

Utility Turns On to New Design Concepts

Application/Building Type:

Corporate Office Environment

Project Name:

Public Service Electric and Gas Company

Location:

Newark, N.J.

Architect:

Swanke, Hayden, Connell & Partners

Owner/Developer:

Rockefeller Realty Corp.,
A Subsidiary of Rockefeller Center, Inc.

Construction Manager:

Tishman Realty & Construction Co. Inc.

Mechanical Engineers:

Jaros, Baum & Bolles

Structural Engineers:

Severud, Perrone, Sturm, Bandel

Acoustical Contractor:

Circle Industries Corp.

Drywall & Fireproofing Contractor:

Prince Carpentry Inc.

Partitions Contractor:

T.J. Mcglone & Co. Inc.

Featured Products:

ULTRAWALL Movable Partitions

Glacier ACOUSTONE Acoustical

Ceiling Tile

THERMAFIBER Safing Insulation

THERMAFIBER Mineral Fireproofing

USG® Cavity Shaft Wall System

usg.com

Saves Energy, Space and Cost with High-Efficiency Details

You can count on a high-rise building occupied by a public utility to stand out as an example of energy conservation, economy and concern for safety. The public image of such organizations demands that they meet standards of progressive design in these areas or face widespread public criticism. The new home for Public Service Electric and Gas Company, Newark, N.J., is no exception.

PSE&G, also wanted reliability and long-term performance in the systems chosen for its new headquarters. As a result, architects Swanke, Hayden, Connell & Partners and mechanical engineers Jaros, Baum & Bolles, both of New York City, tried to choose the products and systems that best satisfied all these needs for the project.

The energy-efficiency package they selected is notable because it was chosen to be the subject of a Department of Energy study to determine the validity of current building-energy regulations and design premises for achieving energy conservation. Furthermore, such fire-safety products and systems as [USG cavity shaft wall](#) and THERMAFIBER safing insulation and mineral fireproofing, and sound-control systems as ULTRAWALL movable partitions and Glacier ceiling panels, were selected for use in the new headquarters.

In order to avoid the complications of building ownership, maintenance and management, PSE&G chose to be a long-term tenant in the 80 Park Plaza complex, which is owned by Rockefeller Realty Corp., a subsidiary of Rockefeller Center. The complex consists of two buildings, a 26-story tower and a three-story plaza building; only three floors of the tower complex are to be occupied by other tenants.

The energy-conservation details of the new PSE&G headquarters were designed to retain and reuse energy. A key detail, the exterior curtain-wall system, consists of insulated, double-glazed reflective glass, trimmed in dark gray aluminum. The smoke-gray glass was chosen for its effectiveness in energy conservation. Within the building, the tower's HVAC systems are controlled by a computer that makes regular adjustments according to temperature changes detected by a weather station on the roof. Another system permits the building to use heat recovered from data processing and load centers, people, office machines and lighting, to supply substantial amounts of the building's heating requirements.

First Dry Fireproofing in East

Another key detail is the THERMAFIBER mineral fireproofing system used on columns. This application is of interest because it represents the first major use of dry fireproofing in an office building in the East. "During our design stage, we prepared drawings and specifications for both spray-on and dry fireproofing and compared the two systems," said Maximilian Poost, an associate partner of Swanke, Hayden, Connell & Partners. "As a result of our evaluation, we determined that in terms of efficiency and performance versus cost, conventional spray fireproofing was best for the floor-ceiling decks and beams, and dry fireproofing was best for the columns.

"There were two principal advantages of the dry fireproofing system. First, since the dry fireproofing is a semi-rigid material, it serves as a good substrate for the drywall column enclosures. Thus, where a furring system was not needed, the enclosure was simpler and less costly to construct, and fit closer to the column. The resulting smaller area occupied by the complete system gave more usable square footage to the tenant.

"The second significant advantage is that the installed thickness is easier to control because the dry product is installed in standard-sized layers. Also, the dry product is less likely to be damaged or chipped off by the construction trades working adjacent to the columns," Poost said.

"Another advantage is that it forms a more solid assembly when the drywall is installed directly over the dry fireproofing, rather than furred out as required with spray-type fireproofing. In addition, the dry fireproofing was installed by the same contractor that installed the drywall column enclosures, the shaft wall and the safing between floors, thus providing unit responsibility for the systems with one contractor," he said.

One floor of the building also had THERMAFIBER fireproofing on the underside of the floor-ceiling deck and as beam fireproofing. "Since the 26th floor was a mechanical floor, the system separating it from the 25th floor had acoustical as well as fire-rating requirements," said Norris A. Barr, also of Swanke, Hayden, Connell & Partners. "The spray fireproofing used on the decks of other floors provided no acoustical benefits, and in order to provide acoustical separation between these floors, we'd have needed to add acoustical treatment. However, the dry fireproofing has significant sound attenuation in one application, so we used it for this deck and the beams beneath."

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Another mineral-wool fire-protection product, THERMAFIBER safing insulation, was used extensively on the project. Whereas the THERMAFIBER fireproofing has a density of 8 lbs./cu. ft., THERMAFIBER safing insulation has a density of 4 lbs./cu. ft. Both products have equally high melt points and fire-resistive characteristics. The safing insulation was delivered in 4-inch-thick, 24-by-48-inch pieces and cut to the desired widths and lengths on site.

Another important fire-safety system used on this project is [USG cavity shaft wall](#). This system combines economy, light weight, speed of erection and sound performance with effective fire protection. It was used in all partitions surrounding elevator, stair or mechanical shafts and in walls separating the building-core areas from tenant areas.

Sound Performance Considerations

Two additional sound performance features were required of [USG cavity shaft walls](#) used on this project. The first was a 10-lbs./sq. ft. design criterion that was established for all of the shafts in the building. The second is the requirement that they support panels of decorative granite in the elevator lobbies of the first and second floors. Both needs were easily met with design details using standard components of this system.

“We didn’t even consider other systems for our shaft wall needs,” continued Barr. “For one thing we didn’t want to consider any ‘wet’ systems, because drywall is so much faster and easier to work with. Second, it works in so well with the construction schedule that it contributes to the rapid progress of the construction. Third, it is light in weight and helps keep our structural needs to a reasonable level. And fourth, it has a variety of details that will accommodate a wide variety of special needs.”

Tishman Realty & Construction Co., Inc., New York City, was also strongly in favor of using [USG cavity shaft wall](#) on this project. “We were the first company to use USG Shaft Wall, and in fact, have been a key factor in the development and improvement of the system over the years,” said Joseph H. Newman, senior vice president. “Since the system’s inception, we have used the various generations of it some 50 projects, totaling about \$5 billion worth of construction. And our efforts have been well rewarded in terms of cost savings, efficiency and performance.”

Newman also advocates the use of THERMAFIBER mineral fireproofing for fire protection of structural members. “We believe that the use of dry components throughout a high-rise building generally results in efficiency and cost-effective construction. THERMAFIBER fireproofing lets you continue working when the weather is bad; it contributes to a clean job [as compared to spray products]; and it lets you move your trades along more quickly. Additionally, THERMAFIBER fireproofing helps you avoid mistakes in application; the ability to control thickness is inherent in a dry product, so you have less concern about whether the fireproofing has been applied to a consistent thickness,” he said.

“Environmentally, you can reduce the precautions necessary to prevent particles from flying through the air and getting on streets and nearby buildings with a dry product. And when it’s used on exterior components, such as spandrel panels, you get a double-barreled benefit: thermal insulation and fireproofing,” Newman said.

Flexible Office Spaces

Another important system chosen for 80 Park Plaza is ULTRAWALL movable partitions. About 50 percent of each floor is designed to be open-plan offices, with the remainder being enclosed offices. The tenant wanted a partition that is easily relocatable, has good sound-control characteristics and yet is economical. Based on a rate of change up to 40 percent per year, the architects found that ULTRAWALL partitions would best meet these requirements.

The combination of factory-applied vinyl wallcovering and fine vertical bevels between the panels produces a pleasing contemporary look that brightens spaces. The appearance of the offices was further enhanced by bold-textured [Glacier ACOUSTONE acoustical ceiling tile](#), used throughout the building. The 12-inch-by-12-inch tiles were installed in a concealed Z-spline suspension. This product was chosen from a variety of systems displayed in model offices because of its attractive texture and long-term efficient performance features.