



High Performance Manhattan

Reimagining the Metropolis –
High Performance Building in NYC –
Making it Happen

Pratt Center for Community Development

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What Are High Performance Buildings

Building

- Energy Efficient
- Water Conserving
- Comfortable
- Healthy
- Durable
- Flexible

Community

- Reduced Peak Infrastructure Loading (power, sewer)
- Resilient (during infrastructure crises)



Hearst Tower:

- Indoor Air Quality
- Energy Efficiency
- Water Conservation
- Transportation
- Construction Waste



The New York Times Headquarters

- Indoor Environmental Quality
- Energy Efficiency
- Demand Management



200 West Street:

- Indoor Air Quality
- Energy Efficiency
- Water Conservation
- Demand Reduction
- Infrastructure Independence



National Audubon Society Headquarters:

- Indoor Air Quality
- Energy Efficiency
- Transportation
- Sustainable Materials



The Verdesian:

- Indoor Air Quality
- Energy Efficiency
- Water Conservation
- Reduced Services
- Construction Waste



Community Goals

- Creation of a Livable, Uplifting Human Environment
- Habitat Restoration/Renewal
- Carbon Emissions Reduction
- Aquifer Recharge
- Clean, Healthy Watershed
- Optimized Infrastructure Support
- Creation of Economic Value



Issues

- Transportation
- Energy/ Carbon Emissions
- Solid Waste
- Water
- Economic Viability



Strategies, not Technologies

- Dense Building, Extensive Greenspace
- Pedestrian Accessible Amenities
- Transit/Pedestrian Accessible Work to Home
- Community Centered Utilities, if possible
- Optimized, Renewable Energy Sources
- Energy Efficient Individual Buildings
- Utilization of Non-Potable Water Resources
- Storm Water Management with Detention and Percolation
- Solid Waste Resource Utilization



Recognize Synergies – Building Interlocking, Cascading Systems

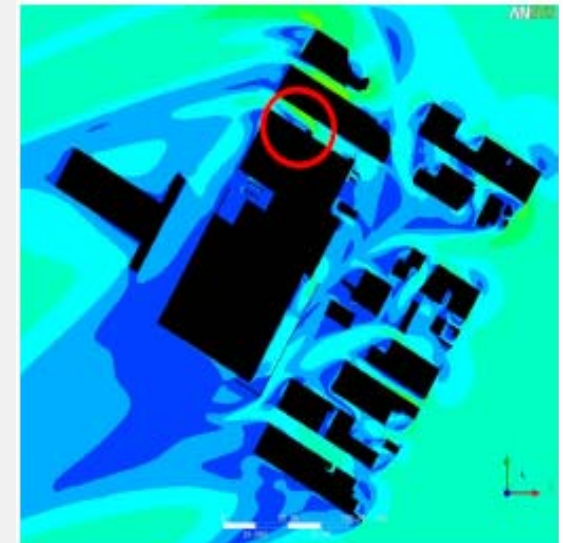
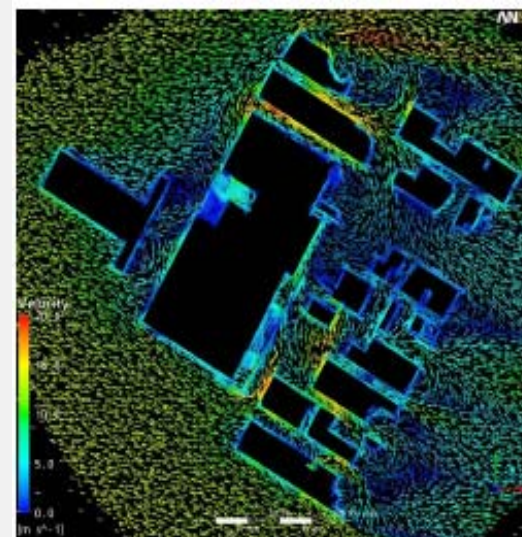
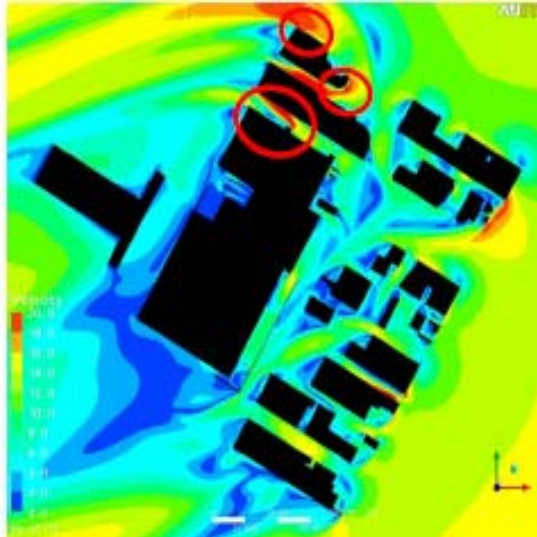
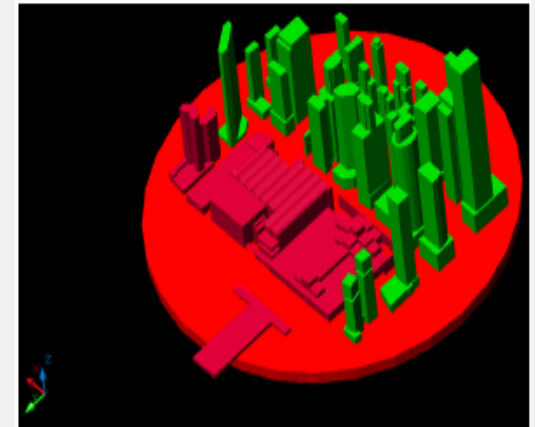
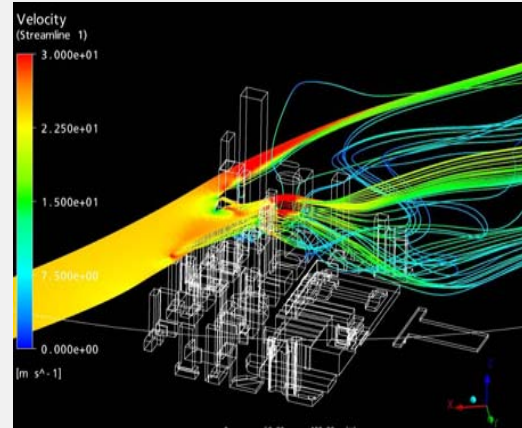
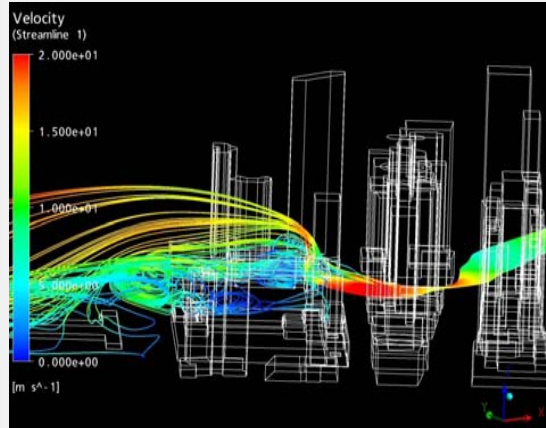
- Greenspace, Stormwater Management, Non-Potable Water Utilization
- Dense Building, Pedestrian Circulation, Transit Utilization
- Community Scale Utilities, Non-Potable Water Utilization
- Community/Building Energy Planning, Community Scale Utilities, Optimized Renewable Energy Sources

Solutions Can be Found at Different Scales

- Regional Scale
 - Offshore Wind Farms
 - Photovoltaic Farms or Solar Thermal Power Generation
 - Intercity Fast Rail to Supplant Airplanes and Automobiles
- City Scale
 - Waste Pyrolysis Plants with Carbon Char Sequestration
 - Real Time Energy Pricing for Market Response Load Management
 - Urban Transit to Avoid Need for Automobiles
- Neighborhood Scale
 - Local Waste Water Treatment with Effluent Irrigation of Parks and Provision of Cooling Tower Make-up for District Cooling
 - Mixed Use Zoning to Improve Pedestrian Access
- Building Scale
 - Microturbine Cogeneration for Domestic Hot Water

Microclimate Studies - Wind

Javits Convention Centre, NY



Microclimate Studies – Solar

Javits Convention Centre, NY

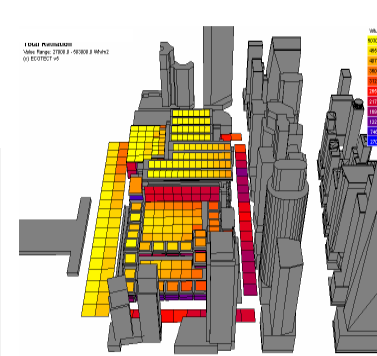
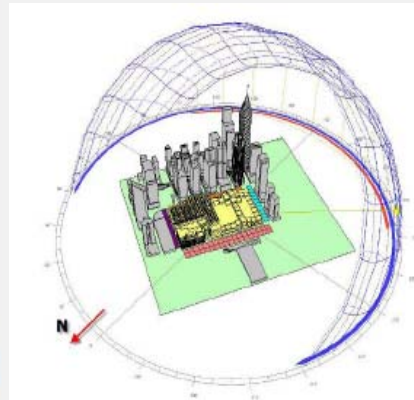


Figure 3.2a Total solar radiation in summer (south-west view)

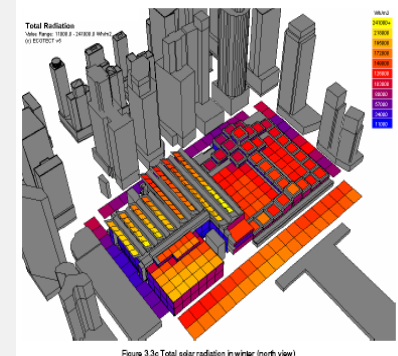
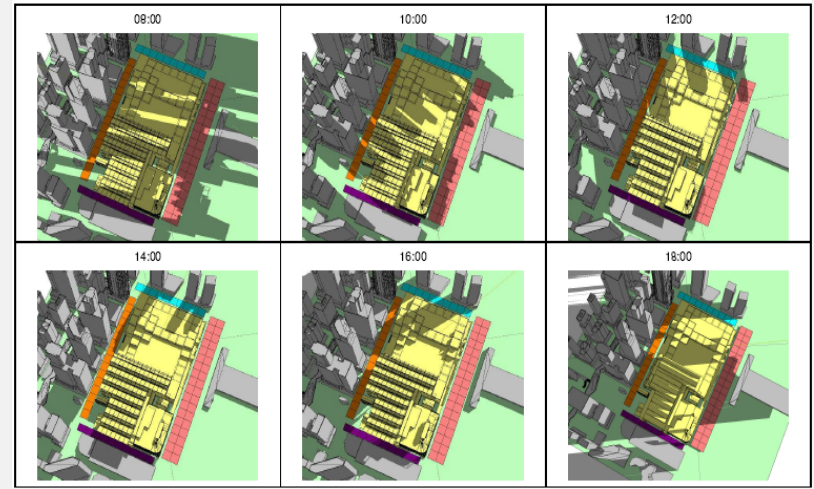
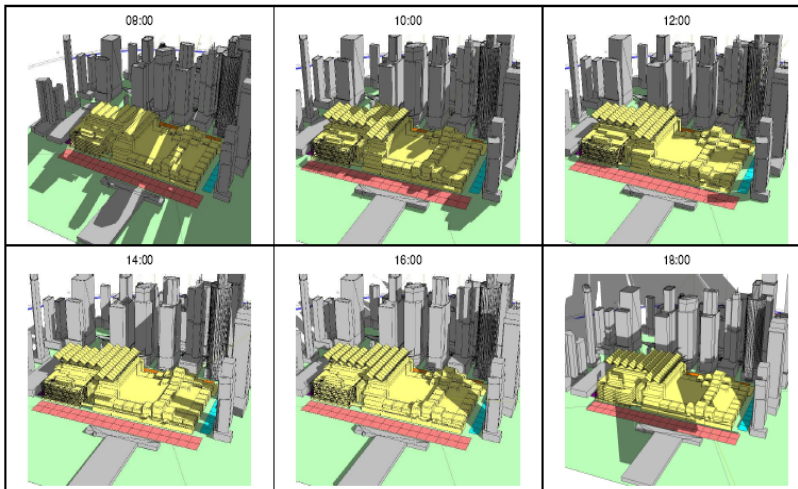
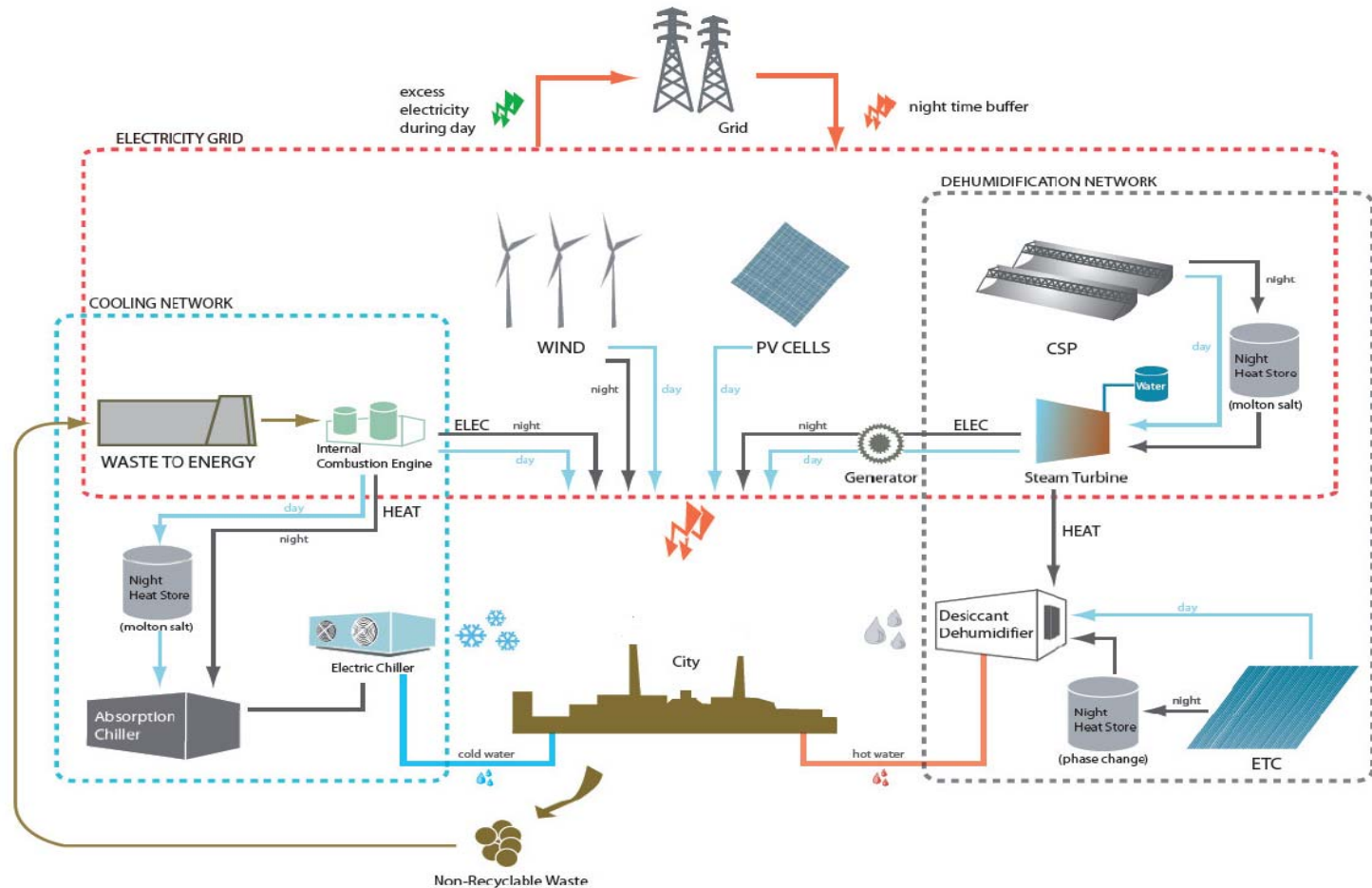


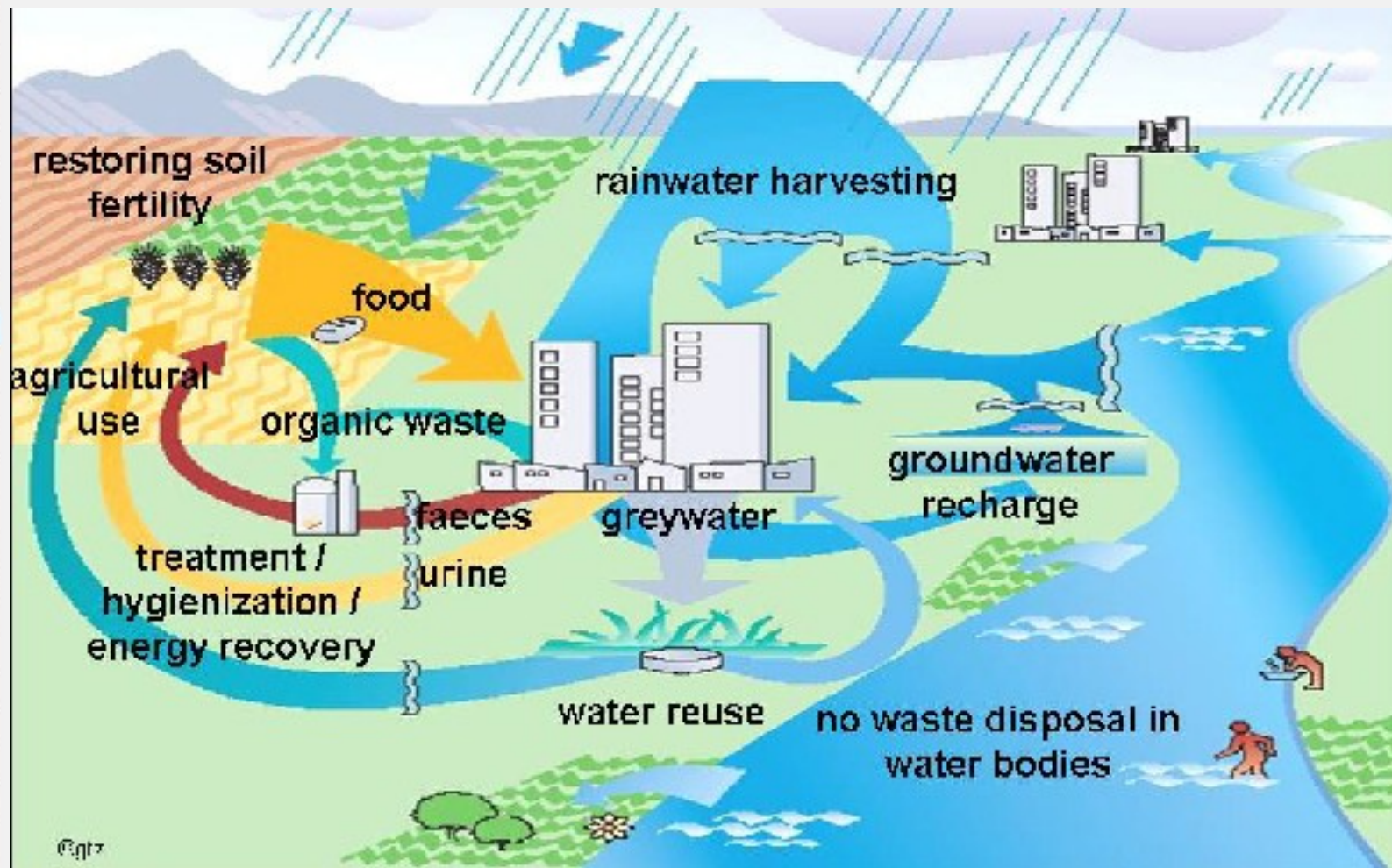
Figure 3.3c Total solar radiation in winter (north view)



Community Energy Infrastructure



The “Improved” Urban Water Cycle



Optimal Usage of Alternative Water Sources

Thank You