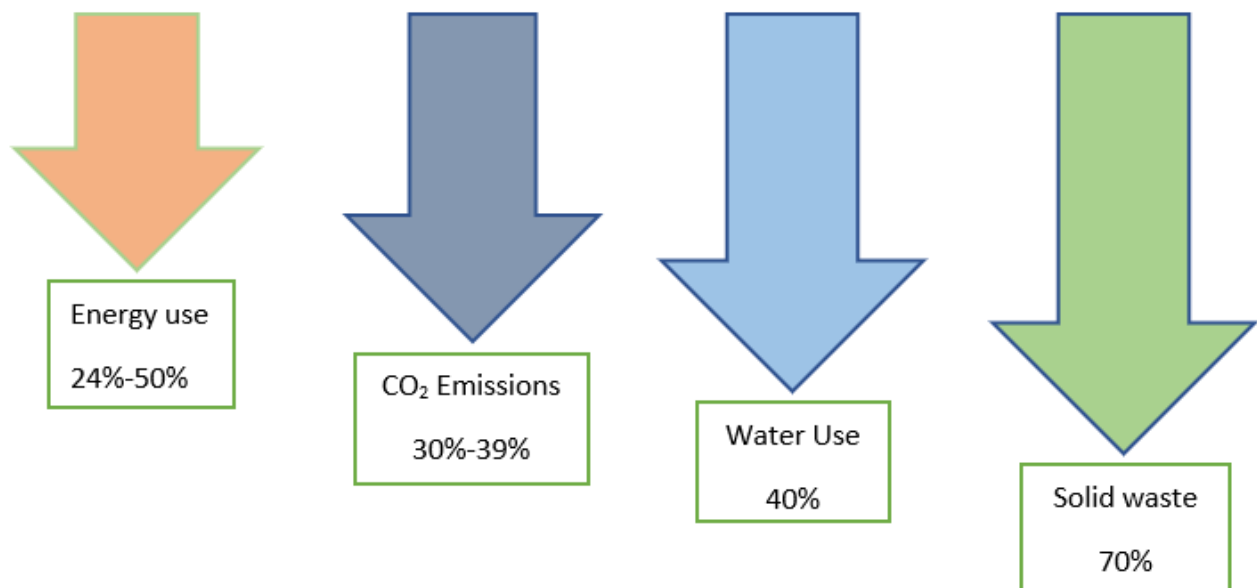
- Utilize less energy and water: LEED honors decreases in both water consumption and "embodied carbon" associated with producing, transporting, and treating that water.
- Take into consideration the life cycle impacts: The life cycle assessment (LCA) of building products and materials, and consequently, complete buildings, is encouraged by LEED.
- Green buildings offer means to actively influence residents in ways that benefit the climate, hence encourage sustainable initiatives. Buildings, for instance, can provide opportunity for greater composting, less trash going to landfills, and alternate transportation.
- Reduce carbon footprint: LEED encourages careful placement choices with credits that promote proximity to amenities and transit, as well as the preservation and construction of naturally vegetated land areas and rooftops (Kazdin, A. E., 2021).



ADVANTAGES AND DISADVANTAGES OF GREEN BUILDING CONSTRUCTIONS

There are numerous advantages to using green construction:

Environmental benefits:	Economic benefits:	Social benefits:
<ul style="list-style-type: none"> • Emissions reduction • Water conservation • Stormwater management • Temperature control • Waste minimization • Better air and water quality • Lessening of solid waste • Preservation of natural resources • Improvement and protection of ecosystems and biodiversity 	<ul style="list-style-type: none"> • Energy and water savings • Increasing property values and profits • Lessening the strain on infrastructure • Improving employee productivity • Sales improvements • Developing the local talent pool • Reducing operating costs • Optimizing life cycle performance • Being eligible for various tax rebates, zoning allowances, and other incentives in many cities 	<ul style="list-style-type: none"> • Better occupant comfort and health • Better air, thermal, and acoustic conditions • Enhance occupant comfort and health • Possibly reducing growth of mold and other airborne contaminants that can damage workers' productivity and/or health

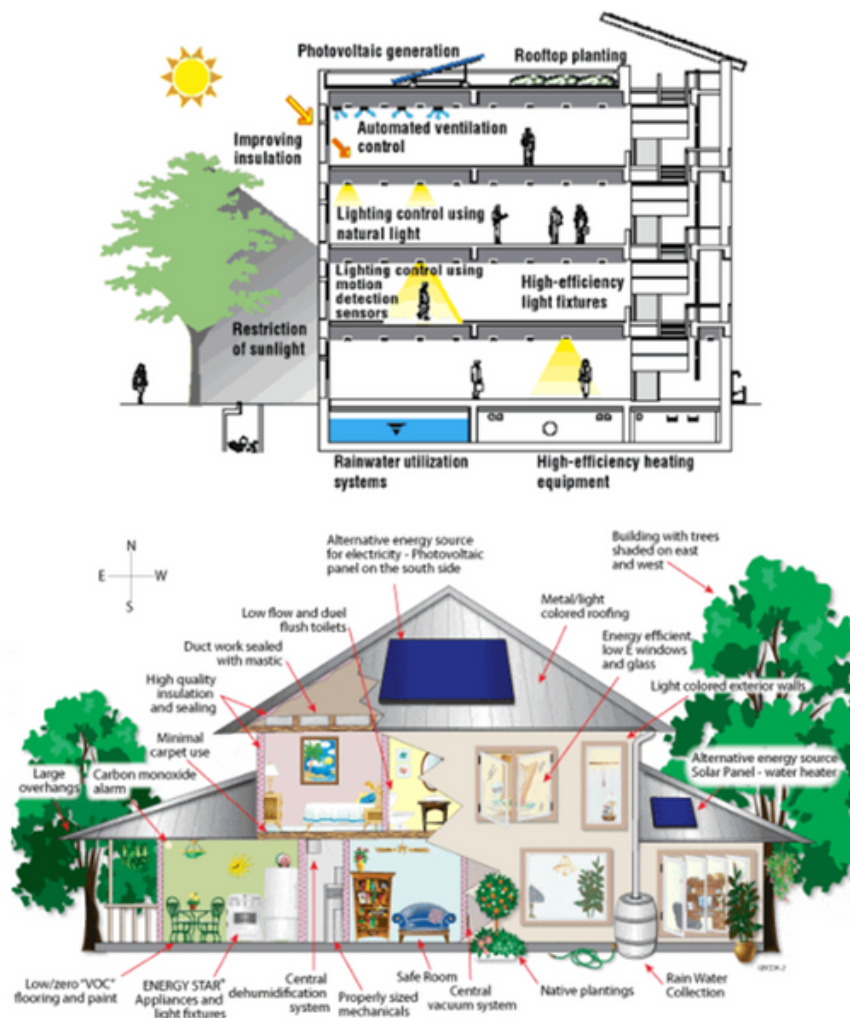


On the other hand, disadvantages of using green construction:

- 1.The upfront constructing cost, which may be more than for traditional structures.
- 2.Bank funding for projects can be challenging to obtain because a lot of the tools and techniques are still rather new.
- 3.The availability of green building materials is not always as high as that of conventional ones.
- 4.Similar to locating traditional suppliers, finding artisans and service providers with expertise in green design might be more difficult.
- 5.Because green buildings can be more complicated, they can cost more and take longer to construct.
- 6.To make sure that you are really having an impact, you should conduct your homework because some supposedly "green" goods are not actually "green" (n.d, 2021).

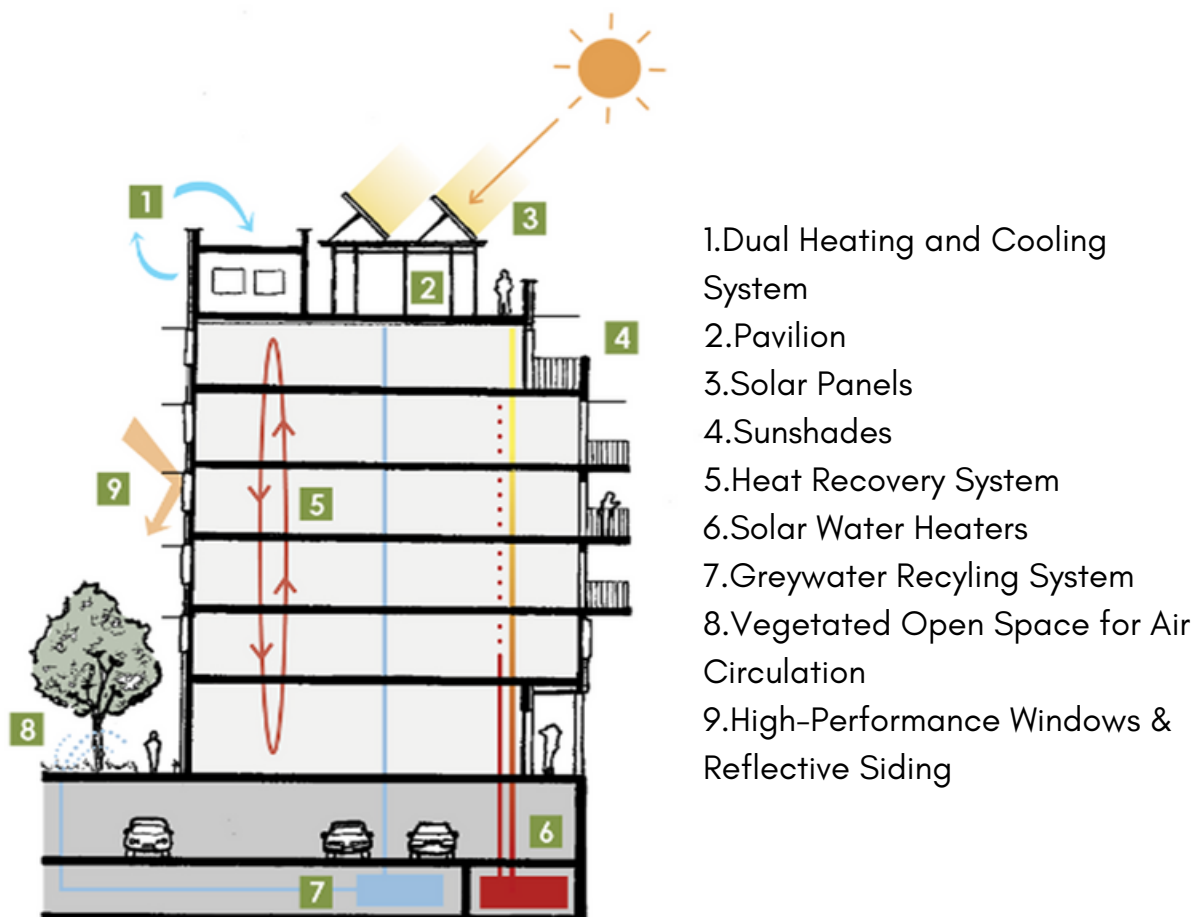
FUNCTIONAL ELEMENTS OF A GREEN BUILDING

Commonly reported efficiencies/benefits associated to green building include saving energy (30–40%) and water (20–30%), improving interior air quality, improving health and productivity, increasing property value, and improving day light and ventilation, among others. Although the environmental benefits of green buildings are obvious, there are also strict criteria that must be met before engaging in green construction practices (Çiner & Doğan-Sağlamtimur, 2019).



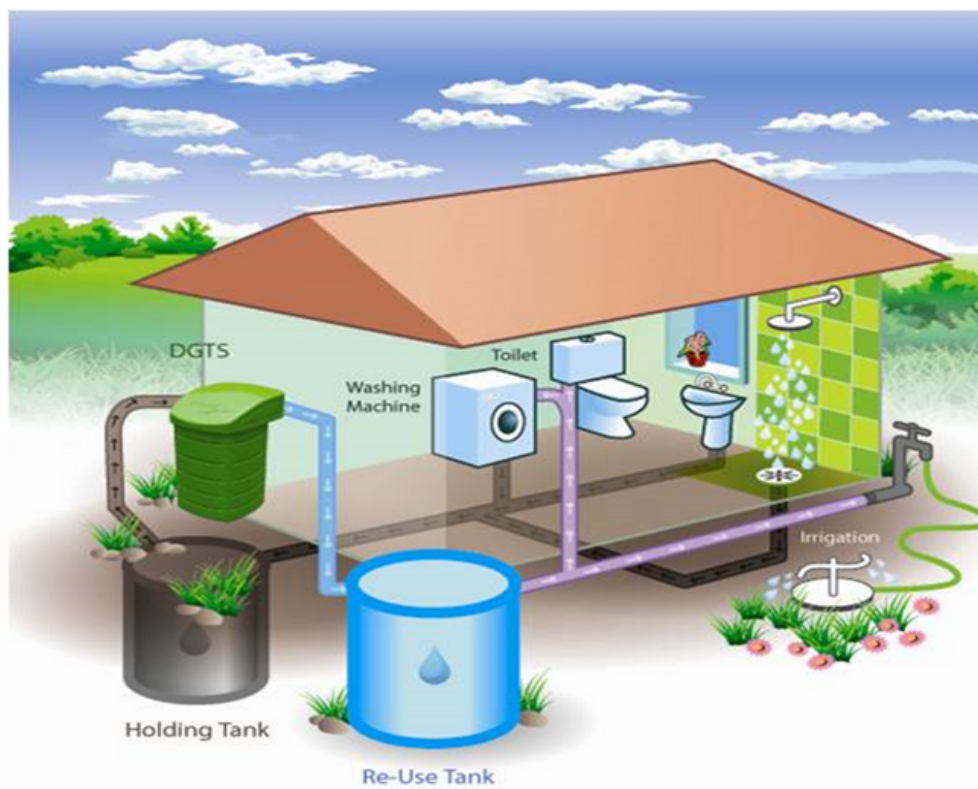
ENERGY EFFICIENCY

One of the main criteria for a green building is that it should have the best energy efficiency while still offering the desired levels of thermal and visual comfort. Utilizing materials, methods, and components that lower energy consumption in structures and facilities can assist enhance energy efficiency. They could add insulation to the walls, ceilings, and floors, along with high-efficiency windows, to improve the building envelope's efficiency. In low-energy homes, passive solar building design is a common tactic used. Additionally, strategically positioned windows can increase natural light and reduce the demand for electric lighting during the day. The environmental effect of the building can be greatly reduced by on-site generation of renewable energy using biomass, solar, wind, or hydropower. Solar panels of the BIPV variety can be utilized as façade projections because they let in daylight and generate electricity (n.d., 2017).



WATER EFFICIENCY

Key goals of sustainable building include lowering water usage and preserving water quality. Utilizing water-saving devices like low-flow showerheads and ultra-low flush toilets can help reduce the amount of water used. Water quality and energy efficiency are both increased while using point-of-use water treatment and heating, which also reduces the amount of water in circulation. Water can be recycled for use in other processes, and zero discharge can be obtained (n.d. 2017). Water Efficiency includes grey water recycling, pressure reduction, rainwater harvesting and plumbing fixtures with low flow for cooling towers.



WALL GARDENING

Another method for green, smart construction is wall planting. This method involves growing plants vertically from the wall. This serves as a substitute for potted plants. However, potted plants offer several advantages, such as the ability to be positioned wherever inside the building. The drawback is that it takes up some room.

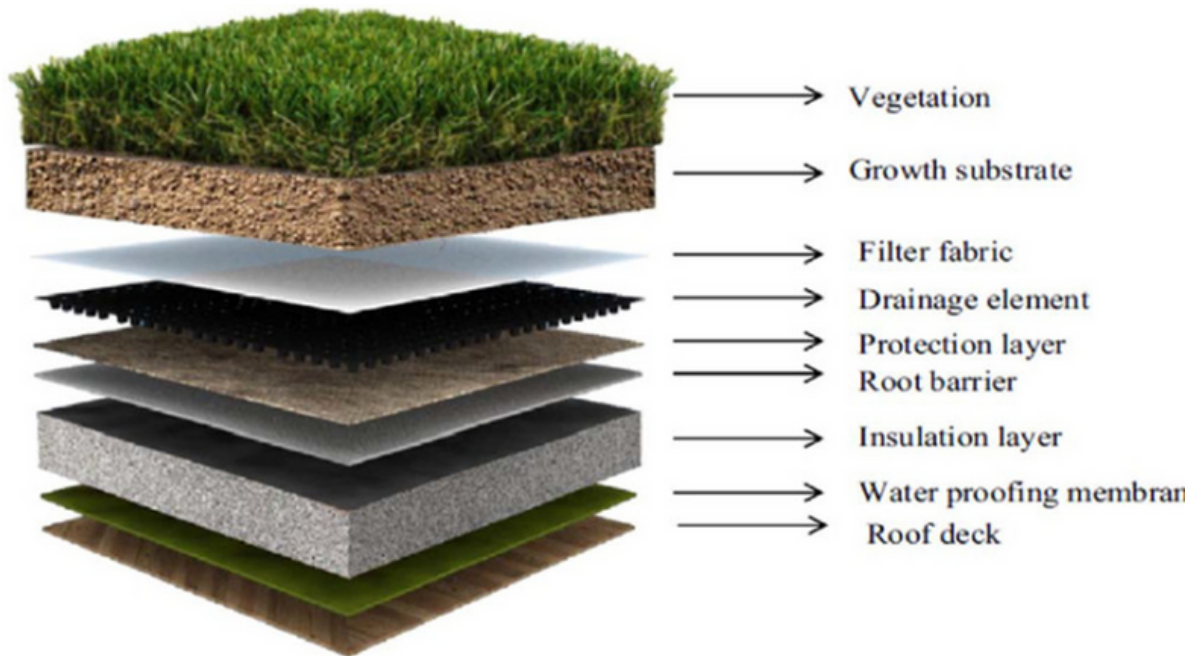
Here are a few advantages of wall gardening:

1. Wall gardening is a good insulator that keeps the building cool and protects from harmful elements.
2. It can reduce the urban heat effect and smog.
3. It can remove harmful toxins like benzene and formaldehyde.
4. It can also act as a soundproofing wall.
5. It can purify the atmosphere by absorbing outside air of pollutants and CO₂ gas, dust, and fuel emissions. It can also reduce the urban heat effect.
6. By establishing habitats for birds and insects, it significantly contributes to the growth of biodiversity.
7. Wall gardening is another option for growing food in cities, helping to sustain and regulate the local food supply.
8. Biophilia has the effect of hastening the healing process for patients.
9. Lessens people's tension and gives them a boost (Pramanik et al., 2021).

ROOFTOP AGRICULTURE

Rooftop Agriculture for the production of fresh vegetables over building rooftops is sometimes known as "vegetated roofs" or "eco-roofs." Over a conventional roof, this consists of a waterproofing membrane, the growing medium (soil), and vegetation. Due to the bare roof's ability to absorb heat and act as an air filter, this rooftop agriculture not only helps to meet local residents' desire for vegetables, but also helps to reduce the use of artificial cooling systems. Green roofs that are properly created and maintained have numerous advantages for the environment and society. It is a crucial tool for improving sustainability and biodiversity by lowering energy use, the greenhouse gas effect, and the effects of urban heat islands.

ROOFTOP AGRICULTURE



Three common indoor plants that are simple to grow can produce all the fresh air that is required:

- "The Living Room Plant," the Areca Palm (*Chrysalidocarpis latescens*), which throughout the day transforms CO₂ into oxygen Mother-in-Tongue laws.
- (*Sansevieria triacetate*), sometimes known as "The Bedroom Plant," performs the same action at night.
- The Money Plant (*Epipremnum aureum*), also known as "The Specialist Plant," is capable of absorbing volatile compounds such as formaldehydes from the air (K.S, V, R, 2010).

GREEN BUILDING AND GREEN CONSTRUCTION INITIATIVES IN TIRANA, ALBANIA

The green buildings movement in Albania is still in its infancy, and most buildings that are in harmony with the environment use cutting-edge techniques like insulated concrete forms and structural insulated panels, as well as more advanced heating and cooling systems, energy-efficient windows, solar water heaters, and possibly even more insulation. However, the most significant development is that Albania is leading the way in more fashionable ecological structures and has developed into an advocate for green structures.

In this section we will analyze some of the latest construction project in Tirana, promoted widely as 'green construction'. The method taken in Tirana to building design with climate change: Tirana Forever Green Tower—is the most intriguing and perhaps most significant in terms of its effects on climate change and energy use. The city of Tirana has been engaged in a planned urban revitalization study during the past few years. Building ten skyscrapers in the city center is a crucial component of this overall design. The structure designed by the Italian construction company "Archea Associate", which won the international competition launched upon invitation for construction of one of the ten towers to be built in the new Tirana city center in 2005, is a component of this ambitious plan for the regeneration of Tirana.

THE "4 EVER GREEN" PROJECT

The "4 Ever Green" project by "Archea Associate" is an 85-meter-tall structure with six levels of underground parking, four levels of retail space, seven levels of offices, and residential levels on the top eight floors. It also includes a luxury hotel with a panoramic location at the top of the tower and seven levels of offices. The tower blends seamlessly with the city's urban surroundings, the distinctiveness of Albanian culture, and the Italian heritage of gardening. The tower is being built, and it will cost 25,000,000 euros overall. What enables this structure to be sustainable? The first benefit is that it uses very little public space. Second, a building envelope that is tightly packed and airtight forms the foundation of the energy design. Thirdly, it provides the maximum amount of brightness, comfort, and openness between the inside and exterior.

Masonry tiles and rectangular skylight apertures are used on the façade because they are practical and have good energy-saving qualities. The building's motion and angular shape, along with the façade and the green spaces at the very top of the tower, are designed to control contact with the sun and maximize natural air exposure in order to achieve the ideal internal climate at the lowest possible energy cost. The openings act as sunscreens inside, controlling and illuminating the space. The tower's design takes six environmentally friendly tactics into account, including:

1. Natural ventilation equipment with heat recovery stored as solar gains by solar collectors in inner walls.
2. Excellent insulation
3. Bioclimatic products to reduce environmental harm.
4. Insulated concrete forms to boost the amount of thermal energy for summer cooling.
5. Green spaces at the very top of the tower to bring fresh air into the building's residential floors.
6. Increases the amount of daylight.



This skyscraper serves as an ideal example of traditional, ecologically sound, low-energy architecture for the Albanian notion of constructing to comprehend the laws of nature. This marks the beginning of a key milestone for Albania on the path to sustainability and suggests that ecological building design will become more widespread (I.M, T.H, 2013).

Rating: According to the evaluation of Green Buildings, Tirana Garden Building, its rated as level 5 because: it has green spaces at the very top of the tower to bring fresh air, increase the amount of daylight, insulation, bioclimatic products to reduce environment harm.

TIRANA GARDEN BUILDING

Due to its location, scale, and design, this idea for a mixed-use commercial and residential complex in Tirana has the potential to become a new urban emblem for the Albanian city. Commercial, tertiary, and residential properties totaling around 40,000 square meters are arranged in two 23 and 27-story buildings that protrude from a permeable basement at the urban bottom floor. More than 400 automobiles are parked in four underground levels, while a big commercial hall and junction levels between the two growing volumes form a significant communal area that is condensed outside but more ethereal inside, like a covered square. The use of an exterior grille that increases the building's urban value distinguishes the façade treatment, which is uniform in its systematic approach but also attentive in carefully customizing particular sections. This structure serves a variety of purposes, from the structural one of arranging the loggia and balconies that surround the building in an organic way to the design of a vertical garden that, when disproportionally distributed according to the characteristics of apartments, creates a green mantle where the rhythm of the modules and the typology of the essences will produce a variety of colors and textures (n.d. 2021).



Rating: According to the evaluation of Green Buildings, Tirana Garden Building, its rated as level 4 because: it has green facades and ventilated facades, both of which have advantages in terms of noise reduction, plant variety, CO2 reduction from photosynthesis, performance in wet conditions, maximum durability, and protection from the effects of the sun and rain.

THE DOWNTOWN ONE

The Downtown One project has received a gold level LEED Pre-certification. The US Green Building Council has granted it LEED precertification, making it the first building in Albania to do so. Colliers International Albania and the Colliers International Poland Green Building Advisor Team, led by Andrzej Gutowski, provided guidance on the precertification process. The Downtown One project is a mixed-use, environmentally friendly skyscraper built by Kastrati Construction on a premium site between the CBD and the city's core. The 37-story structure will have 18 residential levels, 5 commercial floors, 11 high-quality office floors, 3 floors for amenities & services, and 5 subterranean parking floors. Its height is 144 meters. For the residential flats and the office units, it provides two separate reception spaces. The commercial sector also has a separate entrance. The Downtown One project is intended to showcase a variety of environmentally friendly features, including electrical car charging stations in each underground parking floor, high-efficiency HVAC and lighting systems, good thermal insulation, above-average volumes of fresh air for occupants, bike racks, shower and changing rooms located close to the bike racks, and bicycle racks. By optimizing flow and flush rates as well as cooling tower cycle times, the project also intends to reduce water use. It will become a well-known case study in Albania of how to maintain a socially responsible, pleasurable, cozy, and healthy workplace while also meeting the demands of its clients. This certification, which is the first of its kind in Albania and is at the highest level possible (LEED Gold), is very significant for the Albanian market. The Downtown One project has a unique chance to set itself apart from other construction projects and certify its buildings in accordance with the highest standard of sustainability currently available worldwide. The purpose of this project was to create a high-performing and environmentally friendly structure that would improve the way construction projects are planned, executed, and managed in Albania (n.d., 2020).

Rating: The U.S. Green Building Council has recognized Downtown One as the first building in Albania with a LEED® Pre-certification on the Gold level. According to the assessment of Green Buildings Downtown, it is rated as level 6, because they are included: electrical car chargers, bike racks, showers and changing areas close to the racks, good thermal insulation, HVAC, lighting, and more fresh air for the residents than is typical, tower cycle times, flow and flush rates, and water consumption.

THE DOWNTOWN ONE



THE MASTERPLAN OF A NEW GREEN NEIGHBORHOOD IN TIRANA

The client's requirement to construct a residential area close to Lake Tirana gave rise to the project idea. The artificial lake is surrounded by an urban park with over 120 different species of trees and bushes, providing a natural haven from the hustle and bustle of the city. The Park also has spaces set aside for free outdoor activities. The project's goal was to combine growth and quality of life through the installation of an urban ecosystem model in a vibrant residential neighborhood that was interwoven with its surroundings. The project is being driven by a strategy that incorporates the fundamentals of sustainable development, adjusts to the situation, and offers a long-term perspective.

THE MASTERPLAN OF A NEW GREEN NEIGHBORHOOD IN TIRANA



The primary emphasis has been on making the most of already-existing infrastructure, considering the urban form, and finding a reasonable mix between developed spaces and open areas, where residents may discover public spaces and amenities for the entire neighborhood. In addition to providing green spaces and fostering biodiversity, open public spaces need to reduce traffic and promote leisure and sporting activities. In order to prevent the huge number of resident automobiles from being seen inside the community, a sizable underground parking lot has been created below the level of the structures. The area for private motorized vehicles has been carefully researched, with parking lots concentrated on the outskirts of the neighborhood, designated locations for deliveries and brief visits, and a cap on the number of spaces. The sustainable neighborhood wants to encourage cooperation, equity, and generational interactions. Bars, stores, and nearby services are intended to be erected across the entire area, and communal open areas are meant to meet the needs of both young and old people. It is crucial for the residents' and neighborhood users' health and wellbeing, which is why the project advocates for slow traffic solutions that keep other hazardous elements like noise and air pollution to a minimum (n.d. 2019).

Rating: New neighborhood in Tirana it is rated as 6 because it contains all of the green and LEED components.

CITIZEN'S AWARENESS REGARDING GREEN BUILDING CONCEPTS IN ALBANIA

In this section we will present the findings from survey distributed (for a 3 months period from September 2022-November 2022) about green buildings concepts knowledge among citizens in Albania. The purpose of the study was to learn how people felt about the value of green buildings, their function in an Albanian city, and their potential for the future construction endeavors. It makes sense that gatherings should be arranged to raise awareness of this practice, which has many positive effects on the environment. The participants showed enthusiasm in learning more about this green practice, how to apply it in the future, and how it will help us, our health, and most importantly, the environment from which everything comes. 256 citizens took part in this survey, 16% men and 84% women took part in the questionnaire. The people who took part and therefore we look at the age from 15 to 25 with the highest participation and then it is followed by the other categories with small differences from one another. From the residential results, we noticed the participation of many different countries, where Tirana leads with the highest percentage of about 76.3%, followed by Durres and Paskuqan which have similar values, and then with the other countries with percentages smaller (See Annex 1).

RESULTS

In order for us to understand how much the participants were familiar with the meaning of Sustainable Building we asked for its meaning. From the answers, we deduced that 73.7% of respondents selected the correct response which is "both A and B", while 7.9% selected the none of the options. Utilizing recyclable and renewable resources while reducing energy use and trash creation are all aspects of sustainable construction. Reducing the method's negative effects on the environment is its main objective. Building sustainability actually entails living in harmony with the environment, taking into account social, environmental, and economic factors when making decisions, and minimizing our carbon footprint by leading a less materialistic and energy-intensive lifestyle. Any economy needs the building sector, but it also has a big influence on the environment. Construction is a significant polluter and one of the major consumers of energy, materials, and water due to its magnitude.

RESULTS

As we saw from the answers of the participants, 52.6% selected the right response which is NO meaning that it does not affect for bad or anything else, 44.7% of them believed that environmental buildings had a significant impact on health. Green buildings, by definition, are those that reduce their negative effects on the environment by using less energy, water, and causing less environmental disturbance on the construction site. Green buildings, which by definition also strive to improve human health through the design of healthy indoor spaces, are arguably less well known. The advantages of lessened energy and water use are well known, but the potential advantages of green buildings for human health have only lately come into focus.

Based on the answers, 79% of respondents selected "increase" as the correct response. Green buildings will use renewable energy and increase energy efficiency to reduce pollution. By using less water, energy, and other natural resources, eco-friendly materials, renewable energy sources, and waste reduction techniques, green buildings help lessen their negative effects on the environment.

In response to the question regarding green building practices, 86.1% of respondents replied with the correct response which is "All of these", while the rest of the respondents provided a different response. The answers to be selected were: Only energy efficiency, only recycled materials, Only Environmental Protection. Developing sustainable sites, boosting water and energy efficiency, lowering waste and emissions, utilizing eco-friendly construction materials, and enhancing indoor environmental quality more effectively than traditional designs are the main goals of green building methods.

As we see from the results of the question about "What Green Building planning considers impacts of a building" 68% of people have choose the correct answer which is economic. When planning a green building, the lot design and development, natural resource efficiency, indoor environmental quality, and the project's total environmental impact are the main factors taken into account.

From the results we understand that 71% of people think that green buildings are more expensive than traditional ones. A green building is an eco-friendly structure that was built primarily with natural resources. These structures consume less water, maximize energy efficiency, provide healthier living environments for occupants, and generate less trash overall. However, ordinary or standard buildings are the exact opposite. They are the typical structures built of bricks, concrete blocks, sheet metal, and other materials. The distinction between green building and conventional building can be summed up as the former being more eco-friendly than the latter.

RESULTS

According to the outcome, "to reduce usage of water" is the answer that most people choose about green building purpose. Green construction not only reduces water waste, but it may also help to increase water reserves, maintain natural resources, defend biodiversity, and improve air and water quality. Green construction according to the respondents also minimizes your carbon footprint by creating less trash and reducing the quantity of hazardous gases released into the atmosphere. Green Building increases building efficiency in terms of water, energy, and material usage, while lowering the impact of buildings on individual health and the environment via better design, construction, operation, maintenance, and removal. We observed that 51% of respondents to the question on the definition of the term LEED selected the right response. LEED (Leadership in Energy and Environmental Design) certified buildings are environmentally friendly. LEED focuses on five essential aspects of environmental and human health performance: energy efficiency, indoor environmental quality, material selection, sustainable site development, and water savings.

Regarding the question "What LEED supports" 76.3% of participants have choose the correct answer which is "all of the above". LEED focuses on five essential aspects of environmental and human health performance: energy efficiency, indoor environmental quality, material selection, sustainable site development, and water savings.

According to the outcome "Capacity for Recycling", is the answer that most people choose about "You're trying to lessen the footprint of your building. This will have a positive effect on which of the following" question. Reducing a building's carbon footprint lowers operating expenses, boosts staff morale, increases property values, and boosts LEED ratings. Buildings become more ecologically friendly, lucrative, and healthy places to live and work.

The majority of participants in have choose: "that employers are more productive in green environments", because of the light and open spaces. By placing plants in cubicles and ventilation the workplace, hazardous chemicals and allergens may be removed, keeping the working atmosphere clean, green, and productive.

We observed that 52.6% of respondents to the question of "Sustainable planning considers environmental, social, and___ impacts of a building", selected the right response which is economical.

According to the open-ended questions with individual responses, "Green buildings are eco-friendly buildings that have a positive impact on the environment," was the most frequently given definition.

CONCLUSIONS

Climate, environment, resources, economy and culture should all be considered when deciding where to build and its index system includes categories such as safety and durability, health and comfort, convenient life, resource conservation and livable environment. In addition to being environmentally friendly (efficiently using energy, water, and other resources, using renewable energy, reducing pollution and waste, enabling reuse and recycling, having good indoor environmental quality, using materials that are non-toxic, ethical, and sustainable), green buildings must also play a crucial role in supplying a comfortable working and living environment for human activities and enhancing quality of life.

We noticed from the responses that the questions about "Green Buildings" in the study, the article, and the questionnaire were all straightforward and understandable, with just a small percentage of incorrect replies. The age group of young people had a higher percentage of engagement, and the rest were older people, as we also recognize that young people are more engaged in and aware about these behaviors. We also saw a diversity of participating nations, including Germany, France, and London, where we believe they are more knowledgeable about eco-friendly activities than Albanians, as they are countries where green building has already been practiced.

It is important for the environment that green buildings are used and designed in order to save running costs, utilize energy effectively, and conserve water. By lessening surface runoff and the heating effect, it also has a negative influence on the environment. Green construction helps in lowering the use of natural resources and raising standards over time.

A long-term commitment to uphold the ideals of natural and sustainable living is required when choosing a green building for a home. Green construction is a conscientious choice to preserve the environment for future generations and avoid capital depletion.

With the convergence of urbanization, globalization and rapidly changing and expanding economy, using these green building concepts will help the world as well Albania in satisfying the shortage of valuable resources and also will prevent environmental degradation.

RECOMMENDATIONS

Some of the recommendations we should make are as follows in light of all the research done, the outcomes obtained, and the conclusions drawn:

1. Development of green practices education and communication services educate the banking and real estate sectors on the standards and advantages of green building.
2. Clearly describing the financial advantages of green building to developers, determining how green building affects property valuation, and developing standards and a method of measurement that supports assessment values.
3. Demand that all new public structures be constructed using recognized green building certification systems.
4. Maximize use of recycled-content items.
5. When creating roads, buildings, and other infrastructure, use recycled materials.
6. Use water-saving tools and techniques when construction.
7. On construction sites, use sustainable stormwater management.
8. Projects at drinking water and wastewater treatment plants should take energy efficiency and on-site energy generation into account.
9. Buildings should be designed and upgraded with efficiency in mind.
10. Buy "green" electronics, and dispose of the ones you no longer need appropriately.
11. Indoor Air Quality protection should be a top priority when designing, building, renovating, and retrofitting new residences, schools, and office buildings.

REFERENCES

- Bandal, A. (2019, March 1). Energy-Efficient Green Buildings. Cooling India Monthly Business Magazine on the HVACR Business | Green HVAC Industry | Heating, Ventilation, Air Conditioning and Refrigeration News Magazine Updates, Articles, Publications on HVACR Business Industry | HVACR Business Magazine. <http://www.coolingindia.in/energy-efficient-green-buildings-case-study/>
- Çiner, F., & Doğan-Sağlamtimur, N. (2019, November). Environmental and sustainable aspects of green building: A review. In IOP Conference Series: Materials Science and Engineering (Vol. 706, No. 1, p. 012001). IOP Publishing.
- Cole, L. B. (2019). Green building literacy: a framework for advancing green building education. *International Journal of STEM Education*, 6(1), 1-13.
- Environmental benefits of green building. (2019, January 11). IQUBX. <https://iqubx.com/green-buildings-for-a-better-future/environmental-benefits-of-green-building/>
- Environmental Sustainability in the Extractive Industry: The Case for Climate Change Mitigation. (n.d.). <https://slideplayer.com/slide/4886780/>
- GEOLN.COM. (n.d.). TIRANA GARDEN BUILDING. GEOLN.COM Â Find Off-plan Property or Real Estate Resale Directly From Developers and Owners. <https://geoln.com/albania/tirana/tirana-garden-building>
- Gsb, T. (2021, April 25). The Concept Of Water Efficiency In Green Buildings. Go Smart Bricks. <https://gosmartbricks.com/water-efficiency-green-buildings/>
- Guest, S. (2021, October 6). Pros and Cons of Green Buildings: Do the Advantages Outweigh the Disadvantages? Solar Feeds Magazine. <https://www.solarfeeds.com/mag/pros-and-cons-of-green-buildings/>
- Heiskanen, E., Johnson, M., Robinson, S., Vadovics, E., & Saastamoinen, M.,(2010). Low-carbon communities as a context for individual behavioural change. *Energy policy*, 38(12), 7586-7595.
- J.Fehrenbacher, (2014), GREEN BUILDING 101: Eco-Power and Energy Efficiency, inhabita, From: <https://inhabitat.com/green-building-101-eco-power/>
- K, N. S. (2022, October 8). What is Embodied Energy of Building Materials? The Constructor. <https://theconstructor.org/sustainability/embodied-energy-building-materials/567108/>
- Kazdin, A. E. (2021). *Research design in clinical psychology*. Cambridge University Press.
- Kibert, C. J. (2016). *Sustainable construction: green building design and delivery*. John Wiley & Sons.

- Le Trung, N., Khawaja, M., Beyranvand, E., Bucchini, D., Singh, A., & Alam, A. A. (2018). Approaching a nearly zero-energy building in integrated building design by using green roof and double skin façade as major energy saving strategies.
- MAU Architecture – GREEN HOUSING TIRANA. (n.d.). MAU Architecture. <https://www.mauarch.com/green-housing-tirana>
- Mehmetaj, I. (2013, June 7). Green Building in Albania, not a Dream for Builders Any Longer. https://www.academia.edu/443/3668092/Green_Building_in_Albania_not_a_Dream_for_Builders_Any_Longer.
- Mitigation and Adaptation Lecture 9. (n.d.). <https://slideplayer.com/slide/7517342/>
- Nejat, P., Jomehzadeh, F., Taheri, M. M., Gohari, M., & Majid, M. Z. A. (2015). A global review of energy consumption, CO2 emissions and policy in the residential sector (with an overview of the top ten CO2 emitting countries). *Renewable and sustainable energy reviews*, 43, 843–862.
- Non-polluting construction materials. (n.d.). https://www.activesustainability.com/construction-and-urban-development/non-polluting-construction-materials/?_adin=02021864894.
- Oladokun, T. T., Gbadegesin, J. T., & Ogunba, O. A. (2010). Perceptual analysis of the benefits and implementation difficulties of green building in Lagos Metropolis, Nigeria. In *Proceedings of international research conference on sustainability in built environment*. Columbia, Sri Lanka: Commonwealth Association of Surveyors and Land Economist (pp. 166–178).
- Pramanik, P. K. D., Mukherjee, B., Pal, S., Pal, T., & Singh, S. P. (2021). Green smart building: Requisites, architecture, challenges, and use cases. In *Research anthology on environmental and societal well-being considerations in buildings and architecture* (pp. 25–72). IGI Global.
- Sai, K. (2014, May 26). Green Buildings. https://www.academia.edu/443/4164175/Green_Buildings
- Shams, S., & Rahman, M. M. (2017). Green building. In *Sustainable Utilization of Natural Resources* (pp. 539–566). CRC Press.
- The role of LEED in climate change mitigation | U.S. Green Building Council. (53568, March 25). <https://www.usgbc.org/articles/role-leed-climate-change-mitigation>
- Tirana office building secures country's first LEED precertification. (n.d.). Property Forum. <https://www.property-forum.eu/news/tirana-office-building-secures-countrys-first-leed-precertification/5938>.
- Yang, B., Lv, Z., & Wang, F. (2022). Digital Twins for Intelligent Green Buildings. *Buildings*, 12(6), 856. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/buildings12060856>.

END NOTE

This research was conducted by Eglantina Lushaj during her internship at Build Green Group. Eglantina is following her Bachelor in the environmental studies department.

Her passions are research work and writing projects. She is a very hardworking, patient, and fast learner. Organized and highly motivated professional with 2 years of customer service experience. Her goals are to increase her environmental knowledge and become one of the next generations of young environmental problem-solvers.

The internship at Build Green Group allows the intern to create his own work, in one of the 4 pillars predetermined by the organization 2020-2025 strategy, focusing on Environmental Justice, SDGs, Environmental Digitalization and Research and Innovation.

This short analysis includes 2 of the 4 pillars, SDGs as well as Research and Innovation.

Adress: Str. Nikolla Tupe, Tirana, Albania

Phone: +355693639395

Web: [www.https://buildgreenalbania.org](https://buildgreenalbania.org)

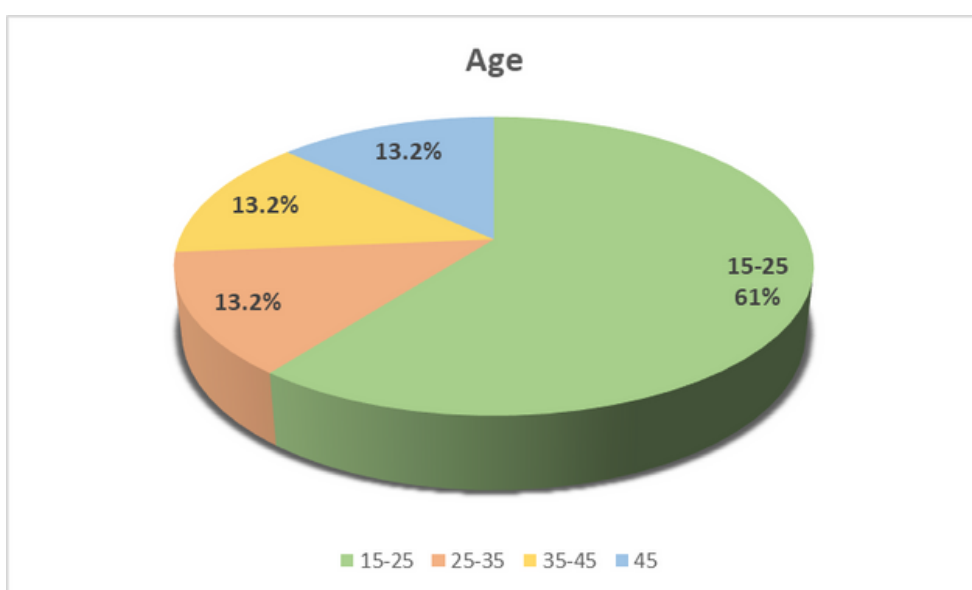
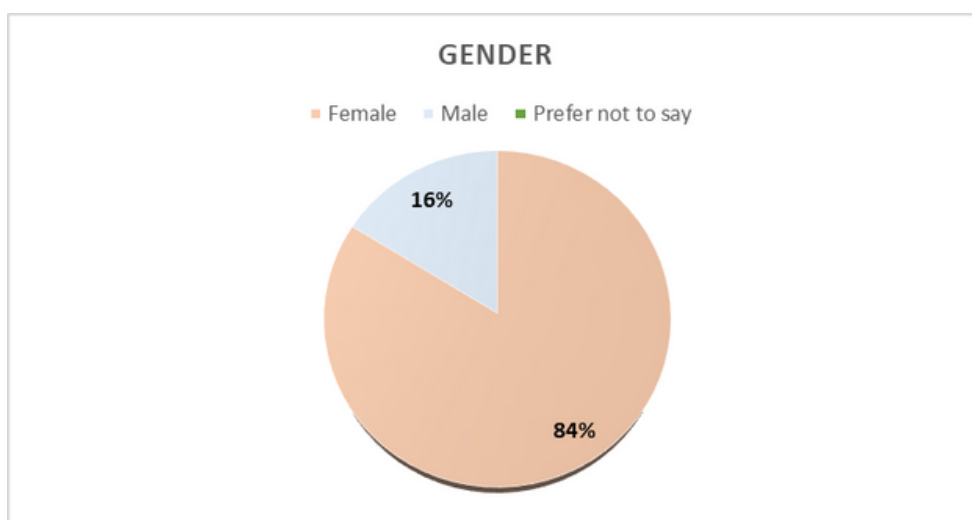
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ANEX 1

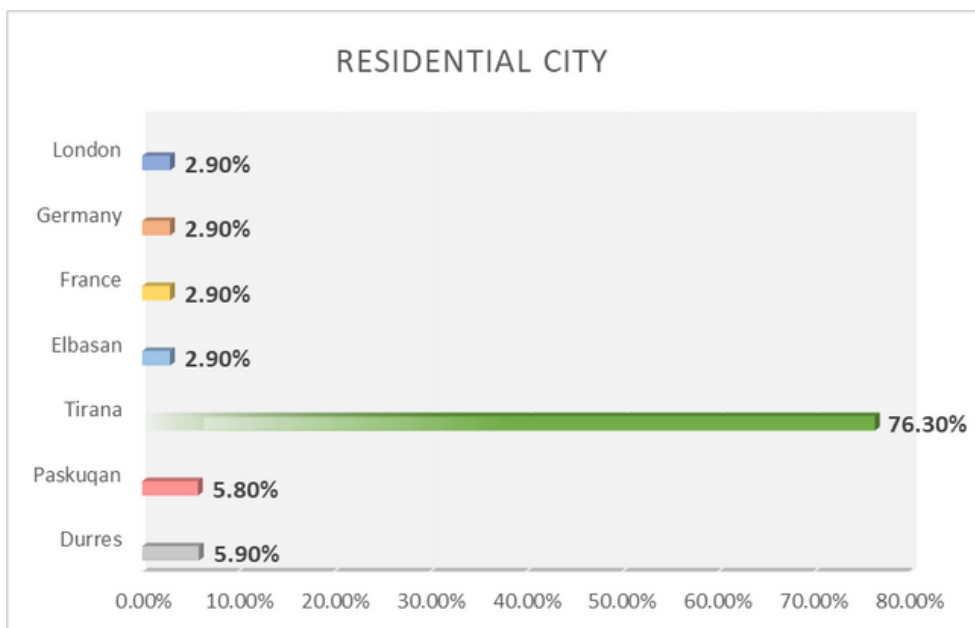
Dear participant! This questionnaire has an academic character, as it is developed within the framework of my article with a theme: "Green Buildings in Albania". The survey aims at gathering the perceptions of individuals on the importance of green buildings and their role in a city in Albania, as well as future potential. The questionnaire is completely anonymous; therefore, I would kindly ask you to be as honest as you can in your answers. Thank you in advance!

SECTION 1: DEMOGRAPHIC INFORMATION

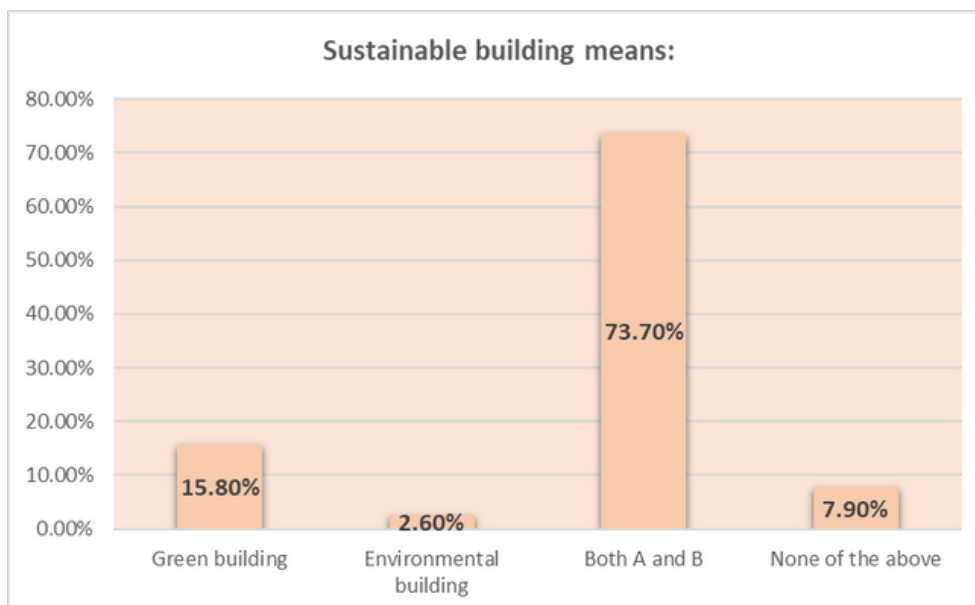


ANEX 1

SECTION 1: DEMOGRAPHIC INFORMATION



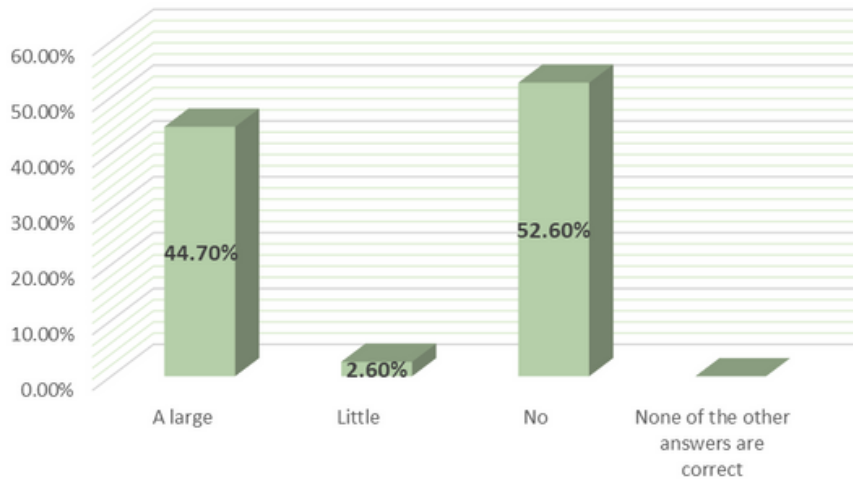
SECTION 2: PERCEPTION OF PARTICIPANT FOR GREEN BUILDING



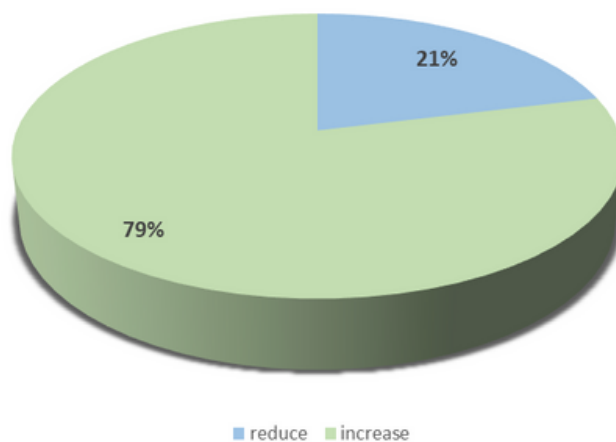
ANEX 1

SECTION 2: PERCEPTION OF PARTICIPANT FOR GREEN BUILDING

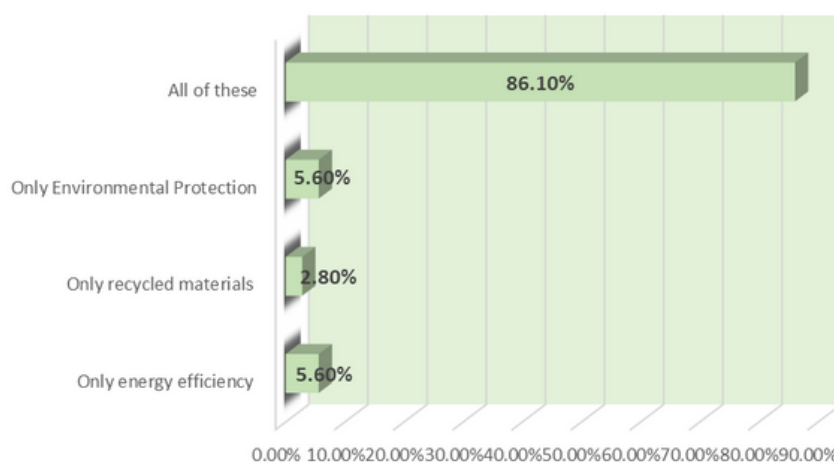
Environmentally friendly building materials have ____ affect on the health of people and animals



Green buildings will use renewable energy and ____ energy efficiency to reduce pollution



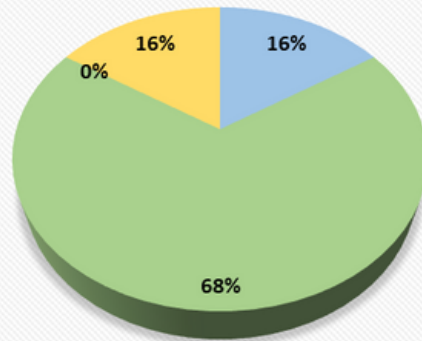
Green building practices include:



ANEX 1

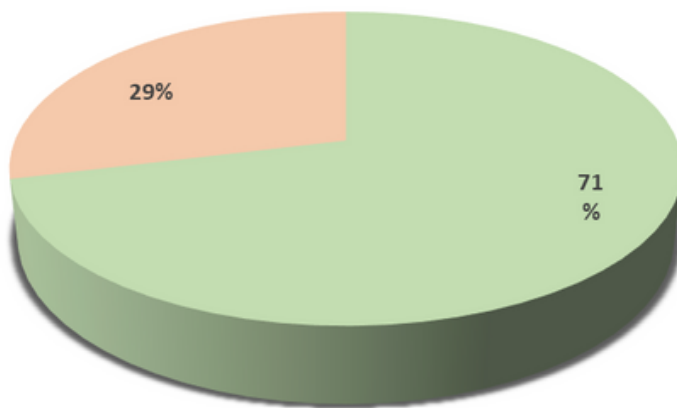
SECTION 2: PERCEPTION OF PARTICIPANT FOR GREEN BUILDING

Green building planning considers environmental, social, and _____ impacts of a building.



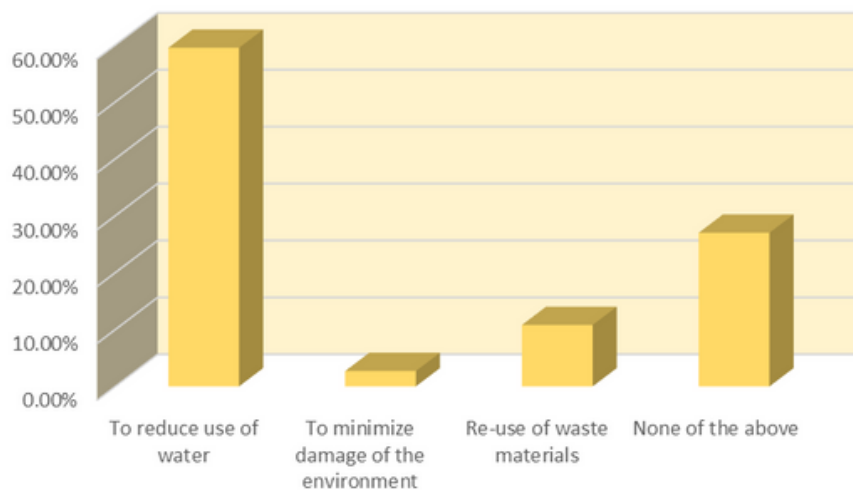
■ Technological ■ Economic ■ Political ■ All of these

Does green building costs more than traditional building?



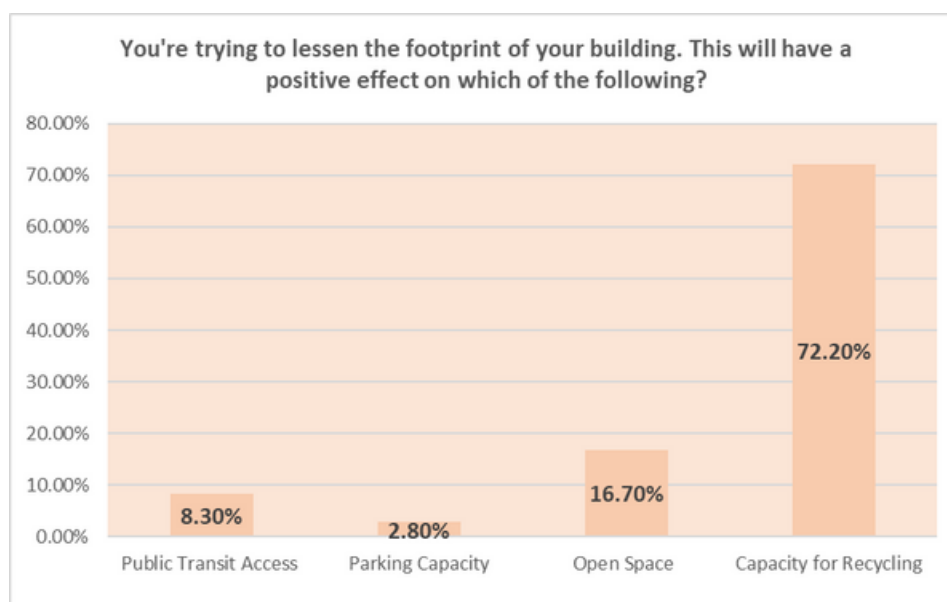
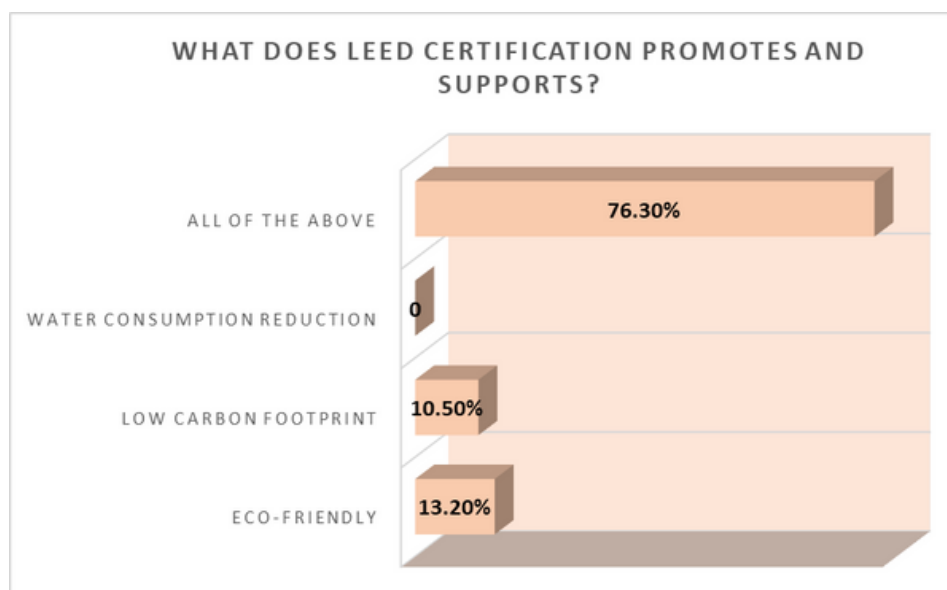
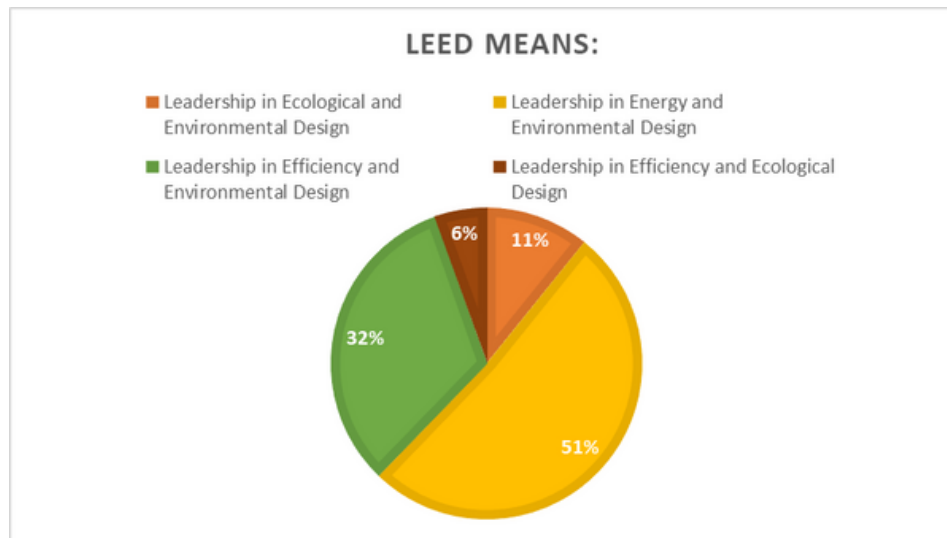
■ Yes ■ No

Which of the following is not the purpose of a green building?



ANEX 1

SECTION 2: PERCEPTION OF PARTICIPANT FOR GREEN BUILDING



ANEX 1

SECTION 2: PERCEPTION OF PARTICIPANT FOR GREEN BUILDING

