



MC CABLE HELPS ELECTRICAL CONTRACTOR MEET DESIGN, TIME CHALLENGES OF WIRING ALCOA WORLD HQ

The S-shaped ALCOA Corporate Center might have thrown contractor Hanlon Electric a curve, but AFC armored cable enabled Hanlon to meet a tight construction schedule.

The 236,200-square-foot corporate headquarters for the world's largest aluminum producer replaced the company's 31-story building built in

1953. It is located on slightly over two acres overlooking the Allegheny River in the North Shore area of Pittsburgh. A 19th century gateway to the West and an engine of America's Industrial Revolution, Pittsburgh is now home to the corporate headquarters of nearly a dozen Fortune 1000 companies in energy, manufacturing, food, and other

industries, as well as Carnegie Mellon University and the University of Pittsburgh.

The ALCOA Corporate Center, located in an area of urban renewal, consists of six floors of office space, intersected by an atrium and escalators, with a 96,000-square-foot, two-level underground parking garage. Amenities include a first floor busi-

ness/conference center, employee dining area and river terrace, multi-use conference rooms, and coffee bars.

In the open office areas, walls measure 11 ft. 6 in. from floor to ceiling and are made of non-reflective, Low E, ultra-clear glass. The effect is a wall-less environment with an abundance of natural light and is the first large-scale use of this type of glass in this country, according to Rusli Associates, the architectural and design firm. The escalators, elevator, and fire stairs are also encased in glass, with their mechanics visible.

The structure is designed in a lazy S-shape in an open floor plan. Floors two through six each contain a footbridge that connects a 90 x 290-foot office space with the restrooms, escalators and electric utility rooms. Both the S-curve and the footbridges complicated the project, said Terry Hanlon, project manager with Hanlon Electric.

Because of the office area's S-shape, nothing was laid parallel, said Hanlon, and some of the duct work ran diagonally from corner to corner. As a result, cable laying had to be planned carefully.

Rick Petrie, Hornfeck Engineering, selected AFC Cable Systems' pre-wired, metal-clad (MC) cable for the project because it was flexible and easy to install.

"We have a 15-inch raised-access floor system with extensive HVAC, including duct work, fan boxes, coils, and data and power distribution," said Petrie. "MC cable was used to bring the power out to all the under-floor access areas from the electrical closets and was installed first before the duct work."



MC cable was selected for this complex project because it was flexible and easy to install.

The original plan was to keep all the wiring contained in a tray below the footbridges, but that couldn't be done because the available space for under-floor cabling shrunk dramatically from its original six to eight-foot widths, said Petrie.

"I don't think we could have fit all that pipe under there. It was very tight. If the plans had specified wire-and-conduit in those areas, I don't know what we would have done," he said.

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"Conduit restricts your movement, requiring a junction box every time you make four bends," said Hanlon, "whereas MC can conform to even the most convoluted pathway, without any concern for number of bends. MC is thinner than rigid conduit, yet carries the same number of conductors. As a result, we were able to run multi-connector cable

through a one-inch gap beneath the under-floor duct work."

MC cable was used below the floor and overhead, Hanlon said. Hanlon Electric installed nearly 100,000 feet of MC cable in sizes 12-2, 12-3, 12-4 and Red Fire Alarm/Control Cable (FACC).

With flexible MC cable, Hanlon was able to preplan the amount he would need for the project, thereby saving money on supplies. "I figured out the cable length ahead of time, plus or minus five feet, to the final locations. That would have been virtually impossible to do with conduit," he said.

There was little waste with the cable, mainly because Hanlon ordered it by the reel, not pre-cut. This allowed room for on-site adjustments and enabled his crew to make their own connections in the boxes where the cables were terminated, said Hanlon. Each box had eight plugs, and the boxes could be moved around to where power was needed.

His crew cut the cable off 1,000-foot reels as they needed it. They saved on cable costs and the salary they would have had to pay a person to sort and label pre-assembled MC tails with plugs, said Hanlon.

The flexible, pre-wired cable helped the general contractor meet a tight production schedule, and open the building before the planned date.

MC-Cable Product Spotlight

- Designed for branch, feeder and service circuits in industrial, multi-family residential, and commercial buildings, including places of assembly (100 or more people)
- Can be installed exposed or concealed, or in an approved raceway, and is one, two, and three-hour through penetration, fire-wall rated by UL
- FACC is fully plenum rated Type MC cable. The red stripe on FACC makes identification simple, reducing costly installation errors in the field and making identification of critical fire alarm circuits easy

IMPORTANT!

NEC 2002 - Article Number Changes For Type MC & Type AC Cables

	NEC 1999	NEC 2002
Type MC	334	330
Type AC	333	320

For these and other code change updates, visit us on the web at:

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