

An organization to promote Green Development Standards

Retrofit Buildings

Green Development Standards are typically focused on new buildings and how they affect the community, but the standards can be applied to retrofits. The Ken Sobel Passivhaus in Hamilton was built in 1967 and was in a state of disrepair. Options included demolition or repair however, the owner decided to retrofit the building ^[1].

The cost to demolish and rebuild a similar structure was estimated to be between \$45 and \$50 million. The retrofit of the building cost less than \$25 million. There was very little landfill and very little embodied carbon compared to a demolition and new construction.

The upgraded building emits less than 94% of the GHG of the original building.

There are 145 units and each unit can be heated with the equivalent of three 100 watt incandescent light bulbs.



Tower in Ontario becomes world's tallest retrofitted Passivhaus structure

There are 2,000 similar structures in Toronto with more than 1 million inhabitants that could be similarly upgraded to meet to Passivhaus Standards ^[2].

PASSIVE HOUSE

Passive Houses (or PassivHaus) are not Net-Zero, but because of the design, GHG emissions are substantially reduced. Passive House designs can be for new or renovated construction, and can be for single family, townhouse or multi use residential buildings, as well as buildings like the Ken Sobel Tower.

Passive House Building Certification is an international building certification program. In Canada, it is administered by Passive House Canada ^[3].

For more information on Passive House design see ^[4].



Ken Sobel tower is the tallest retrofitted Passivhaus in the world. Photo by Codrin Talaba

EMPIRE STATE BUILDING, NEY YORK

The Empire State Building has reduced its carbon emissions by 50% ^[5]. The goal is to be Net-Zero by 2030.



New York Post - Getty Images

The retrofit cost \$13.4 million (US) and saved \$4.4 million in energy costs in the first 3 years. The retrofit was the result of Local Law 97 which mandates New York's largest buildings cut their emissions by 40% by 2030 and 80% by 2050. Non compliance can result in fine of \$1 million per year ^[6].

REFERENCES

- [1] <https://www.eraarch.ca/project/ken-soble-tower-transformation/>
- [2] <https://www.canadianarchitect.com/raising-the-bar-ken-soble-tower-hamilton-ontario/>
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- [4] <https://passivehouseaccelerator.com/articles/ken-soble-tower-enerphit>
- [5] <https://www.cbc.ca/news/world/empire-state-building-carbon-emissions-1.6427893>
- [6] <https://nypost.com/2020/01/16/nyc-buildings-prepare-to-dramatically-reduce-emissions-to-avoid-penalties/>