

United Fresh Produce Association

United Fresh 2010

April 21, 2010

Wholesale Facility Design to Save Energy and Costs



Architecture
Interiors
Engineering
Construction

www.epsteinglobal.com

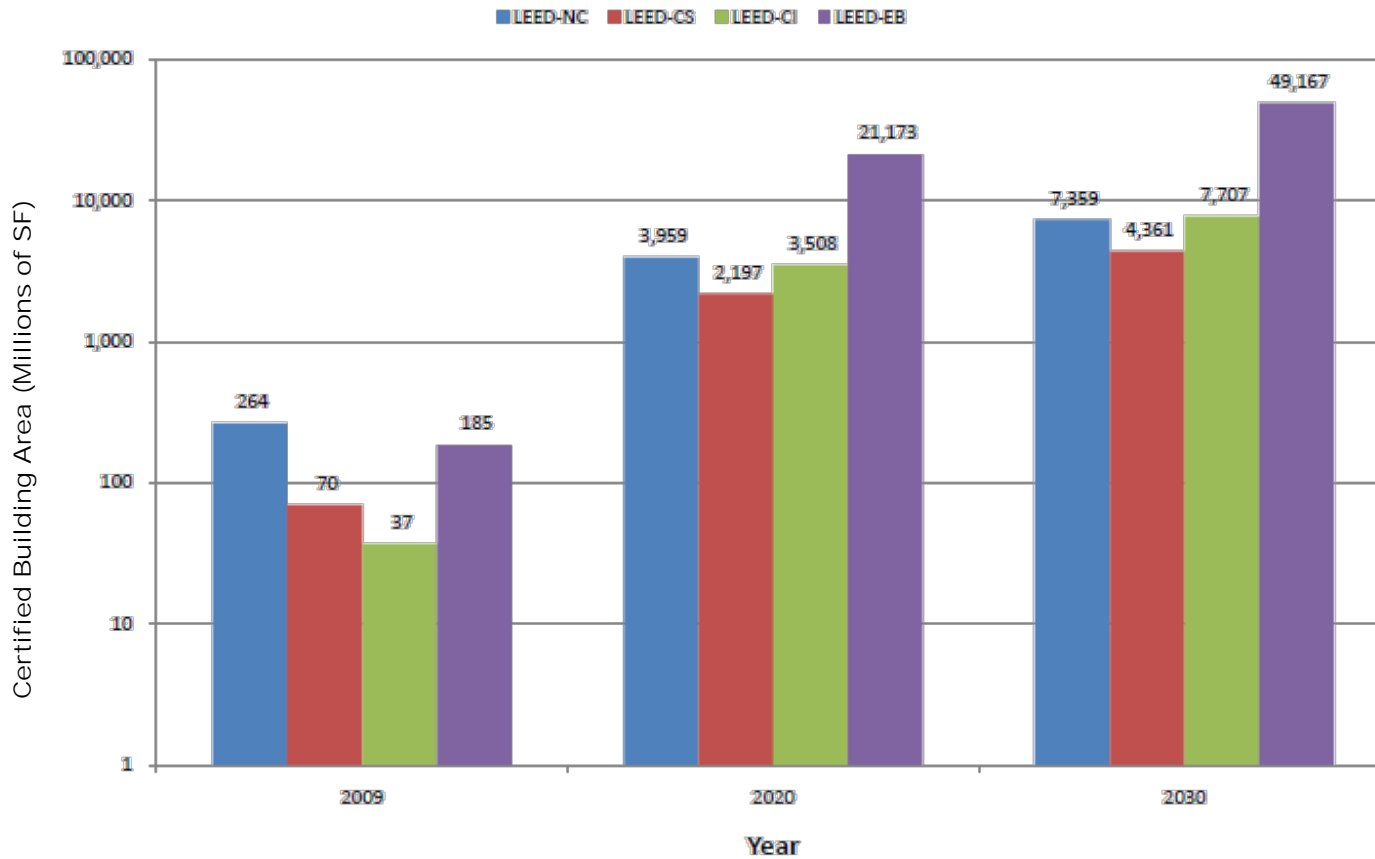


Philosophy, Capabilities & Experience

- ❑ Epstein has been at the forefront of green architecture and sustainable design long before it became fashionable or a requirement of the Leadership in Energy and Environmental Design (LEED) program
- ❑ Epstein's standards have centered on high-performance buildings for years and will continue to evolve as technology for designing, engineering and constructing buildings improves
- ❑ Strong understanding of impact of the built environment on the natural environment
- ❑ Quality design must be viewed from a financial perspective as well as the environmental and societal perspectives – the Triple Bottom Line
- ❑ Epstein's full-service integrated structure provides assistance from site selection and building placement to reduced energy consumption to a clean, maintainable and healthy indoor environment

Velocity of LEED Growth

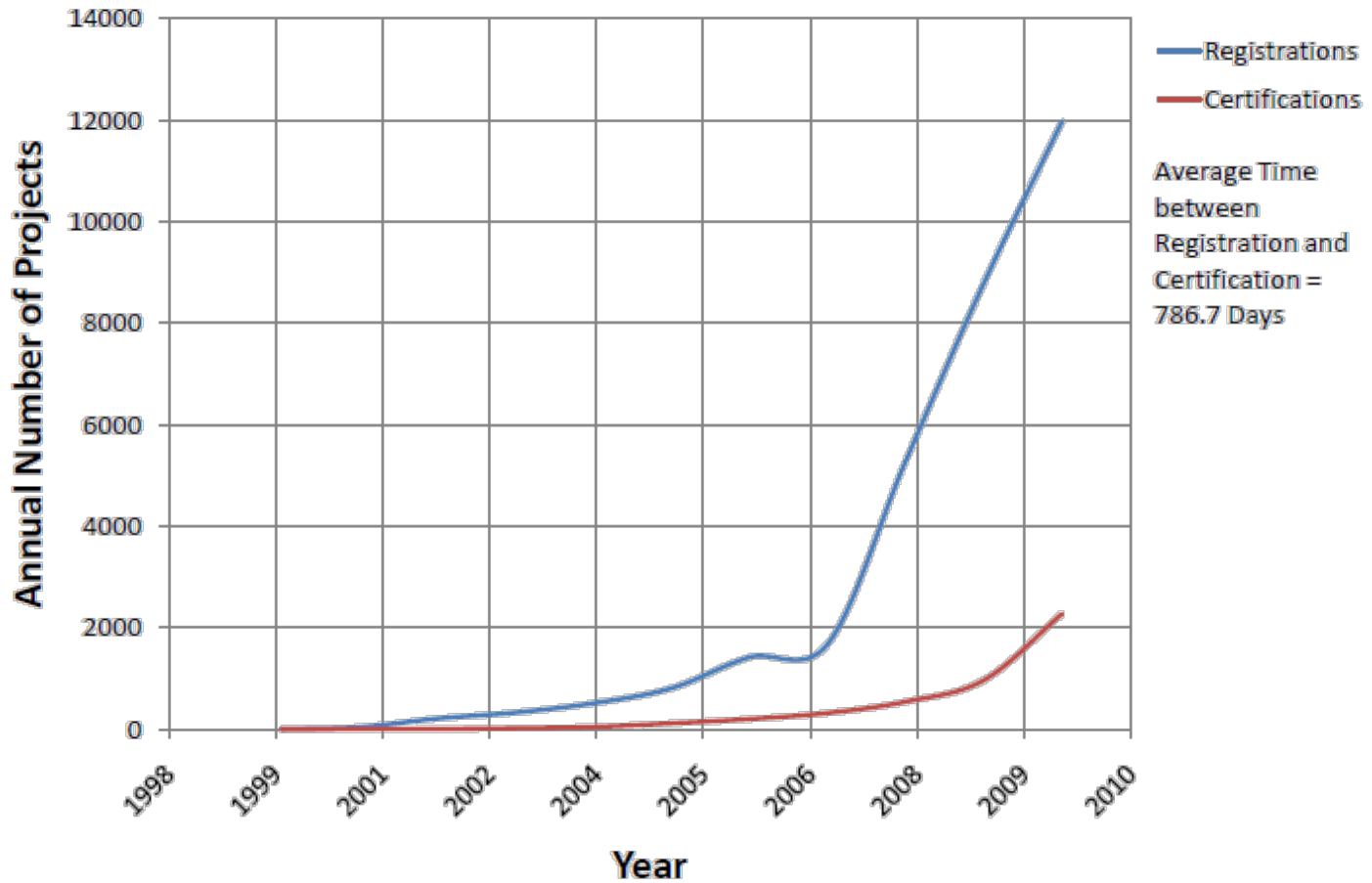
LEED Certified Building Floor Area Forecast



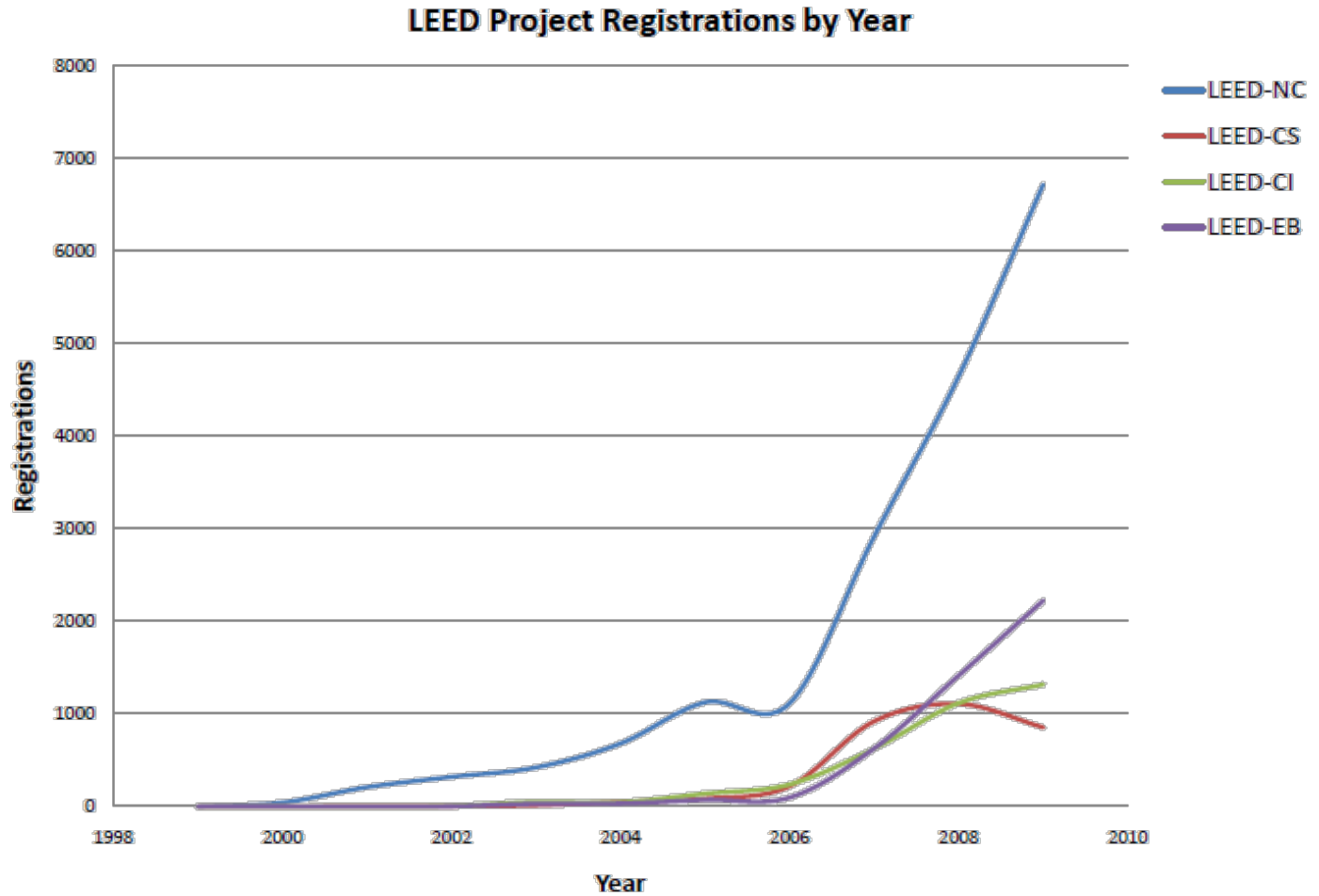
Data courtesy of Greener World Media, Inc. (www.greenerworldmedia.com)

Velocity of LEED Growth

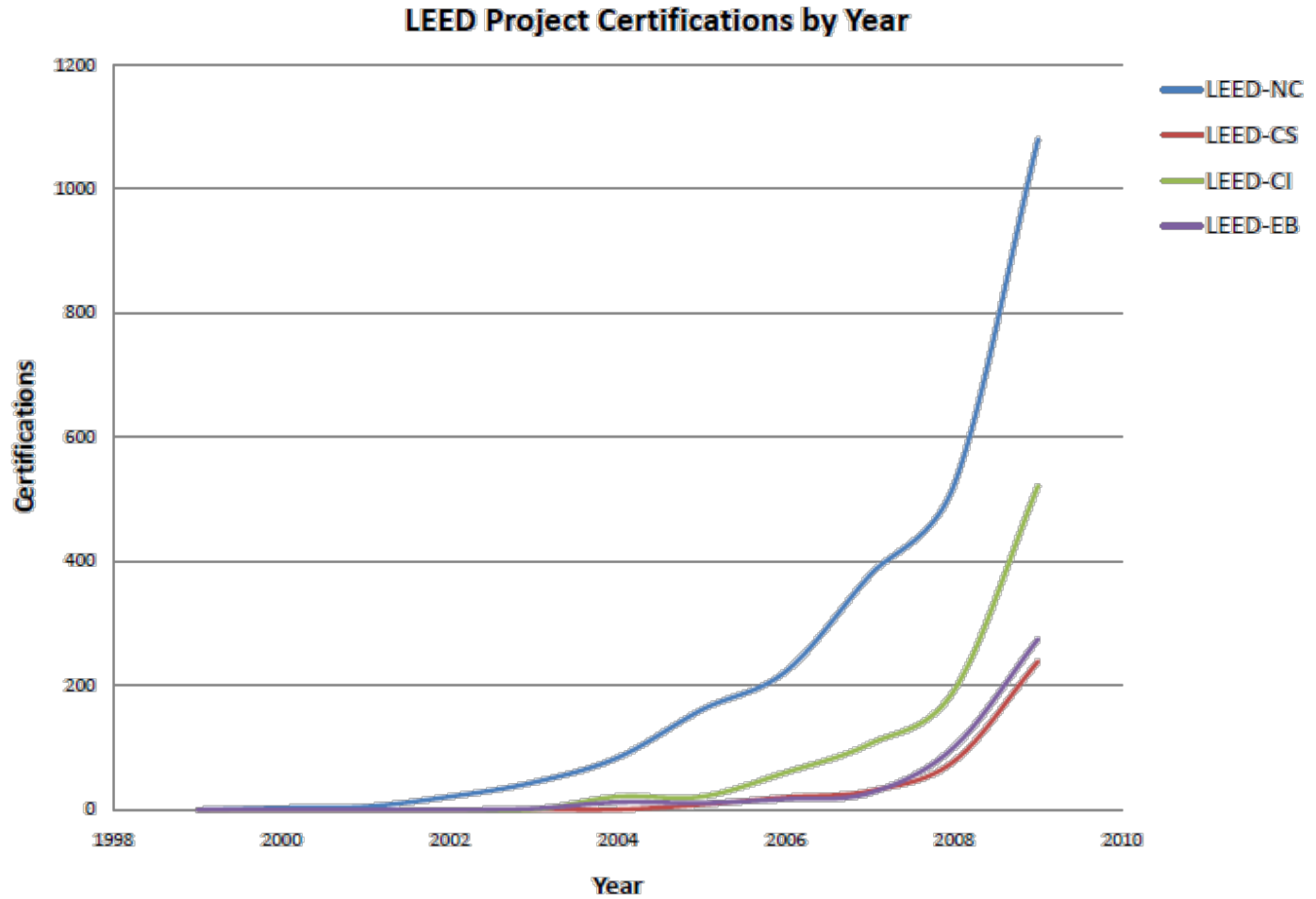
Annual LEED Registrations and Certifications



Velocity of LEED Growth

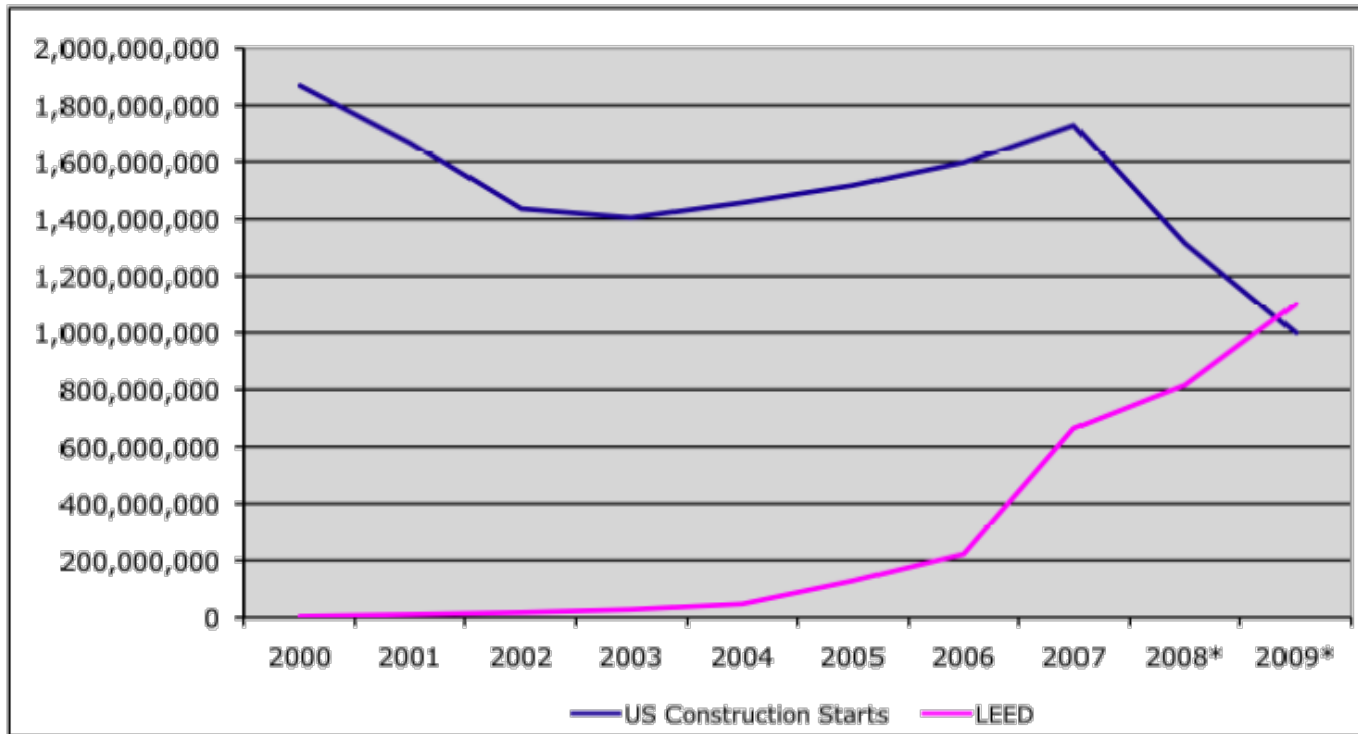


Velocity of LEED Growth



Velocity of LEED Growth

Growth in LEED Registered & Certified Floor Area



* Estimated

Testa Produce Corporate Headquarters & Distribution Center

CHICAGO, ILLINOIS

PURSUING LEED-NC PLATINUM





Client Program/Objective

- 91,200 square foot headquarters/produce distribution facility
- The 13-acre project includes 15,200 square feet of Class A office space and a distribution center containing a 7,600 square foot 0° freezer, 24,700 square feet of cooler space, approximately 45,000 square feet of dry warehouse and approximately 38 truck dock positions on two refrigerated cross docks.
- LEED-NC Platinum certification required by Client – a big supporter & proponent of sustainability.

“Businesses are too focused on short-term returns to worry about responsibility to the environment. We have to step it up a little more.”

Peter Testa – Chicago Sun-Times, March 10, 2010

Solution

- ❑ Sustainable features in the new building include a 167-foot-tall 750 kW wind turbine that will provide power to the facility, and a variety of landscape, solar and water conservation features.

Green Roof

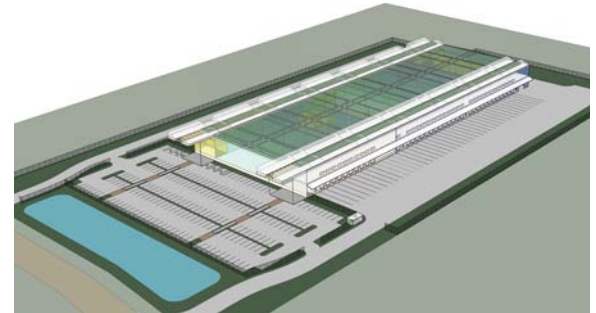
- ❑ The facility features a vegetated green roof which will cover approximately 50% of the net roof area.
- ❑ The green roof will help prevent storm water runoff and will also be formed and sculpted to give the building a unique green identity.
- ❑ The green roof slopes down and spills over the edge to become a green wall at the front of the building.
- ❑ Other features to minimize and recycle storm water runoff from the roof include a cistern to capture and reuse rainwater and permeable pavers that drain into "bio-swales," or live wetlands, that will also capture and cleanse storm water runoff.



Site Landscaping

- ❑ The site is actually designed to require no significant irrigation beyond plant establishment and watering will only be necessary in times of severe drought.

- ❑ Accomplished through a landscape design which utilizes native plant species that do not require continual irrigation.



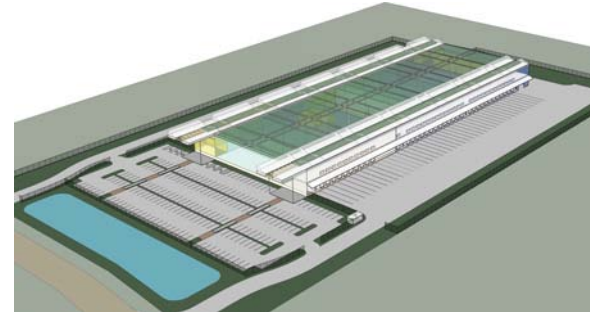
Solar

- ❑ Solar energy will be utilized in two distinct ways:
- ❑ Solar collectors will provide heated water that will provide the domestic hot water for all of the showers, sinks and sanitation.
- ❑ Skylights be used to provide natural ambient lighting, which has been shown to improve worker morale and productivity, but a solar tracking system will adjust the ambient lighting based on the sun's position in the sky at a given time.



Energy Modeling

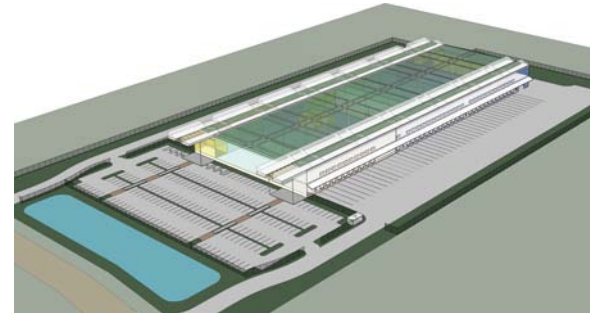
- ❑ The most direct cost savings comes from the energy side of the project.
- ❑ The design of the building is approximately 30% more energy efficient than if the building minimally met the energy code.
- ❑ Renewable energy accounts for another 50% energy reduction from that baseline, saving an estimated \$185,000 per year.
- ❑ The project will go beyond City of Chicago code requirements for construction waste recycling, targeting over 75% recycling rates for waste.
- ❑ Part of accomplishing this is the general contractor's dedication to educating jobsite workers on low-waste options for both work practices as well as things like lunch breaks and morning coffee.



Additional Features

- In addition to these sustainable design features the Testa facility will also feature:
 - All facility trucks are being converted to bio-diesel fuel, which contributes to reduced air-pollutants.

 - Designated preferred parking for low-emitting/fuel-efficient vehicle users.



- ❑ **International Green Construction Code (IGCC)**
- ❑ National effort to develop adoptable and enforceable green building codes.

“The emergence of green building codes and standards is an important next step for the green building movement, establishing a much-needed set of baseline regulations for green buildings that is adoptable, usable and enforceable by jurisdictions.”

Richard Weiland

Chief Executive

International Code Council

Green Trends

- ❑ **UL Environment, Inc.** Develop Sustainability Standards for LED Modules and Other Lighting Products
- ❑ These standards will assist consumers, designers, architects, and building operators in identifying more sustainable options for interior and exterior light fixtures, LED modules and related lighting components.

“According to the US Department of Energy, an average household dedicates 11% of its energy budget to lighting. LED modules alone have potential to reduce lighting electricity demand in the US by 1/3 and deliver savings of \$265 billion by 2027.”

Stephen Wenc
President
UL Environment

Green Trends

- ❑ **BOMA, City of Chicago & ComED** have united to endorse voluntary year-round Exterior Decorative Lighting Guidelines for Chicago's buildings.
- ❑ Guidelines provide year-round recommendations for all non-emergency lighting, including crown and façade lighting, signage, street-level and tree lighting. When implemented throughout the city, the guidelines will reduce the carbon footprint of Chicago-area buildings, protect migratory birds and decrease light pollution.

“By endorsing the voluntary year-round Exterior Decorative Lighting Guidelines, Chicago’s buildings will help save thousands of migratory birds each year, decrease harmful carbon dioxide waste and reduce the cost of unnecessary lighting. Unshielded outdoor lights are directly responsible for 14.7 million tons of carbon dioxide waste in the US each year and cost more than \$2.2 billion annually to power.”

International Dark-Sky Association

- ❑ Implementing simple cost-saving reductions

Behavioral

- ❑ At Epstein turning lights off at night and coordinate lighting with building janitorial schedule - \$1400 savings a month.
- ❑ Thermostat settling – night set back, morning warm up/cool down
- ❑ Turing off coffee machine and other appliances not used
- ❑ Competition between departments for energy reduction
- ❑ Employee awareness through announcing the energy reduction on a monthly basis
- ❑ Set back of domestic water heater temperature and heating temperature

Maintenance

- ❑ Use washable filters and wash the filter regularly
- ❑ No leaky valves or leaky faucets
- ❑ Caulk windows
- ❑ Use infrared cameras to see where leaks are on exterior walls

Capital Expenditures

- ❑ 3+ years pay back
- ❑ Photovoltaic's (client in New Jersey will see payback in less than 4-5 years)
- ❑ Ground-source heat pump
- ❑ CHP – combined heat and power if you have waste heat
- ❑ Provide proper metering and feedback



Thank You

John R. Patelski, PE, LEED AP
Executive Managing Director
President
Engineering and Construction

Epstein
600 West Fulton
Chicago, IL 60661-1259
Direct: 312-429-8003
Fax: 312-559-1217
Cell: 312-622-1869
jpatelski@epsteinglobal.com