

Empire Building Challenge

Low Carbon Retrofit Project Summary



Brookfield Properties



660 Fifth Avenue
New York City

- 1.4 million square feet
- 41 stories
- Built in 1957
- Energy grade: D
- 2021 EUI: 119.6
- Façade: single pane curtain wall
- Heating: district steam
- Cooling: steam turbine chillers

\$3 MILLION
NYSERDA investment

\$9.7 MILLION
total investment to install Empire Building Challenge retrofits



Modern heat recycling and fresh air system helps Brookfield Properties meet accelerated climate goals

As part of their participation in the Empire Building Challenge, Brookfield Properties will be completing a demonstration project at 660 Fifth Avenue. 660 Fifth is a 41-story office building in midtown Manhattan that is currently undergoing a full repositioning, which includes electrification of the chilled water plant, installation of a new insulated façade, and conversion to a dedicated outdoor air system with energy recovery.

Fresh Air

This project involves overhauling the building's HVAC system to position the building for full decarbonization by 2035. To supply the building with fresh air, Brookfield will deploy a mechanical system known as a dedicated outdoor air system (DOAS), which consists of a separate ventilation system that runs parallel to heating and cooling components.

Heat Recovery

Brookfield will also recapture wasted heat throughout the building via water-to-water heat pumps and air-to-water heat pumps. This project will dramatically reduce steam use in the building by applying heat pumps in numerous heat recovery and reuse applications to recapture heat that normally would be rejected into the atmosphere.

Brookfield's project highlights how a building redevelopment can be leveraged by property owners to improve functionality and efficiency of building systems, setting a successful precedent for high-rise offices of the future.



NYSERDA

PROJECT TEAM:

- Brookfield Properties
- Cosentini

LOW CARBON RETROFIT MEASURES INCLUDE:

- Installation of airside energy recovery units with chilled/hot water coils and variable speed fans
- Expansion of condenser water loop to recover heat from all retail tenants
- Installation of 100-ton heat pump chiller to eliminate steam usage in lobby
- Installation of water-to-water heat pumps to provide hot water throughout the building
- Installation of air-to-water heat pumps to provide supplemental peak heating capacity

About Brookfield Properties

Brookfield Properties is a fully-integrated, global real estate services company that owns and operates 40 million square feet of office, residential, hotel, and retail property in New York.

The Empire Building Challenge

The Empire Building Challenge is a \$50 million investment by New York State to demonstrate different pathways for achieving carbon neutrality in tall buildings.

Through the establishment of a private-public partnership with leading real estate owners and their engineering experts, exciting approaches to cold-climate decarbonization are being tested in the New York market. With the potential to replicate these solutions across the expansive real estate portfolios of Empire Building Challenge partners and beyond, the impact of each project will accelerate New York's progress toward the Climate Leadership and Community Protection Act's (Climate Act) goal of reducing greenhouse gas emissions 85% by 2050.

Join the challenge

Visit nyserderda.ny.gov/EBC or email ebc@nyserderda.ny.gov for additional details on the Empire Building Challenge and to learn how to partner with NYSERDA, reduce carbon emissions, and get involved in the clean energy economy.

