How Sealant Did a Sound Job

The 50-Story Building Needed to be Sound Isolated From the Underground Subway and Also Throughout the Building

By Jac Grady
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When you build a 50-story, $160 million office building directly above the proposed main interchange for the Dallas subway system, you’ve got to work hard to keep the subway noise in the subway tunnels and out of the building.

WZHM Group, architects for the 1.65-million-sq.-ft. First City Center tower in Dallas, solved the potential noise problem by physically and acoustically separating the building’s main foundations piers from the already excavated tunnel.

WZHM then carried the acoustical control program throughout the building, a Cadillac Fairview Urban Development, Inc. project, by specifying sound-rated wall systems, including the use of sound control sealant in all shaftwalls and around drywall partitions.

Handling the sound control sealant applications was United Interior Construction, a division of United Tile.

Duane Trochessett, United’s project administrator on the First City Center job, said that by the time the Center was completed in January of 1984, the sealant application crew used more than 2300 30-oz. cartridges of sealant. That’s the equivalent of a sealant bead 88,000 feet long.

For this job we used our own Henry #313, a non-shrinking, non-flammable permanently resilient latex sealant that is freeze-thaw stable to 10°F and significantly reduces sound transmis-
“Keeping outside sounds—noise from subways, street traffic, heating, air conditioning, ventilating, etc.—out of office areas is a tough job. You can’t start thinking about it after the building is up.”

Design of the First City Center is dramatically different from the surrounding buildings in the business section. WZMH’s design for the Center faced unusual challenges.

The Center site is located at the intersection of two major street grids which meet at a 30 degree angle.

To visually fuse both grids, WZMH designed a building that presents a “primary” facade to sightlines from either points of view.

Further accenting the building, which is surrounded by glass curtain-walled high-rises is an exterior facing of Carmen Red granite that was quarried in Finland, cut in Italy and shipped to Dallas. Blue-grey reflective glass, Guardian TS 20, stands out in comparison to the black and bronze curtain walls of the neighboring structures.

Adding a further dramatic design note, the First City Center is not a perfectly rectangular structure. Instead, the building has a series of diagonally stair-stepped levels receding, at the top of the building, over eight floors and extending away from the tower at the lower 12 floors. The lower 12 floors are capped by cascading greenhouses utilizing the same glazing as that of the tower.

Of further visual interest is the second floor sky-bridge to an adjacent building. The skybridge projects the window pattern, or motif, and presents

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Mechanical equipment rooms, a major source of unwanted sound in modern high-rises, had their noise muted in First City Center by extensive use of sound control sealant around sound-rated drywall partitions.

Sound control application team for the First City Center building in Dallas includes (l. to r.) Joe Peel of United Tile; Gary Hemmerlein, The W.W. Henry Company; Duane Trochessett, United Tile; John Wheatley, The Gerald Johnson Sales Company; and Frank Eppink, HCB/Linbeck.

the effect of windows pouring out of the main structure and across the street.

Already a downtown Dallas landmark, the First City Center has attracted a great deal of attention with a 20,000 sq. ft. public plaza that “returns” attractive outdoor space to the city and that features a water wall, a waterfall, fountains, ponds, public concourse area and lush landscaping that contrasts gently with the pinkish granite and blue-grey glass.

With towering structures such as First City Center rising from practically every downtown Dallas street corner, sound control is going to be as important inside a building as traffic control is in the street. As United Interior’s Duane Trochessett puts it: “acoustical engineering and the use of sound control sealants in Dallas buildings are no longer luxuries. They are necessities.”