High-Security Jail Locks in Long-Term Solution

Travis County Jail | Austin, Texas

GOVERNMENT

CHALLENGE

The Travis County Jail, which encompasses a full city block in Austin, Texas, has experienced roofing problems since its opening in 1986. The 16-story jail was designed to provide inmates with opportunities for the state-required minimum hours of outdoor recreation on its rooftop. The roof design featured a concrete slab on top for a basketball court, heavy-gauge chain-link fencing fully caging in the recreation space, and multiple rooftop security cameras. The high-security nature of the facility, which had severely limited access to the roof, would make identifying and resolving the source of leakage unusually costly, while posing a logistical nightmare for construction workers and a hardship on a prison population whose only outdoor recreational opportunities were on the roof. For those reasons, the county chose to patch or restore various surfaces, as budgets permitted, rather than tackling the underlying problems.

SOLUTION

> "The synergy between us, that's what made things work"
>
> **Mark Stefanov, P.E.**
> Travis County

In the interim, Travis County administrators began working with Sam Heffernan, territory manager for Garland, to introduce high tensile modified bitumen roofing solutions to various county facilities. Mark Stefanov, P.E., who joined the county in 2005, knew it was critical that the jail roof be replaced. He explains, "I had talked to Sam and we knew what was needed to provide a long-term solution for that particular roof, but it was not going to be inexpensive. Well, by 2010 or so it got to the point where I could say 'Either bulldoze the building or give me the money to fix the roof.'"

Once the decision was made to replace the roof, the entire process began moving very quickly with construction completed within six months. If that time line seems anything less than extraordinary, consider these requirements. Since the concrete slab had been leaking water into the underlying single ply membrane, the saturated roofing had to be removed. To access the roof, an outside elevator had to be installed and secured to the building's concrete exterior. Removing the six-inch concrete slab, as well as the failed roofing assembly, required jackhammers and a lot of elbow grease. But even more challenging was removing all that debris, one elevator load at a time, into the limited parking area reserved for the project.

The comprehensive replacement assembly included tapered insulation, providing positive slope to prevent standing water that might, in turn, lead to recurring water penetration. All the penetrations had to be raised in order to accommodate the new tapered insulation height. The polyiso assembly was designed to meet IBC® as well as the ASHRAE® energy code, with a minimum R-value requirement of 23. In addition, in the areas where a concrete deck had to be installed, high-compression-strength insulation capable of handling the weight of the six-inch slab was used.

Since prisoners could not be moved during installation, and the rooftop air intakes were continually sucking outside air into the prison, the county opted for a Garland adhesive system that is virtually odor-free. The roofing solution chosen was a cold-applied ENERGY STAR® certified system with a bright white surface to meet the City of Austin's building code.

The parapet walls, the walls of the guard shack, and the columns projecting through the roof were all encased in a metal wall panel assembly including a metal coping assembly built to ANSI/SPRI ES-1 code compliance. Extensive detailing was required to handle all the necessary security cameras, and razor wire was added to the top of the coping assembly for added security. The construction team also installed a new lightning protection system in compliance with local Austin building code. Patrick J. Sullivan, P.E., of QS Tech, LLP consulting firm, was chosen to provide engineering support for the project.

Stefanov concludes, "As project manager for this particular job and resident engineer for the Sherriff, I wear a lot of hats. Sam, Pat and the team at QA [Construction Services] are experts in their fields. I'm an expert of a different kind, with responsibility for a lot of diverse engineering projects. The synergy between us, that's what made things work." As a result of that collaboration, the project was completed ahead of schedule and under budget.

Project: Travis County Jail
Location: Austin, Texas
Garland Rep: Sam Heffernan
Engineer: QS Tech, LLP
Contractor: QA Construction Services, Inc.

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