

The World's Greenest Building Bullitt Center, Seattle

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When innovation is paired with the desire to preserve, sustainability is born. Sustainable infrastructure has been on the rise in the last couple decades and is no less sought after today. With design and construction of infrastructure made easier by today's technology, sustainability is not only within reach, but can even be pushed to the absolute limits. Enter, Seattle's [Bullitt Center](#); the world's most sustainable building. Completed in 2012, this 6 story, 50,000 sqft, primarily timber structure is the epitome of green building.

It should come as no surprise that such recognition is only bestowed upon a truly remarkable contribution to the practice of sustainable infrastructure. The US Green Building Council's LEED rating system grants this building a LEED Platinum certification. Although an official LEED scorecard is not available for public access through the USGBC; a small scale case study performed by students at Cal Poly Pomona granted a score of 94/110, well above the 80 required to qualify for a platinum certification.

A 2013 Wood Works [case study](#) describes the environmental benefits and structural ingenuity that molded the design of the timber load carrying members.

A 2014 EcoTrust [case study](#) very carefully details the Bullitt Center's optimization of its urban ecosystem services.

Short articles, such as this, are mainly to inspire individual research; however, it would be wrong to not discuss some of the technical information regarding what makes this building revolutionary in the field of sustainability:

- Zero net energy consumption
 - 14,303 sqft rooftop solar panel array
 - Solar array produces all required electrical energy (per yearly cycle)
 - Sells energy during the summer
 - Buys energy during the winter
- 56,000 gallon rainwater cistern collects all required potable water
- 250 year lifespan
- 82% of interior lighting replaced with natural daylight
- 26 Geothermal heat exchange wells
 - Utilize the earth's ambient 53°F temperature 400 ft below the foundation
 - Run water through heat pumps for desired temperature in the floor slabs
- No vehicular parking access.
 - 20 bus routes within 0.5 miles
 - Bicycle garage
- Water efficient toilets
 - Toilets only use 2 tablespoons of water (mixed with foam) per flush.
 - Toilets drain directly into the building's aerobic composting center
 - Water and waste reused for fertilization of on-site vegetation
- Regenerative Elevator that converts mechanical braking energy to electrical energy
- Active floor layout designed to encourage use of stairs within building

- Passive heat recovery uses temperature of exhaust air to alter the temperature of incoming air
 - This concept allows for a 65% heat transfer.
 - A great amount of energy is saved maintaining desired building temperature.

For simplicity's sake, two diagrams help in understanding a few of the inner workings of the building:

http://waterbucket.ca/gi/files/2013/10/Bullitt-Center_elevation-schematic.jpg

<https://whatisnewinecomaterials.files.wordpress.com/2013/12/diagram-green-features-bullitt.jpg>

Of course, all of the aforementioned information is just the forefront of what constitutes the innovation that went into the design of this building. Furthering our efforts to create infrastructure such as this will not only encourage a more appealing design but a closer and friendlier coexistence with our environment.