Project Profile

Progressive Designs Keep Pace with Tomorrow's Needs

Application/Building Type:
Controlled Environments
Project Name:
Southwestern Bell Little Rock Multi-Use Building
Location:
North Little Rock, Arkansas
Architects:
Cromwell, Neyland, Truemper, Levy & Gatchell
General Contractors:
Pickens-Bond Construction Co. and Southwestern Bell Telephone Co., Engineering Dept.
Drywall & Partitions Contractor:
Reimer-Oaks Inc.
Painting Contractor:
Henderson Painting Co.
Featured Products:
USG® Cavity Shaft Wall
SHEETROCK® Brand Gypsum Panels
FIRECODE® C Core
THERMAFIBER Safing Insulation

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Construction Systems for Telephone Building Maximize Efficiency and Flexibility

The Southwestern Bell North Little Rock Multi-Use Building in North Little Rock, Ark., was created with contemporary design aspects that help it to remain contemporary as conditions change. Among the many novel aspects of the building are its form, which provides significant energy conservation, its atrium, which contributes to a sense of community for employees, and its partition system, which permits space allotments to be altered easily as needs change.

Numerous USG products were selected to aid in accomplishing these contemporary design aspects. For instance, THERMAFIBER safing insulation figured significantly in permitting the unusual building form to have proper fire protection. USG cavity shaft wall saved time, cost and floor space in providing fire-rated shaft enclosures. SHEETROCK brand gypsum panels FIRECODE® C Core and USG steel studs helped produce the tall walls enclosing the atrium. And ULTRAWALL movable partitions provided an economical, permanent-looking partition system that features easy, efficient movability to response to required changes in floor plan.

The unusual, yet highly effective design for this building was rendered by the architectural firm of Cromwell, Neyland, Truemper, Levy & Gatchell of Little Rock, Ark.

Let the Sun Shine in

"The exterior form is entirely the result of our energy-conservation design concept," explained A. Joseph Johnson Jr., AIA, of the architectural firm. "First, we selected a rectangular shape, with the long dimensions facing north and south. Since the north side of the building receives very little sun exposure, no special effort was made on that side of the building to minimize the entrance of heat from sunlight. In fact, some of the windows on the north side of the building were made quite large, in order to bring more daylight into our atrium, which is located on that side of the building.

"The east and west ends of the building are potentially the worst for sun exposure and were designed to have no windows. Windowless walls, of course, can be insulated much more efficiently, and since the building design makes them short walls, only a small amount of the total exterior wall perimeter is windowless.

"The south wall provided the most difficult design problem," continued Johnson, "and we responded with a twofold design solution: First, we set back the windows within 4-foot-deep penetrations in the exterior wall, and then we created translucent sunshades that overhang part of the windows. The effect of these two details eliminates all direct sunlight from striking and heating up the windows during the warm months of the year. However, the white-glass sunshades in the overhangs diffuse sunlight in a manner similar to that of a light fixture, permitting additional light, without heat, to enter the windows. Since the sunshades don't cover the entire window area, in winter when the sun is lower in the sky, direct sunlight is permitted to enter the windows and add heat to the building.

"This form, combined with an energy-efficient metal sandwich wall (0.07 "U" value), reduces the cost of air conditioning during summer months, yet lets the sun help heat the building during winter. But this form complicated the problem of fire-safing the edges of floor slabs. If we ended the floor slabs at the window line instead of extending them 4 feet further to the curtain wall, we could save a great deal of concrete. However, that would leave a 4 foot gap that needed to be fire-stopped. Since horizontally fire-stopping a gap this large was impractical, we built a vertical fire-stop 2 feet, 6 inches high along the window line using resilient safing insulation, steel studs and double-layer gypsum board," he said.

THERMAFIBER safing insulation was also used in the conventional manner between the edges of floor slabs and the curtain wall on the east, west and north sides of the building, where the curtain wall is flush with the windows. The same product was also utilized effectively for filling "poke-through" openings through floors to retard the potential spread of fire where utility lines must penetrate floors.

Atrium Relieves Confined Spaces

The four-story atrium was proposed by the architect to relieve the confining effect of numerous narrow corridors running off the elevator lobby. The large number of relatively small, fully enclosed spaces created the potential for narrow, dreary corridors.

By designing a four-story atrium adjacent to the elevator lobbies, the architect was able to open up the corridors aesthetically, bring exterior light into the elevator lobbies and create an exciting space in which people can gather. The space functions as an employee lounge, producing a sense of intercommunication and community. The corridors running along the sides of the atrium are perceived as balconies, providing views of activity of other floors and to the outdoors.

By locating the atrium on the north side of the building, it was possible to create large windows in the exterior wall adjacent to it without paying an energy penalty. The added natural lighting, together with the greenery of the first floor, increases the feeling of being outside the building.

The tall walls and balcony faces provided a challenge for the drywall contractor, Reimer-Oaks Inc., because the natural light from outside would have a tendency to reveal any imperfections in the drywall application. To avoid imperfections, especially in the 20-foot-high partitions, the subcontractor combined careful workmanship with high-quality USG drywall products.

Another important drywall application was in the elevator shafts. By using USG cavity shaft wall as a two-hour fire-rated enclosure around them, the architect was able to save time, cost, weight and floor space as compared to using masonry construction for this application. Since the building was steel framed and had prefabricated metal curtain wall panels, the introduction of drywall shaft enclosures permitted the architects to completely eliminate the masonry trade from the project. Thus, with one less trade on the job, coordination was simplified and construction was speeded up. The simplicity of the shaft wall application provided even greater saving in time and cost.

In addition to elevator shafts, USG cavity shaft wall was used to enclose stairwells, mechanical shafts and fire hose and extinguisher cabinets throughout the building. The shaft wall design utilized the most recent advance in this system, the USG Steel C-H stud, a stud design that permits drywall shaft enclosures to have higher strength, yet lighter weight.

Partitions Provide Flexibility in Office Design

Perhaps the most important system in the building in terms of contemporary design needs was ULTRAWALL movable partitions. Reorganization occurs quite frequently in the phone company because of the rapidly changing needs of this technology-oriented business. The ability to respond to required changes in the floor plan is considered essential.

"We needed a partition system that is economical, has salvage value in relocation and has a sound-transmission coefficient in excess of 40 STC," said Eugene P. Levy of Cromwell, Neyland, Truemper, Levy and Gatchell. "This system satisfied all these requirements and provided additional features. We especially liked the stability of the system. It doesn't have a 'tinny' or shaky feel as many other movable partitions do. Also, since the system has 1/2-inch-thick panels that are thicker than those of many other systems, the wall is more durable and provides a good sound-transmission coefficient without having to add acoustical insulation to it. When we did add acoustical insulation for special sound-control needs, the sound characteristics were outstanding.

"We also like the attachment method used with this system. The positive fit of steel-stud flanges into notches in this gypsum panel forms a more rigid membrane than clip-on systems do, in our opinion. This was our first experience with this system, and we found that it is significantly faster and cleaner in installation than other movable partitions we are acquainted with," Levy said.

The ULTRAWALL movable partition used at the Southwestern Bell project consists of special steel H-shaped studs and 30-inch-wide, 1/2-inch-thick ULTRAWALL gypsum panels. The basic system provides a 42-STC sound rating, and where greater sound control was required, 1 1/2-inch THERMAFIBER sound attenuation blankets were installed in the 1 7/8-inch-deep stud cavities, raising the STC rating to 47. Since this system also includes glazing details, full- or partial-height glass was used with it where desired.

Manufactured by
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