The Waterfront Tech Center is the first of six planned buildings by the New Jersey Economic Development Authority (NJEDA) in Camden's Innovation Zone. The building was designed as a flexible core and shell that would accommodate different tenant types with varying space needs (from larger build-to-suit tenants to smaller suites for multi-tenants who would share amenities) and a wide range of programmatic uses (office, wet and dry lab research, information technology, scale up and production). This design approach also reflects a balance between centralized building investments and investments that are made by tenants. In addition to the core and shell, all four of the Tech Center's tenants have received Gold LEED-CI® certification.

New Jersey Economic Development Authority Waterfront Tech Center

"We are thrilled to receive the LEED certification for the Waterfront Technology Center, which recognizes the importance we place on sustainable design and construction." - Stephen T. Martorana

Location of Project: Camden, NJ

Project Team

Owner/Developer: *New Jersey Economic Development Authority*

Architect: *Ballinger*

Contractor: *Skanska*

Civil Engineer: *Perks Reutter Associates*

Environmental Advisor: *Schoor DePalma / CMX*

Landscape Architect: *Hillspring*

Commissioning: *Dome-Tech, Inc.*

Overview

The New Jersey Economic Development Authority (NJEDA), a quasi-public agency, is focused on the development of facilities, particularly in urban areas, that fill a gap in the market place not addressed by the private development community. NJEDA teamed with the architectural firm Ballinger to plan and design a multi-building development called the Waterfront Technology Park in Camden's Innovation (redevelopment) Zone. The Innovation Zone was established to spur collaboration among the state's public research institutions, medical research facilities and technology businesses to encourage the more rapid transfer of discoveries from the laboratory to the marketplace. Ballinger completed the 600,000 SF master plan as well as the first of its six buildings, a five-story, 98,225 SF multitenant building for emerging technology start-up companies. The building provides production, laboratory and office spaces for businesses in the biosciences, microelectronics, advanced materials, information technology and other high-tech and life sciences fields.

The building was the first publicly owned building in NJ to be certified by the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building rating system, receiving a LEED-CS (Core & Shell) Gold rating. All four tenant fit-outs went on to receive LEED-CI (Commercial Interiors) Gold ratings as well.

Process

Design

NJEDA teamed with the architectural firm Ballinger to plan and design a multi-building development called the Waterfront Technology Park in Camden's Innovation (redevelopment) Zone. Ballinger completed the 600,000 SF master plan, and the first of its six buildings — The Waterfront Tech Center — a 5-story, 98,225 SF multi-tenant building, for emerging technology start-up companies. The building was planned to provide production, laboratory and office spaces for businesses in the biosciences, microelectronics, advanced materials, information technology and other high-tech and life sciences fields.

The architects designed a flexible building core and shell that would accommodate different tenant types with varying space needs. Its central service core facilitates open office spaces along the perimeter, which can be customized in modular unit sizes and configurations to handle individual operating requirements and special needs of tenants (from larger build-to-suit tenants to smaller suites for multi-tenants who would share amenities) and a wide range of programmatic uses (office, wet and dry lab research, information technology, scale up and production).

The project incorporates various green building strategies and technologies in its architectural design, base building systems, and tenant fit-outs. The five-storied, contemporary glass and metal building complements Camden's urban environment.

Build

Sustainable construction methods can significantly reduce and/or eliminate the negative impacts of construction on the environment and on building occupants. Some of the strategies employed at the Tech Center were:

Erosion and Sedimentation Control Plan:

In compliance with the New Jersey Department of Agriculture's standards, the Tech Center's Erosion and Sedimentation Control (ESC) Plan included silt fencing, stabilized construction entrance and storm water inlet protection devices. The ESC Plan thus minimized the pollution of the New Jersey waters and damage to various environmental resources.

Waste Management Plan:

The Waste Management Plan prepared by Skanska Inc. emphasized waste reduction and recycling, and diverted more than 75% of construction waste from landfill. Efficient framing contributed

Ratings and Awards

Core & Shell: *LEED-CS Gold*

All four tenant fit-outs: *LEED-CI Gold*

to waste reduction and materials reuse – in particular, untreated wood, broken concrete and masonry, scrap metals, drywall, and cardboard were recycled. All debris was gathered and carted to a commingled dumpster, and later transported to a material processing facility. At the material processing facility the waste was manually and mechanically culled; recycled material was marketed to secondary markets and non-recycled material was disposed of at a landfill.

Building Materials:

The Tech Center uses building materials that contribute to reduced environmental impact and improved sustainability.

In addition, the majority of the furniture in the Tech Center is also re-used product that was moved from the old office location two blocks away. Many materials with recycled content (post-consumer + ½ pre-consumer) are incorporated into this project.

Operate

The NJEDA has undertaken a number of measures to benefit the performance of the Tech Center, including a building commissioning plan that was successfully implemented through five phases: planning, design, construction, acceptance and post-acceptance.

Evaluate

As part of the Rutgers Center for Green Building study, building occupants were interviewed and surveyed; it was learned that this facility overall is viewed very positively. In particular, a very high degree of satisfaction was expressed about the overall design and appearance of the environment, building views and with the quality of indoor air. There were also some specific areas of concern, namely exterior landscaping, privacy, noise, and thermal comfort. It was concluded that while it is hard to please everyone, occupant feedback is critical to making meaningful improvements.

Finance

The Tech Center was financed through a combination of state, federal and private funds. These included a grant award from U.S. Economic Development Authority, NJEDA equity, funds from the Camden Economic Recovery Board and private debt. The total cost for the core and shell was $10 million, excluding land purchase.

Performance

Operating Performance

Compared to an adjusted budget case (which represents a conventional equivalent to the Tech Center and is derived from the base case used in energy modeling for the LEED submittal), the actual natural gas intensity of the building is approximately 20% lower, and the actual electricity intensity is 8% lower than the adjusted budget case. However, the Tech Center consumes 25% more natural gas and about the same amount of electricity as would be expected based on the LEED design submittal. Water use in the Tech Center is at the same level of magnitude as the LEED design case.

Life Cycle Performance

A life cycle cost analysis using current energy prices, a building lifespan of thirty years, and a discount rate of 7% demonstrates that the Tech Center has a positive Net Present Value relative to the budget case of $7.12. These results suggest that the increased capital costs for the high-performance fixtures likely will pay off, even in the relatively short term.

Lessons and Trade-offs

The green features effectively reduced electricity use but were less successful in limiting natural gas use. Factors that may account for the mixed performance include a series of design choices relating to the need to maintain optimal performance under partial load conditions. The performance patterns speak to the complexity of understanding building performance, especially one that is multi-tenanted and not at full occupancy. More attention is needed on the increasingly common challenge of managing partial load conditions.

List of Green Strategies

Design

- Brownfield and Infill Development
- Urban Redevelopment Zone
- Transit-Oriented Design (TOD)
- Alternative Fuel Vehicles
- Erosion Control
- Construction Waste Management Plan
- Building Orientation
- Passive Solar Design
- Daylighting
- Glare and Heat Gain Reduction
- Entryway Systems
- High Efficiency HVAC Systems
- Heat Recovery System
- Energy Efficient Lighting
- Light Pollution Reduction

Build

- Indoor Air Quality Management Plan
- Xeriscaping
- Native and Adapted Plants
- Use Of Deck-To-Deck Partitions
- High-Albedo Roofing Materials
- Salvaged Materials
- Recycled Materials
- Regional Materials
- Certified Wood
- Low-Emitting Materials
- Low-Flow Fixtures
- Low Ozone Depleting Refrigerants
- High Performance Air Filters

Operate

- Designated Outdoor Smoking Areas

Evaluate

- Monitoring Equipment