Access Control Challenge with World's Largest Electromagnet

Landscape:

The glass-walled public areas of the University of Minnesota's newly expanded Center for Magnetic Resonance Research (CMRR), designed by RSP Architects, offers impressive panoramas of the East Bank campus, including TCF Bank Stadium. But deep within CMRR's enclosed research space is something more astonishing: magnet-generated, high-resolution views of human brain activity and body systems.

CMRR, an interdepartmental, interdisciplinary research facility established in 1991, houses eight state-of-the-art high-field magnets, capable of producing detailed, noninvasive studies of living subjects. Commonly known as MRIs, these magnetic resonance images have the potential to map the human brain and advance the study of medical conditions such as diabetes, cancer, psychiatric disorders and obesity.

Soon after starting the project, RSP Architects contacted Lance Werner, a specification writer with Allegion, who had collaborated with architectural firm on previous projects.

Challenges:

Werner had two key challenges to address:

- **Longevity:** As found in the university's former building, products such as computer monitors generally only lasted weeks or months as opposed to years because of the magnetic field from the high-tech equipment. Allegion needed to evaluate how well electronic access control products would hold up in this type of environment.
- **Different Access Needs:** The facility was divided roughly into half research and half clinical personnel, representing a second challenge: two separate populations that required their own types of access control.

"This project required lots of security, but accomplishing this in an environment where electrical components were known to fail represented a serious challenge," says Werner. "We decided to test the products in a physical environment that was as close to reality as possible."

Problem-Solving:

The facility was already using non-ferrous locks with no problems, so they would stay. To determine how the rest of the hardware would perform, Werner obtained various samples of electronic door hardware from Allegion and constructed a rolling cart, which allowed the team to place the cart in various parts of the building. Working with an engineer from RSP Architects and a scientist from the center, the team estimated the strength of the magnetic fields in a variety of locales. The carts were later left in selected areas to test the electronic door hardware.

As expected, there were some product failures and erratic behaviors. After all, that was the purpose of the testing: to find what worked and what didn't before installation.

Solutions:

After six weeks of close collaboration and cycle testing, the team developed a list of products that would perform under these extraordinary conditions. Those included:

- **Von Duprin E996 Outside Locking Lever Trim** used in conjunction with **Von Duprin 99 Series Push Pad Style Exit Devices** on typical doors utilizing panic hardware with access control.
- **Von Duprin 6000 Series Electric Strikes** used in conjunction with **Von Duprin 55 Series Crossbar Style Exit Devices** for decorative aluminum entrances with access control.
- **Von Duprin PS873-2-QEL Power Supply/Control Boards** to power all low voltage electro-mechanical hardware components.
- **Von Duprin QEL Panic Device** (motor driven latch retraction) used in conjunction with **LCN 4600 and 9500 Series Low-energy Power Operators** for doors equipped with power operators.

With Allegion involved early in the process, they were able to collaborate with RSP Architects and CMRR to problem solve and identify the best security solutions for this unique environment.

About Allegion

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