

# END USE

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A QUARTERLY PUBLICATION FOR BUILDING OWNERS, ENGINEERS AND ENERGY MANAGERS  
FROM PEPCO'S COMMERCIAL ENERGY SERVICES DEPARTMENT

## Trammell Crow Company

### The Energy-Smart Approach to Building Design

In the local construction industry Pepco is spreading the word on high efficiency design: C-O-N-S-E-R-V-E and receive rebates for participating in Pepco's New Building Design (NBD) Program. The NBD Program is structured so owners and developers receive rebates for the design and installation of energy saving equipment. These rebates are available for total renovation projects and for new commercial and multi-family buildings. By reducing initial cost, rebates decrease the payback period for installing state-of-the-art conservation measures. Private developers are among the many participants in NBD. Developers enjoy the benefits of a building that is more competitive and tenants enjoy the benefits of years of lower energy costs.

The Trammell Crow Company, a privately held real estate development and investment firm, has developed more than \$14 billion of real estate since 1948. The Company currently owns and manages over 315 million square feet of space with particular emphasis in office, industrial, retail, hotel and trademarked facilities. Trammell Crow Company will receive one of Pepco's largest NBD rebates, \$153,000, for the construction of the 368,000 square foot American Psychological Association Building, located at 750 First Street, N.E. near Union Station. The Pepco rebate in conjunction with the building's energy efficient design provides a very favorable payback.

#### New Building Design

Under the NBD comprehensive plan, Trammell Crow received rebates based on the estimated demand reduction achieved by installing energy conservation



PHOTO BY DAN POYOUROW & RICK GIAMMARIA

**The American Psychological Association Building, located at 750 First Street, N.E.**

measures as compared to a Pepco specified baseline. Trammell Crow conducted a design study during the early stages of the project's development. The building simulation was performed for the following energy conservation measures:

#### **MOTORS**

Convert air handling units with standard motor efficiencies (5HP-82.5%, 7.5HP-84.0%, and 10HP-85.5%) to high efficiency motors.

#### **LIGHTING SYSTEM**

Reduce the average watts per square foot for lighting

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from 2.7 to 1.8 by using energy efficient fixtures with 3 U-shaped T-8 lamps and electronic ballasts.

### **COOLING SYSTEMS**

Based on the reduction of lighting load, reduce the 900-ton baseline chiller rated at .66 kW per ton to a 780-ton energy conserving chiller rated at .64 kW per ton.

To accomplish the energy efficiency recommendations, the plenum height constraints (18") had to be overcome in the design by using a cold air distribution system. Trammell Crow accomplished this by using insulated medium pressure 9" round duct work and two air handler units per floor with high efficiency motors. The supply air temperature of 43° F also allowed smaller fan sizes and fan motors, thus providing considerable cost savings.

The design of the chilled water system includes two chillers piped in series. The chilled and condenser water are in a counter flow arrangement to provide the necessary supply air temperature. The refrigeration system design allows the chillers to produce 39°F chilled water at a peak load efficiency of .64 kW per ton. This HVAC system will reduce energy use by an estimated 455,648 kWh/yr as well as save operations costs of \$122,510/yr.

The efficient fluorescent lighting fixture selected is a three U-tube 2x2 fixture (T-8) with an electronic ballast. This fixture not only reduces energy consumption but is aesthetically appealing to the tenants. This energy efficient feature will save an estimated 972,350 kWh/yr and \$261,436 per year.

These energy efficient measures will result in a total estimated demand savings of approximately 557 kW and a rebate from Pepco of more than \$153,000. Trammell Crow has found that offering an energy efficient building is providing them a competitive advantage in today's market.

### **Other Energy Efficient Measures**

Trammell Crow also instituted several other practical improvements at the APA Building. The building envelope was upgraded to a higher level of energy efficiency. Reflective glass and high thermal resistance walls and roof were incorporated into the building. This will result in estimated savings of 66,642 kWh/yr and \$17,918/yr. Installation of the digital Andover Infinity, a new state-of-the-art energy management system, allows Trammell Crow to control operation of this "energy smart building." This system's monitoring points include HVAC system status, space humidity, and temperature, as well as all electrical use. Additionally, the energy management system allows for 24-hour control of the building, including

shut-down of the building during unoccupied hours.

### **1991 Energy Conservation (ENCOMP) Winner**

In 1991, Trammell Crow received the ENCOMP Special Achievement Award in recognition of outstanding energy efficient features installed in the APA Building. This facility was one of 26 applications submitted to the 1991 ENCOMP competition and won in the category of new commercial buildings over 15,000 square feet. The total cost of implementing, purchasing and installing the energy-efficient features for the facility totaled approximately \$734,000. Trammell Crow anticipates a total savings of \$408,200 per year for these energy efficient measures.

### **Future Company Plans**

Trammell Crow Company continues to explore additional efficient lighting technologies for five other buildings. Pepco performed lighting analyses for each building and provided suggestions for improving the facility's energy efficiency and reducing energy costs. Currently, plans have been made to retrofit lighting in three of the five buildings in 1992.

Michael McCormick, Director of Engineering Services for Trammell Crow, summarized Trammell Crow's position in relation to Pepco's New Building Design Program in this way, "I think what this program provides is a good incentive to encourage developers to spend money on conservation up front. Their marketing strategy can then be based on an energy efficient building with the latest technology. We're part of the recognized Pepco rebate program. The prospective tenant can see the developer is sensitive to the long-term operating expenses of the project."

Trammell Crow Company has a strong commitment to energy conservation, as shown by its continued efforts to improve cost effectiveness. Trammell Crow realizes that utility costs represent one of the major expenditures associated with operating their buildings. With this in mind, they plan to make every effort to reduce utility costs by participating in other Power-Watchers Programs as they become available. Together, Pepco and Trammell Crow look to the future for new challenges and opportunities to increase environmental awareness through improved energy efficiency.

#### **Editor's Note**

If you are interested in finding out how Pepco's PowerWatchers Programs can extend your energy dollar, please call (202) 872-4630 today. Now is the time to take advantage of these special energy rebate programs.

Stephanie Meloy



## 1991 ENCOMP AWARDS

ENCOMP is the National Capital Area Energy Conservation Competition. The purpose of ENCOMP is to stimulate the exchange of practical ideas on energy efficiency throughout the Washington area energy community. The awards are used to recognize innovation and excellence in energy conservation and efficiency. The 1991 competition was co-sponsored by Potomac Electric Power Company (Pepco), Virginia Power, Washington Gas Light Company, Potomac Edison Company, American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) National Capital Chapter, Association of Professional Energy Managers, Consulting Engineers Council of Metropolitan Washington, Property Management Association of Metropolitan Washington and the Mid-Atlantic Council of Shopping Center Managers.

Twenty-six entries were received this year, and awards were given to the following participants:

### **New Commercial Buildings 15,000 sq. ft. and less**

FIRST PLACE - (ACCA) Annandale Day Care Center - Annandale, Virginia

### **New Commercial Buildings Over 15,000 sq. ft.**

SPECIAL ACHIEVEMENT - American Psychological Association Building - Washington, D.C.

Fair Lakes Court South - Fairfax, Virginia

Fairfax County Government Center - Fairfax, Virginia

HONORABLE MENTION - Government Center B2 - Fairfax, Virginia

Government Center B3 - Fairfax, Virginia

### **Existing Commercial Buildings 50,000 sq. ft. and less**

OUTSTANDING ACHIEVEMENT - Groverto Baptist Church - Alexandria, Virginia

### **Existing Commercial Buildings Over 50,000 sq. ft.**

FIRST PLACE - National Wildlife Federation - Vienna, Virginia

OUTSTANDING ACHIEVEMENT - Resources Conservation Center - Washington, D.C.

SPECIAL ACHIEVEMENT - Cameron Run - Alexandria, Virginia

Ellipse At Ballston - Arlington, Virginia

HONORABLE MENTION - International Square - Washington, D.C.

Montgomery Center - Silver Spring, Maryland

Nordstrom, Inc. Pentagon - Arlington, Virginia

Nordstrom, Inc. Tysons Corner - McLean, Virginia

Office of Thrift Supervision - Washington, D.C.  
Rosslyn South - Arlington, Virginia



Mr. Mike McCormick, Director of Engineering Services, right, accepts ENCOMP award from Mr. Lloyd Williams, Engineering Supervisor in Pepco's Commercial Energy Services Department.

St. Ann's Infant and Maternity Home - Hyattsville, Maryland

Tyson's Corner Marriott - Vienna, Virginia

### **Educational Facilities**

SPECIAL AWARD FOR CREATIVE MOTIVATION - Prince George's County Public School System - Prince George's County, Maryland

### **Multi-family Residential Facilities**

FIRST PLACE - 4600 Duke Street - Alexandria, Virginia

SPECIAL ACHIEVEMENT - Skyline Plaza Condominiums - Falls Church, Virginia

HONORABLE MENTION - Belvedere Condominiums - Rosslyn, Virginia

The Berkley - Arlington, Virginia

Sentinel of Landmark - Alexandria, Virginia

### **Industrial Facilities**

OUTSTANDING ACHIEVEMENT - Casio Color - Springfield, Virginia

### **Call For Your 1992 ENCOMP Application Today**

Any commercial building is eligible for ENCOMP recognition, provided it is located in the service territories of Pepco, Virginia Power-Northern Division, Washington Gas Light Company, or Potomac Edison. Applications will be accepted beginning in late February through the end of August. For more information and an application, call your local utility today.



## The Pilot Curtailable Load Program Takes Off

Pepco recently introduced a pilot version of the Curtailable Load Program (CLP). This experimental load management program, designed for commercial and governmental customers, is now available to the District of Columbia and Maryland customers who are not currently enrolled in the existing Curtailable Load Program. It incorporates several important changes in an effort to increase customer flexibility and participation.

The Pilot Curtailable Load Program is a voluntary load management program. Participants reduce their on-peak demand level upon request in return for a credit of \$7.30 per kW reduced on their bill. Pepco may signal the customer to curtail no more than 15 times during the summer billing months of June through October. Curtailments are limited to non-holiday weekdays, from noon to 8 p.m. for a maximum of 6 hours.

In 1991, Pepco signaled 6 curtailments, which lasted an average of three hours. More than 250 customers participated in CLP throughout the summer of 1991 and received an estimated \$1.7 million in credits.

### New and Improved

The Pilot CLP has the same objectives as the original program, but with several new and improved modifications. First, Pepco has decreased the minimum reduction requirement to 50 kW to allow participation by more of Pepco's commercial and governmental customers. Second, the penalty provision and the Firm Service Level (FSL) have been eliminated. Customers now select a Target Demand Level (TDL). The TDL is a target or goal that the customer uses to set their maximum demand during curtailments. Finally, when multiple curtailments occur in one billing period, Pepco will average the reductions instead

of using the lesser performance to determine credit. For example:

	<u>Reduction</u>	<u>Credit</u>
Curtailment #1:	100 kW	150
Curtailment #2:	200 kW	x \$7.30
Average:	150 kW	<u>\$1,095</u>

### How to Participate

In order to participate in the Pilot CLP, a customer meets with a Pepco representative. If necessary, a Pepco engineer will complete an analysis of the facility's electrical load to recommend an appropriate TDL. Equipment to be analyzed will include HVAC, lighting, air handlers, elevators and emergency generators. Once the customer and Pepco agree on a Target Demand Level, Pepco installs a Remote Terminal Unit (RTU), and provides a warning device at no charge. The RTU links the customer with Pepco by means of a dedicated phone line and monitors the facility's level of demand. It displays the kW demand level and updates it every five minutes. The warning device, either an autodialer or a warning board, alerts the customer to an impending Pepco request to curtail.

The Pilot CLP is a voluntary program which directly benefits the customer. Customers decide which strategies are best for their facility, receive full engineering support from Pepco at no charge, and earn credits on their electrical bill. Additionally, participation in this program benefits the community and environment by temporarily reducing on-peak demand as needed, allowing Pepco to defer the construction of new generating capacity.

### Thermal Energy Storage Seminar

A seminar on thermal energy storage, co-sponsored by Pepco and Virginia Power, is scheduled for May 5, 1992. Issues to be addressed will include application, design, and benefits of cool storage as an efficient and economical option to traditional commercial cooling methods. This seminar will be of particular interest to architects, developers, engineering firms, engineering design firms, and property managers. If you are not familiar with the TES technology or are considering a project, this seminar is a must! To be added to the special seminar notification list, please call Pepco's Commercial Energy Services Department at (202) 872-4630.

### PEPCO COMMERCIAL POWERWATCHERS PROGRAM UPDATE PROGRAM STATUS AS OF FEBRUARY 25, 1992

#### COMMERCIAL LIGHTING

Applications Received	1711
Rebates (\$)	\$3,988,673
Estimated kW Reduced	15,175 kW
Estimated kWh Reduced	50,190,000 kWh

#### THERMAL ENERGY STORAGE

Applications Received	29
Rebates (\$) (Including design studies & construction start-up)	\$162,588
Estimated kW Reduced	331 kW
Estimated kWh Reduced	79,000 kWh

#### NEW BUILDING DESIGN

Applications Received	140
Rebates (\$) (Including design studies & construction start-up)	\$482,357
Estimated kW Reduced	1301 kW
Estimated kWh Reduced	2,887,000 kWh