

capitalizing on

WATERPROOFING



Topeka, Kansas is not only the capitol of Kansas but also a growing and thriving metropolis. With a growing population and a rich history, Topeka shines with a beautiful state capitol building.

Yet, as the downtown area has grown, the capitol has experienced continuous problems with parking and space. With a need for additional office space and an even greater need for more parking, the state legislature approved a plan for expansion.

Many government buildings are in need of expanding and upgrading their facilities to provide more space and additional amenities. With many government buildings, retail outlets, tourist attractions and corporations sharing the same goal, it makes expansion difficult when there is lack of land space.

To eliminate the obstacle of building where there is no space, more construction projects are taking place where there is more room, underground. Underground construction, specifically below-grade parking decks, is a great way to “add space” where, previously, none existed.

The expansion of the state capitol in 2003 was challenging from the beginning; with no where to expand but down. The surrounding area was filled with businesses and the capitol grounds were minimal. In addition to the restricted space, the capitol needed to keep its manicured lawn to preserve the beauty of Topeka’s downtown.

The engineers and architects developed a plan to dig three stories below-grade on the north elevation of the capitol and create a new parking structure. “It looks like a simple garage, but it is much more detailed than that,” said Harold Jansen, general sup., JE Dunn, in Kansas City. Additional office space and state-of-the-art vaults to house the capitol archives and computer systems were constructed on the north side of the capitol.

“It was an aggressive plan,” stated Bob Campbell, the engineer on the project. After the initial digging, the construction project proved to be even more challenging than originally thought. The construction reached the water table, creating a natural land lock surrounding the perimeter of the parking

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deck. “The water tables are high in Topeka and the space that we had to work in was very small. We had to excavate dirt from one side of the property to the other, pour concrete, waterproof and then move it back. It was a project that only worked due to excellent coordination and logistics of the contractor and sub-contractors.”

With excessive amounts of below-grade concrete and high water tables, the drainage and waterproofing of the new underground structure was critical. Project management turned to a reputable waterproofing company, Chamberlin Waterproofing, to not only waterproof the new parking structure but also ensure that the drainage system worked. “The project was very labor intensive,” said Michael Holmes, a worker for Chamberlin. “We used double laps to keep the water out.”

“The system was designed to manage large amounts of water. It was basically a moat that circled the building,” stated Bill Neville, project manager for Chamberlin. “We built towers to apply the membrane because the back fill could not be installed immediately, but the construction of the walls had to proceed.” From the towers, the concrete was waterproofed using CCW-500R hot applied rubber membrane and 82,357 square feet of Carlisle 860/861 membrane and then covered with 82,357 square feet of MiraDRAIN drainage board. “Both products are manufactured by Carlisle Coatings and Waterproofing and were essential to the success of the project.”

With a project of this caliber, Neville worked closely with a variety of building and waterproofing experts, including Frieze and Associates, waterproofing consultants and Carlisle Coatings and Waterproofing representatives. “CCW offers one warranty for all the waterproofing on the job,” stated Craig Frieze, owner of Frieze and Associates. “That is an added benefit when there is a lot of waterproofing. No

matter what part of the structure is being waterproofed, Carlisle stands behind it.”

The entire parking structure was encapsulated with waterproofing. The ground layer had a moisture barrier of 155,950 square feet of Carlisle 60-mil EPDM membrane under slab, which tied into the below grade walls that transition into the grade-level roof. “By completely waterproofing the building and then installing the sheets of drainage that lead to a below ground drainage system, we were able to protect the new structure from moisture intrusion,” said Frieze.

With the drainage and below-grade waterproofing membranes in position, Chamberlin applied the membrane, continuing up the walls to the top deck. “The top deck is a combination of parking, driveway and garden roof,” stated Neville. “It is livable space and it had to be

waterproofed not only as a roofing system, but also as a green roof and parking deck. We used a system that would stand up to everything from root infiltration to Mac trucks.”

The system consisted of 181,855 square feet of Carlisle CCW-500 hot rubber 215-mil system and 181,855 square feet of Carlisle’s MiraDRAIN 9000 drainage board. Additionally, over 26,000 square feet of Carlisle rooftop planting system was applied, not to mention the gravel and asphalt that topped the parking area.

The green roof system was planned to give the project the aesthetics and natural feel that was important to both the legislature and the community. “Thousands of people work around and visit the capitol everyday; the gardens were an essential part of the project,” confirmed Neville.

With 111,384 square feet of lawn and two large gardens over both of the vaults and the parking structure, premium product performance is crucial. “Carlisle Coatings and Waterproofing is a leader in the garden roof movement,” stated Frieze. “The difference between CCW and other manufacturers is that CCW looks at the whole building, as well as the whole system. There are a number of companies that can provide green roof systems, but very few if any, who can provide the whole system for all six sides of the building. If the garden roof does not tie in correctly to the walls and the drainage, it will fail.”

“We have been working with CCW and Frieze and Associates for a very long time,” concluded Neville. “When we have a project of this size and complexity, we know that we need the combination of product performance and strong warranties to really make it work. And it did.”

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