St. Louis Emergency Center

Location: Ballwin, MO

Architect: Ross & Baruzzini, Inc.

Glazing Contractor: Mays Maune McWard, Inc.

Air Barrier Contractor: James G. Staat Tuckpointing & Waterproofing, Inc.

Window Fabricator: Winco Windows

Tremco Distributor: Irwin Products, Inc.

Tremco Sustainable Building Solution:
- Spectrem® 2 Silicone Sealant
- Tremco 440 Tape
- ExoAir® 120 Fluid-Applied Air & Vapor Membrane
- ExoAir® 110 Self-Adhered Air & Vapor Barrier Membrane
- Dymonic® 100 High-Performance Polyurethane Sealant
- Proglaze® ETA Engineered Transition Assembly

Project Profile

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understand what would be required and appropriate trades to be coordinated effectively. Tremco provided clear, three-dimensional, sequenced details to help guide the installing contractors while aiding the design and construction team to address any challenges which might be encountered before construction.

BOLD, BEAUTIFUL AND ENDURING

Building what would be considered by many to be a fortress was a challenge in and of itself. Adding daylight and views compounded the challenge. The final requirement was to design a facility that would be an asset to the residential community in which it was situated. Enhancements were also made to the property, extending the park setting with walking trails and sustainable landscaping elements while preserving the security of the facility.

“We tried to give everyone the best of all worlds,” stated Mayfield. “We addressed the seismic guidelines, the anti-terrorism and impact guidelines, and the enhanced environmental guidelines to be able to withstand a tornado while still providing a good quality of life for those working in the facility. The final piece was to design a facility that would be compatible with its surroundings.”

The cast-in-place concrete, single-story administrative structure with interior steel framing and a concrete deck is wrapped with a brick veneer to soften the 27-foot height of the main technological component of the building. A mosaic of metal panels in three different colors is designed to add movement and texture to the tall, 300-foot long façade of the main building.

No matter what St. Louis County may encounter going forward, residents may be assured that its new communications system will continue to operate 24 hours a day, seven days a week, through disaster or tragedy even if it has lost all outside power. At all other times, it will be a very pleasant place to work.

September 11, 2001, drew attention and a sense of urgency to the lack of compatibility within communications systems used by emergency responders. At the time, there were 50 different communications systems in St. Louis County alone. Reflecting on the events of that day, plans called for the emergency communications system for St. Louis County in Ballwin, MO to be consolidated and expanded to include adjacent counties and establishing an 800 MHz trunked radio network and systems data center. This radio system would ensure better management of incidents through the rapid sharing of information among firefighters, EMS, policemen, hospitals, public works and other groups. St. Louis County took the opportunity to bring together the 911 dispatching center, emergency
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Understanding the operational requirements, it was critical to make the enclosure as monolithic as possible. “We wanted to wrap the building with materials from one manufacturer,” noted Jason Mayfield, project architect for Ross & Baruzzini. “The fewer people involved, the better so we don’t have to worry about compatibility.” Assigning responsibility for components to a single-source where feasible helps maintain control, eliminate risk, and facilitate the process. It also helps ensure the appropriate solution (and application sequence) is specified and eliminates any gaps that may be left to gueswork or interpretation down the line.

Tremco’s ExaAir® 120 Fluid-Applied Air & Vapor Membrane serves as the foundation for the air barrier system, providing a monolithic, seamless membrane which ensures continuous integrity without gaps. ExaAir® 110 Self-Adhered Air & Vapor Membrane is used as a transition membrane into door and window openings. To achieve a holistic, continuous system throughout the building enclosure, Tremco’s ProGlaze® ETA Engineered Transition Assembly was incorporated to span the critical gap from the window to wall assembly.

ProGlaze® ETA Engineered Transition Assemblies are turnkey, engineered solutions for critical connections throughout the building enclosure which provide visible assurance of a secure, continuous seal without voids. Consisting of pre-engineered, Aludine finished aluminum and silicone materials that are mechanically and/or attached with Spectrem® 1 Silicone Sealant to window and/or wall structural framing, these assemblies provide a more secure, durable connection and seal. These innovative solutions absorb thermal and seismic movement and wind-loading stresses to the buildings’ façade, providing a stressless connection, less dependent upon contractor skill and attention.

Transforming a building into a high-performance environment requires continuity at all the interfaces throughout the building envelope. These connections must be able to withstand maximum wind loads, and building movement from thermal, seismic and moisture content changes, deflection, and creep. The dynamic joints in building design such as joints within floors and walls, which allow for building movement, are particularly demanding connectivity points. Joints and the materials that are used to seal them must be flexible, durable and able to span irregular or unsupported joints while supporting the same air pressures as the air barrier material without rupture or displacement.

“The ProGlaze ETA assembly took away much of our concern about the facility’s ability to withstand a tornado, respond to seismic issues and meet anti-terrorism guidelines,” commented Mayfield. Tremco has tested the ProGlaze ETA system to well in excess of 200 mph wind speeds to provide proven, documented performance. Testing has also included the ExaAir Air Barrier System to evaluate performance of the building envelope as well as the performance of components and wall assembly. Consequently, all components of the system are subject to the same performance criteria required for the entire system.

A mockup was built on-site to validate the design intent and constructability. Collaboration at the design stage allowed critical details and transitions to be clearly drawn to enable contractors to...