CALVIN VANNOY
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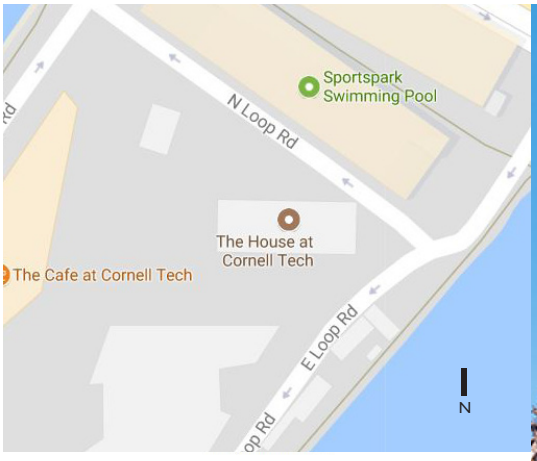
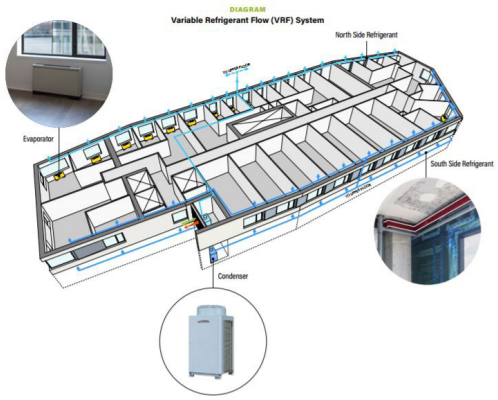
THE HOUSE AT CORNELL TECH
HANDEL ARCHITECTS
NEW YORK, NY 2016





The house at Cornell Tech is the first residential tower built to Passive House standards. Passive House is a set of guidelines that calls for highly insulated, airtight buildings in order to dramatically lower the building's energy consumption. The building is in New York City, a humid subtropical climate with average temperatures of 84 F (high) in summer to a low average of 26 F in winter.

To meet Passive House standards, Handel's design sited the building off-axis from Roosevelt Island's surrounding context in order to face the long facade due south to maximize solar gain in the winter and natural light year round. Glazing was minimized on the facade in order to meet the high insulation criteria of Passive House as well as to minimize areas of air loss. The facade is sealed and any thermal bridging between materials is eliminated in order to create a highly controlled interior environment that requires less energy to heat and cool.

The effect of so tightly controlling the interior environment of the building is to create a situation where temperature fluxuations from infiltration and conduction and ventilation are as low as possible. This allows for a high degree of control, with only solar gain and internal gains being allowed to affect the interior environment (evaporative cooling is not used in the project). The effects of solar gain and internal gains is further minimized through operable shades and the use of energy efficient lighting and appliances. The end result is that the energy put into heating and cooling the building goes further than in a comparable non-passive house building, and the building requires less energy to maintain a stable interior environment.

The building is well done from a sustainability perspective, but I would explore sun shading in the summer in order to further control the interior environment.