Model Description
The new mixed-use building located at the ~42,000 sf site on 57 Empire Boulevard in Brooklyn is developed with the occupant experience at the center of the design. Occupant comfort, health and wellbeing, safety and security are addressed in various ways. Environmental strategies enhance envelope, systems and energy generation. These contribute to improved thermal comfort, daylight during the day, connection to the exterior and the community, while in parallel they add to resilience and sustainability.

A combination of analysis tools was used at different design stages. An integrated and flexible approach was achieved by utilizing a single model in Rhino and running most analysis using plugins straight to Rhino or Grasshopper, such as Honeybee, Butterfly, ClimateStudio and ALFA, except for the whole model energy analysis that was done in IESVE and PV sizing performed using PVWatts.

Energy Savings Strategies

1. Courtyard typology
2. Narrow plan
3. Solar responsive massing
4. Low window to wall ratio
5. View & daylight glass distinction
6. Trombe wall
7. Shaded roof
8. Light colored interior finishes
9. Exterior fixed shading
10. Interior movable shading
11. Ceiling fans
12. Photovoltaic panels
13. Enhanced insulation / air tight envelope
14. Triply-glazed windows (0.200/IGU/0.797/Ins)
15. North facing glazing privacy glass
16. Radiant heating/cooling & Geothermal
17. Timber structure
18. Residential prog lifted above ground plane
19. Separate entry for communal and residential
20. Orientation toward Prospect Park

Energy Savings Strategies

- Carbon Neutrality
- Health & Wellness
- Disaster Management and Durability
- Safety & Security
- Sustainability

Total Energy Usage
4,044,073 kBtu

Site EUI
13.8 kBtu/ft²

Source EUI
24.1 kBtu/ft²

Total Carbon (2030)
-11 kgCO2e/ft²

Total Carbon (2050)
-4 kgCO2e/ft²

Annual Water Usage
4,894,087 Gallons

Annual Energy Costs
0.1 \$/ft²

Annual Water Costs
0.08 \$/ft²

Total Annual Costs
0.18 \$/ft²

Total Energy Generation
4,413,121 kBtu