**14305, Robert Di Franco**

Good Afternoon Ladies and Gentlemen,

Energy efficiency in construction is an absolute necessity in today’s world but what exactly do we mean by energy efficiency, specifically in construction. At its most basic it is using our globe’s resources wisely, not just economically when we plan and build new structures and even new communities. There are organizations that offer certification to businesses who are committed to building green and also offer guidance in how best to do this.

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices in the United States. <http://www.usgbc.org/leed#overview>. “**LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy.”**

**A wise builder and planner is obviously serious about saving money. But, a wise builder and planner should also be serious about conserving energy, reducing consumption of building products and choosing better building material. Wise planners don’t want to follow others’ innovation, they want to drive innovation. By utilizing third party certification builders are ensured that their projects are operating as they planned now and in the future. LEED is one such organization.**

**LEED offers five types of certifications: Building design and construction, which covers planning and building from the ground up. Not every group has control over the entire building project, but may only be responsible for the living areas. For this LEED offers Interior Design and Construction where they plan the interior part of the project to make living areas green. For existing structures they have a certification program called Building Operations and Maintenance. All of these programs are designed for hospitals, schools, corporate and retail buildings.**

**But, LEED is also concerned with personal and family living space as well so they have two programs designed just for them. One is Neighborhood development where they plan an entire new neighborhood or community from the purchase of the land to the layout of the community to create more green space, make the community more accessible and safer. This can incorporate homes and businesses and how they interact together in a new community. The last program is for homes, single family homes, low rise and mid-rise multi-family homes. Planning of this nature is imperative as our population grows and we must decide whether to refurbish older structures or replace them. Why, you may ask, is this planning so crucial, when in the past we just let new structures go up where ever someone wanted to build as long as it was zoned correctly? According to LEED, “Because sprawl is a scary thing.”**

**BREEAM is another organization that aids planners, builders and developers in creating and demonstrating the environmental credentials of their buildings. In this measurement they address environmental and sustainability issues in a way this uses evidence based science and research but presents it in ways that are flexible and easy to understand. This certification offers a positive influence on the design, construction and management of buildings.**

**The certification of these two organizations offer a wide range of tools for anyone involved with new or existing structures. It helps those who manage existing structures to monitor their performance and develop action plans to improve that performance by better maintenance operations or by making improvements. It helps their staff to know how to do their jobs better and improve existing structures. It helps those who are property agents to be able to offer credentials on the performance and sustainability of the buildings to prospective purchasers and tenants. It aids design teams, whether they are designing brand new structures or redesigning existing structures in ways to make them more energy efficient in their performance. It helps funders to decide which projects they want to invest their time, money and energy into as well as help them to plan projects more economically than in the past.**

**At the very beginning of any project, before the first shovel of dirt is thrown, it helps planners and developers to design and plan projects that will meet their clients’ wants, needs and desires and add a few things to a project that clients may not have considered. By having this information at their disposal planners can compete on a larger scale and compete in a wider geographic area because these plans can be tailored to meet the needs and resources of a specific geographic area and a specific country’s guidelines.**

## In a study done by Sweett Group and Bre, Delivering sustainable buildings: Savings and paybac**k - August 2014,** <http://www.breeam.org/page.jsp?id=224>**, “they found that specifying sustainability measures during the building’s design and procurement state can result in cost savings over the operational life of the building for little or no additional upfront cost.”**

This challenge the idea that to build something environmentally green is too expensive. Their results actually show that by planning, developing and building with environmentally sustainable materials is not only affordable in the beginning, it is more economical in the life of the project.

Green Star Energy is a residential supplier of gas and electricity in the UK. They are a subsidiary of Just Energy Group, Inc. who serves North America. <http://www.mygreenstarenergy.com/about-us/who-we-are/>. Green Star Energy that their goal is to source as much electricity as possible from green sources, quoting about a 94% success rate last year for their electricity mix. In the past energy was obtained from fossil fuels and later nuclear plants. These were less expensive than green products but not environmentally sustainable or as safe. Newer and better choices such as hydro/wind, Geo thermal and solar sources are green. They are environmentally safer and more sustainable. For these reasons Green Star Energy has several projects they are funding to develop new and cheaper ways of providing green energy. On their website they offer a number of ways that individuals and families can contribute to energy saving solutions in their home and work.

In an article from World Bank, Building Energy Efficient Cities: New Guidance Notes for Mayors, December 2014, “Because of the critical role cities play in economic growth, urban energy efficiency measures and planning can help put national economies on a path toward green growth, with many subsequent economic, health, and environmental benefits,” said Anita Marangoly George, Senior Director of the World Bank’s Energy and Extractives Global Practice.

As you can see, going green not only helps individuals, businesses, and communities, it also affects the economics of entire countries and societies. Any time a structure or city operates without consideration to environmental issues the cost of operation goes up in more ways than just financial means. It goes up in the cost to the environment and the value of life for the people in that city or country. If we continue to operate without consideration to the environment our value of life will go down. None of us want that. That is why we gather together to find solutions to energy emissions and ways to create and maintain energy that is both safe and economical. This is a global issue and it is imperative that we consider every possible way to only build and develop new buildings and communities in ways that are green. It is also important that as the need and opportunity arises that we make the necessary changes and upgrades in existing structures to make them more environmentally safe and functional.

“Integrating energy efficiency can also contribute to improving municipal services and increasing competiveness, making cities more inclusive and sustainable. For example, improving public transport not only lowers energy consumption, but also reduces congestion and pollution, and increases People’s mobility – which is especially critical for people in the bottom 40 percent of income levels who need access to jobs, schools and public services.”

Think about cities you may have only heard about but not visited, who have large populations but no public transit. The population may consist mainly of low income individuals who worked at unskilled labor and have little access to education or health care. That only adds to the increase of health issues and the population remaining low income and poorly educated. By improving public transport this population has access to, many resources that can improve their quality of life now and for future generations. By doing this, the city’s reputation improves and thus will increase opportunities for the city to gain new business and economic growth.

By requiring all new building projects to be environmentally sustainable and the communities planned residents will have healthier living environments, more green space and more peaceful surroundings. The result will be people who are happier, healthier and more productive regardless of their position in the workplace.

The article from World Bank goes on to say, “Buildings are the world’s largest consumers of electricity, but it is estimated that 80 percent of the energy efficiency potential of buildings is untapped.” By following the mayoral notes offered in this report, cities have seen “measurable improvements in energy use and quality of life.” “In Kiev, Ukraine, retrofits to public buildings in the mid-2000’s resulted in a 26 percent reduction in heat consumption, as well as more comfortable buildings. Other notes advise cities in how to make city wide assessments of existing structures and how to make them more energy efficient.

**“Cities have to make hard decisions on investments, so it is important to go back to the basics and understand where the opportunities are, what measures offer the greatest potential for energy efficiency improvements, which sectors to prioritize, and what the implementation constraints are,” said Anita Marangoly George.**

**Making our world, our cities and our buildings more environmentally green and more energy efficient isn’t just happening in the United States and Western Europe. Russia is also very active in this global exercise in improving our planet. “CENEf is the leading Russian organization which, for over 20 years now, has been providing a wide range of consulting services in the development of energy efficiency policies.”** <http://www.cenef.ru/art_11207_114.html>. “It is a non-profit, non-government organization, founded to promote energy efficiency and environmental protection in Russia. It is one of six energy efficiency sister-centers established in transition economies; the other centers are located in Poland, the Czech Republic, Bulgaria, Ukraine, and China. CNEf is active in several regional areas in Russia and was directly involved in the establishment of energy efficiency institutions and the implementing of regional energy efficiency laws and building codes. It is also active in large projects in Kazakhstan and Georgia and other international projects, workshops and seminars in other countries. They work with clients from the UN to municipalities and industrial enterprises and are well known in the energy efficiency and climate policy community for its experience in implementing international projects in Russia. CENEf is making a huge contribution to the energy efficiency changes necessary in Russia.

We all agree that these energy efficient changes must be made for global reasons that range from the benefit to human life, the economic benefit for business and the political benefit of countries both small and large. But, we know that this is not a simple change to implement. We can’t just say we will make things more energy efficient. Things must be done in stages and they must be done with the cooperation of people at all levels from the single individual all the way to the leaders of countries.

It is imperative that we all see that we can make a difference and convince others to see that they too can make a difference. One thing that must be done in order to change things on a community, country or global level is that we must convince our leaders, those in authority, to change the laws and require that new structures be planned and built in a way that is energy efficient. Usually this means doing it city by city and sometimes neighborhood by neighborhood, depending on how the laws are set up in an area.

Some leaders will be very excited to be a part of making our cities and communities and countries more efficient and productive and will work with agencies such as I have discussed with you to make the necessary changes. Others may need to be shown the successes that have already been accomplished to convince them of the need and the possibilities of those changes. Sometimes we may need to first convince the businesses before we can convince those in authority. But, we have enough studies to draw information from, enough statistics to show success rates when the plans are implemented that we can show them how to make these changes succeed.

These changes may have been more expensive to implement in the beginning, but as we learn more about how to make those changes and as technology improves to help us implement them, those changes can be made more economically, even in the implementation, so that in the long run of a project we will see that it is not more expensive to be environmentally green.

We have a growing world around us. We are growing in population which means we need to make room for everyone without crowding everyone. It also means we need to learn how to use our resources in the most productive ways so that everyone can benefit from those resources. We need to use our power sources productively to make them more affordable for everyone. That means not doing things the same way our parents and grandparents used them. That means learning from the lessons of history how using energy carelessly has caused damaged to our planet and how we can now use them with wisdom and care to make those resources last longer and find new ways to fuel our buildings and our machines. We also need to find better means of public transport so that everyone can have the mobility they need to obtain the education and health care they need to improve their quality of life. All of these changes need to find new sources of energy than fossil fuels and new ways to implement those new forms of energy that are not only productive but profitable in order to keep them operating.

We live in an exciting time right now. Not only do we have the need to implement these environmental changes, but we have the means to improve the buildings and machines we have and to create and build new and better types of energy to power those buildings and machines.

We are also experience something else that our parents and grandparents didn’t have the opportunity to do. We have the opportunity to work globally with other countries to make these changes happen so that they don’t just happen in the largest cities in the richest regions of the world. Now, we can work together and make them happen in every part of the world with changes based upon the state of the community whether it is a small, underdeveloped country or a large, powerful country. Everyone can benefit from these changes at some level so their quality of life improves for them, and later it will improve even more for their children and grandchildren.

Not only do the laws need to change but the plans need to change from the very beginning. As we saw earlier, planners and designers can create new buildings and machines that are more energy efficient and environmentally green from the foundation up. They can also use these plans and advice from the agencies who implement them to improve existing structures. Imagine, we won’t have to just demolish old buildings; we can redesign many of them and repurpose them so they are more energy efficient than when they were brand new.

As the planners and designers work together with the builders we can see entire communities that are more energy efficient. They will be better, not just building by building, but the design of the entire community, by planning for safer walkways and more green space such as parks. By planning for more space in the beginning you don’t have building constructed haphazardly and streets determined by how the buildings are built. Instead the streets and buildings will be planned allowing for ease of commuting from one place to another, and also make it easier for public transportation to operate in all areas of the city, not just business areas. This will make it easier for everyone to be more mobile and have access to everything they need to live a fuller and more productive life.

These changes and improvements will also benefit investors of all types of projects. By planning projects and communities more efficiently and environmentally sound the investors’ money will provide a better return for investors, allowing them more opportunities to invest in multiple projects instead of just a few.

From the evidence presented here I think you can see that making the changes to making energy green or environmentally safer and cleaner is a benefit to all. As we continue to make those changes and continue to improve our methods of utilizing them the cost will also decrease, making the changes even more productive and practical. Although some, but not all, changes may be somewhat more expensive in the beginning, the long term savings and benefits to individuals, communities, countries and to our planet, outweigh the costs of those changes.

Thank you