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Ecological and Geo-design in modern cities

Many Cities across America and the world are looking for more sustainable city plans that would take in numerous aspects into account, in order to save money in the long run and to combat carbon emissions that cities often produce. Some of these aspects include local climate of the region, geological data for the area and natural plants and animals in the region. These things are what some are looking for to create more sustainable cities. Many cities and establishments are taking small and gradual steps towards lowering carbon emissions and costs in their cities.

What is Geo design? Geo design is a concept that was developed in the early

Application

Designing for biomass with Geodesign

Goal: More commodities and more conservation from working agricultural landscapes

Collaborative Geodesign allows for active, real-time engagement with information, place, + people



Carl Steinitz, 2012. A Framework for Geodesign: Changing Geography by Design. Redlands, CA: ESRI

twentieth century, by Frank Lloyd Wright, he did this by incorporating nature with the design of houses and buildings, by bring the outside in and the inside out into nature to help man appreciate nature.

This was in the very early years and Geo design had not yet evolved into what it is today. As more and more people became interested in the value of nature and man's role

in appreciating it, geo design became a more scientific and mathematical field than it had in years past.

Today leading Geo designers look on numerous records of the landscape through various records some recorded by satellite and calculated on computers. What they look for now is the rock records and other parts of the earth system like, the local water cycle and so on. They also look at the value and importance of a building or home built for this region, by looking at the economic and social statistics of the region.

While Geo design looks to make a building or structure or even city street that is sustainable and lasts it is very hard to make these changes in major cities at once, so although this field is growing even more now with recent advancements in computer design technology looks to provide helpful sustainable solutions for local areas rather than a cookie cutter way to look at design.

One of the newest designs for geo design is a floating barge that uses solar panels the sea/fresh water under the barge and a greenhouse to produce food and provide housing in the increasing property market.

This along with many other designs are being created and worked on every year to improve human sustainability and reduce their carbon footprint.



<http://inhabitat.com/floating-urban-greenhouse-would-produce-clean-energy-and-organic-food>

While many US cities have yet to want to make a big step towards sustainability, many independent organizations in cities are making the first steps. In northern California several institutions are making efforts to be better at reducing emissions and act as a role model for their cities lawmakers.

In San Francisco, California the California Academy of Sciences, a museum located in golden gate park, three years ago redesigned the entire building which had been a standing since 1853 was renovated to boast a “living roof”. The whole roof of the massive building is covered in a grass eco system canopy.



https://en.wikipedia.org/wiki/California_Academy_of_Sciences



This New design has multiple ecological and scientific purposes. “Rolling hills and fields cover 87% of our rooftop, offering a home to local wildlife while keeping the Academy green in more ways than one.” (<http://www.calacademy.org>) The roof provides natural cooling and heating, which allows the museum to almost completely reduce its heating costs throughout the year, as well as solar panels along the edge of the roof which provides solar energy for the



museum (although it is not completely independent of electricity). The natural grass also acts as a rain collector, and it filters out all of the potential toxins in the rain or things that might be harmful to the environment, like excess nitrogen from fertilizers, which mess up

the nitrogen cycle. The museum is a model for what cities should strive to achieve at the most minimal level in today's world.

Another northern California city where a leading public organization has taken a step towards ecological sustainability The Sacramento Kings introduced their plans to build and operate a \$2.5 million solar power system atop the Golden 1 Center at Downtown Plaza. The system, featuring 3,300 panels, will provide 15 percent of the arena's power. New state of the art arenas are a new trend in professional sports with many sports teams threatening to leave the city if a new arena is not built. As a way to counter this new trend the Sacramento Kings began construction last year and seek to make the arena the most environmentally friendly arena in the US, with much of the of the layer floor being made up of reused rubber and the large amounts of solar panels in the heart of the city it is estimated to save on electricity by 10% over the next 10 years. Which also means the stadium is built to last. The facility also will use ground-up cooling through a "displacement ventilation" system that is more efficient than rooftop air conditioners, Granger said, and will collect and reuse grey water the system produces. The arena also will source 90 percent of its food and beverages from within 150 miles, incorporating the city's farm-to-fork persona. (Sacbee.com)

While in the US cities are making small steps towards renewable and eco buildings across the world new buildings materials that would reduce the carbon impact when building



houses and smaller buildings. In Australia a man developed a new building material that releases a third of the CO2 that is released with regular concrete, TimberCrete uses timber waste, sand, and concrete, and it is cheaper to produce which is perfect for the growing population

of the oceanic region.

<http://www.eco-business.com/news/future-proofing-australias-building-industry>

To conclude the movements of Eco buildings and Geo design are slowly and gradually taking over in cities in the US and around the world. This new movement is not entirely started out of the desire to be more environmentally conscious but out of a way to save money and get ahead of the gradual direction that the planet is heading towards.

Capitalism is a driving factor in most of these innovations to date but at some point these innovations will inspire a new Geo design that will not only be sustainable but also free from any type of capitalist agenda.

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