The Pennsylvania Department of Environmental Protection Southeast Regional Office

Edward G. Rendell, Governor
Kathleen McGinty, Secretary

The Rendell Administration is promoting high performance green buildings that are friendly to both their occupants and the environment. They use less water and electricity than conventional buildings, use environmentally friendly and recycled construction materials, and provide high indoor air quality conducive to better health and productivity, while at the same time reducing annual building operating costs significantly.

Pennsylvania is now tied for first in the nation with eleven buildings certified by the U.S. Green Building Council under its Leadership in Energy and Environmental Design (LEED™) rating system. Four buildings have achieved Gold level certification and three have rated Silver. The Commonwealth occupies three of these buildings. Additionally, 78 Pennsylvania buildings are registered for LEED certification, five of which are state facilities.

The Department of Environmental Protection's (DEP's) new headquarters in Norristown is the latest green project undertaken as a cooperative effort between the Pennsylvania Department of General Services and DEP. Designed to reduce resource consumption while providing a comfortable work place for approximately 300 employees, the four-story building is designed to achieve a Gold LEED rating.

An integrated design process was used to optimize the performance of the building as a total system. This entailed interaction from the outset by all those involved in the project - the building owner, the occupant, the developer, and members of both the design and construction teams. Computer modeling was used to optimize the use of daylight and to properly size the heating, ventilation and cooling equipment.

Here is a summary of some of the green high performance aspects of the new building:

HEATING/VENTILATION/AIR CONDITIONING:

- Underfloor supply air plenum air distribution system;
- High performance windows that eliminate perimeter heating systems;
- Floor-mounted air-distribution diffusers that provide nearly 100 percent ventilation efficiency;
- Individual thermal comfort control provided for each office and workstation occupant.

BUILDING MATERIALS:

- Construction management plan that diverted more than 75 percent of waste from landfill disposal;

- More than 20 percent of the building materials, by cost, contain recycled content;
- More than 50 percent of building materials manufactured locally, drastically reducing the pollution generated by transporting them;
- Concrete containing high percentage blended cement that significantly reduces CO_2 emissions;
- Low volatile organic compounds (VOCs) solvent-free paints, adhesives, sealants, and coatings;
- High reflectance Energy Star roofing materials that reduce "heat island" effects;
- High performance thermal envelope including R-25 metal insulated wall panels.

WATER:

- Rainwater harvesting and cistern system to displace potable water use for toilet flushing and irrigating atrium planting;
- Low-flow plumbing fixtures;
- Waterless urinals;
- Designed to reduce potable water consumption from 750,000 gallons to 313,000 gallons a year;

ELECTRICITY:

- Purchasing agreement for "Green-E" clean electricity;
- Lighting power density averaging less than 0.75 watts per square foot;
- Daylighting design of 4-story atrium with photocell-sensored dimming;
- High performance split task ambient indirect lighting and occupant sensors;
- Designed to reduce energy costs by 35% from $1.12 sq. ft. down to $0.72 sq. ft. annually.

LOCATION:

- Brownfield site;
- Urban site adjacent to major rail and bus transportation hub;
- Reuse of historic train station building for 6,000-square feet, maintaining 100 percent of its existing shell.

OTHER:

- Flexible manufactured underfloor cabling distribution system for power, voice and data;
- Permanently installed equipment that monitors air quality and energy consumption;
- Extensive commissioning procedures that ensure operations performance.

BY THE NUMBERS:

Compared to a conventionally designed and constructed building, DEP's headquarters is expected to:

- Reduce potable water consumption by 58 percent;
- Reduce annual energy consumption more than 35 percent relative to a code compliant conventional office building;
- Reduce cooling capacity by 50 percent to approximately 600 square feet per ton.

BUILDING OWNER: Tiger Norristown, L.P.
DEVELOPER AND PROPERTY MANAGER: Vision Properties LLC
ARCHITECT: John Boecker, AIA
L. Robert Kimball Associates