A BellSouth network operations representative stands at the front of the plush conference room explaining the vast system-monitoring capabilities of the telephone network. A group of executives from a large, multinational corporation listens intently. They are considering contracting BellSouth to help monitor their own in-house network.

Facts and figures out of the way, the BellSouth representative decides it’s show-and-tell time. He presses a button. The lights dim. The projection screen on which has just been shown a promotional video disappears into the ceiling. A massive curtain quietly opens,
revealing for the first time surrounding glass walls that allow a 300-degree view of the Surveillance Operating Area below.

The vision before the group brings to mind images of NASA Mission Control. More than 90 technicians are at work on state-of-the-art monitoring equipment.

Focused on the frenetic action in front of them, the executives are unaware that one of the most high-tech components of both the surveillance area below and the so-called War Room in which they are seated is the ceiling.

The ceiling is an integral part of the new Network Reliability Center in Brentwood, Tenn., identical to its sister center in Charlotte, N.C. The two facilities operate in tandem and are capable of serving as back-up for each other. They were built to consolidate
47 separate facilities throughout Bell-South's customer service area encompassing North Carolina, South Carolina, Georgia, Tennessee, Kentucky, Florida, Alabama, Mississippi and Louisiana. Technicians at the centers monitor thousands of miles of phone cable and vast networks of electronic equipment, ensuring smooth operation 24 hours a day.

**Special Ceiling Needs**

When J. N. Pease and Associates, an architectural/engineering design firm headquartered in Charlotte, N.C., was asked to help design the two centers as part of a major renovation, the scope of the project seemed immense. Two of the rooms, the War Room and the Surveillance Room, would require creating new Star Wars-like designs.

J. N. Pease quickly realized that an essential component of both rooms would have to be a "hardworking" ceiling. Unique room shapes, difficult lighting situations, acoustic controls and vast HVAC needs resulted in a long list of special requirements. J. N. Pease selected Hunter Douglas Architectural Products to provide its Luxalon Open Cell Metal Ceiling System.

"The project was a challenge," says Tom Rochester, sales representative for Hunter Douglas, "but one that was ideal for our product. Aesthetically, our cell ceiling would look right in their

![An essential component of both rooms would have to be a "hardworking" ceiling. Unique room shapes, difficult lighting situations, acoustic controls and vast HVAC needs resulted in a long list of special requirements.](image-url)
‘space age’ environment. Functionally, it could meet all their requirements and provide flexibility for future needs. Furthermore, with our modular cells we could craft the ceiling into their elaborate design, accommodating its angles, curves and acoustical wall paneling with reveals.”

The War Room

Layout of the War Room was key to the success of the design. The War Room is located in the center of the Surveillance Room. Circular, it is 30 feet in diameter and elevated to provide a comprehensive view of the activity below. The walls of the room consist of 39 floor-to-ceiling glass panels, slightly canted to prevent reflections, that work in conjunction with a thick curtain and high-speed, motorized Silent Gliss track system.

The War Room is designed to accommodate multiple functions. It is a conference room, closed and brightly lit, used for sales meetings and strategy discussions. The room is equipped with concealed state-of-the-art video teleconferencing equipment, projectors and surround sound.

The War Room can be used as an extension of the Surveillance Room. Its large touch-screen monitors are able to call up any of the computer screens online in the Surveillance Room. A pedestal has hookups for 13 additional computer units as needed.

“The War Room had to have a ceiling that could accommodate the audio-visual and projection equipment, software controls, lighting levels, electrical and mechanical systems integration
and diverse acoustics,” says David Martini-plank, project architect/interior designer at J. N. Pease. “The ceiling would be part of the new genre of architecture for technology.”

Hunter Douglas provided an open-cell ceiling with standard 2-by-2 and 2-by-4 modular cell panels. A hollow space above the ceiling allowed room for acoustical paneling to absorb sound and take the reverberation gain out of the glass.

**The Surveillance Room**

Specifications for the ceiling of the Surveillance Room were as complex as the War Room. The Surveillance Room is round, approximately 140 feet in diameter. Technicians are seated in pie-shaped pods. Each pod monitors phone service in a different region and contains 13 computer workstations. The Tennessee center has seven pods; North Carolina has six. Pods are broken into three levels to allow easy viewing of their three 6-foot-by-7-foot front-projection screens and 35-inch television monitors that provide graphic images of the phone network as well as CNN, the Weather Channel and storm-tracking radar.

Hunter Douglas installed an open cell metal ceiling in a 2-inch by 2-inch by 2-inch cell module in 2-foot-by-2-foot panels. The cells are constructed of pre-painted, highly durable, roll formed 0.020-gauge aluminum. The ceiling is flat black to absorb light and hide equipment. It effectively masks the plenum, giving the appearance of a unified, monolithic surface.

The cells have sliding attachment clips designed for easy downward access to
the plenum to repair ceiling ductwork or to add wiring or lighting. Interlocking components assure tight, rigid assembly. Suspension brackets and splices help create a uniform look.

The lighting in the room comes from black Alzack ceiling fixtures custom fit with Hunter Douglas plates to adapt them to the cell ceiling and to highly concentrate the light over individual work stations.

“We didn’t want lighting that spread out or caused reflections,” Martini-Plank says. “The large screens are front projection. Controlling the lighting was vital to ensuring sharp images. The open-cell ceiling directs light through 6-inch-by-6-inch holes wherever we want it. When you look up at the ceiling, you can’t see the light sources. There is no reflection glare on the projection screens or computer monitors.”

In addition to hiding light sources, the black cell ceiling masks the smoke detectors, sprinkler system, wiring and audio-visual equipment up above. Even the bright lights of the big-screen projectors are virtually invisible.

Other “Special Effects”

Installing the AV equipment in the ceiling presented another problem that was solved by the cell ceiling. That equipment easily overheats, but the open-cell ceiling provides all air-conditioning ven-
ilation through the grid for supply and return air. It meets the cooling needs for the AV equipment as well as for the entire Surveillance Room. No fixtures, grills or grates are visible from below.

The ceiling is also designed to control acoustics. Voices, phone rings and keyboarding sounds go up, pass through the grid and are absorbed in the ceiling’s interstitial plenum.

“It’s a real hard-working ceiling,” Martini-Plank says. “It accommodates the unique lighting required for effective viewing of the surveillance monitors and large-format audio-visual equipment; allows for an HVAC system that keeps the rooms at a comfortable temperature and the equipment operating; and controls acoustics so that dozens of employees can work in small groups in areas unconfined by walls.”

Neil Ferguson, regional project manager for BellSouth, is also happy with the ceiling design. “The ceiling is aesthetically pleasing. It provides depth and dimension, greatly adding to the appearance of the space.”

He says that more important than the aesthetics of the ceiling is its functionality “These are extremely high-tech rooms. They are innovative in every way. We took a lot of chances with new, creative technologies when we built them. The Hunter Douglas Open Cell Ceiling is an integral part of the design’s success. The design has exceeded our expectations and will be a model for future BellSouth facilities.”