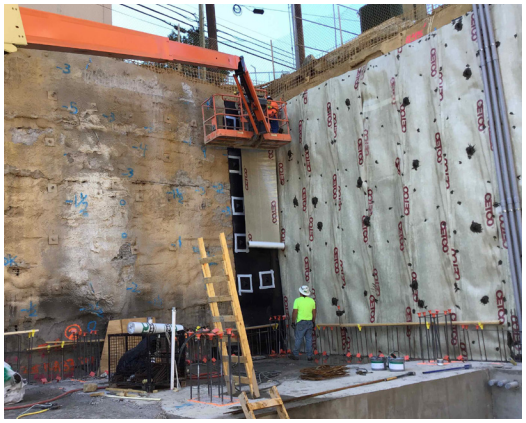
CETCO meets waterproofing requirements at Penn State University-area luxury high-rise

Building project posed challenging field conditions: exposure, lengthy time frame, large voids, and weather



PROJECT DETAILS

The Standard at State College

LOCATION

Pennsylvania State University
University Park, PA

PRODUCTS USED

ULTRASEAL® AB

AQUADRAIN®

BENTOSEAL®

ENVIROSHEET

HYDROFIX

TB-BOOTS

WATERSTOP-RX®

CHALLENGE:

The general contractor for the "The Standard at State College" high-rise building project needed a waterproofing solution that could be installed quickly and meshed with field requirements. Although the original specification for this major development did not require waterproofing for all perimeter walls, the shotcrete shoring retention wall posed many waterproofing challenges. Areas were not completely smooth and many voids were present in both the shotcrete and the lagging. Other factors that were problematic included harsh weather conditions and the length of the project.

Landmark Properties, the nation's top developer of student housing, broke ground on "The Standard at State College" in August 2018. The project is located at Pennsylvania State University in University Park, PA and will be a high-rise, luxury student housing development designed for undergraduate and graduate students at the university who wish to live off-campus. "The Standard" will be a 12-story, 152-foot high-rise with 48,400 square feet of commercial space on the first two floors. The upper ten floors will have 243 residential units. Three levels of underground parking will consist of 281 spaces.

SOLUTION:

CETCO partnered with Gibble Construction, Inc., of Elizabethtown, PA, an Approved Applicator of CETCO waterproofing membranes, to craft a proposal for the waterproofing components of the project. CETCO was the only company with the product portfolio that met the various field conditions present including exposure, large voids, lengthy time frame, and weather.

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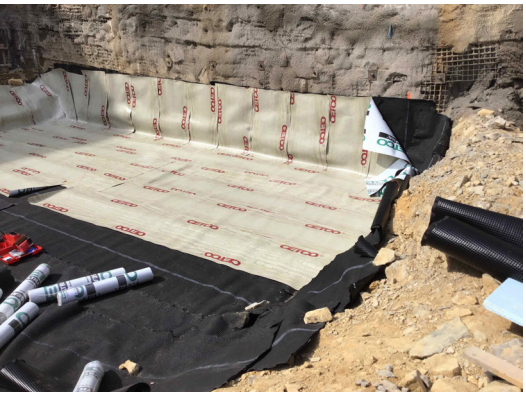

After discussions with Gibble, CETCO recommended its ULTRASEAL® AB waterproofing membrane as the main waterproofing product component. To help show the developer the importance of waterproofing both perimeter and below ground walls, CETCO offered their Below Grade System (BGS) ten-year limited labor and material warranty. This warranty provided the assurance the builder needed to authorize "total" waterproofing, including two elevator pits. The waterproofing work involved 34,000 square feet of walls and 4,000 square feet of elevator pit surfaces.

ULTRASEAL AB waterproofing membrane is lighter and more impervious than traditional waterproofing materials while incorporating an enhanced, pressure-sensitive, adhesive layer that bonds firmly to concrete to prevent water migration. Unlike other adhesive-bonding membranes, its active Advanced Polymer Core (APC) waterproofing layer self-seals small punctures and tears commonly occurring during construction activities. Additionally, ULTRASEAL AB waterproofing membrane offers quick and easy installation, both of which were key requirements of this project.

ULTRASEAL AB waterproofing membrane's adhesive layer protects the Active Polymer Core (APC) layer from excessive prehydration during construction allowing it to be installed in all weather conditions and has proven effective in both hydrostatic and non-hydrostatic conditions.

With a geomembrane ten times more impermeable than traditional hydrophilic membranes, the expanding action of ULTRASEAL AB waterproofing membrane swells to seal any small concrete cracks caused by ground settlement or concrete shrinkage.

Gibble first installed the ULTRASEAL AB waterproofing membrane on mud slabs poured in the elevator pits. The floor slab was poured in each pit, the walls were built, and everything was waterproofed. It took approximately one month to finish both elevator pits. Due to heavy rain, the two elevator pits flooded during the project. When pumped out, the ULTRASEAL AB waterproofing membrane was intact and performed as promised.

The shotcrete on the below-grade walls presented challenges that needed to be addressed during installation including walls that were not uniform, had protruding rebar, and exhibited large voids. A spray foam was utilized to create a consistent, smooth substrate necessary for the application of the waterproofing membrane. Gibble then installed ULTRASEAL AB waterproofing membrane and 700 TB-BOOTS, which are preformed, single piece covers for tie back heads and soil nails. The project consisted of approximately 34,000 square feet and an additional 4,000 square feet of surface for the elevator pits. Four adjacent areaways also required waterproofing.

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To meet warranty requirements, WATERSTOP-RX® hydrophilic, swelling concrete joint waterstop was used around penetrations and applicable concrete joints. WATERSTOP-RX concrete joint waterstop swells upon hydration to form a positive seal in concrete cold pour joints.

SUCCESS ON ALL LEVELS:

According to Nick Cicero, Project Manager for Gibble, using CETCO's materials for the project reduced the labor required by half versus the competition. "If there were ever any issues, we knew that we could count on CETCO Technical Services to get back to us within a day. If we worked with any other company, it would have been a disaster."

Other CETCO waterproofing products used for the project include AQUADRAIN® foundation drainage composite, which consists of a molded profile core and a filter fabric. The system includes drainage and base drain collection. BENTOSEAL® trowel grade mastic was used to detail around penetrations, corner transitions, and terminations. Several above-grade areas received an ENVIROSHEET waterproofing membrane application. The Breezeway will be waterproofed with HYDROFIX, a cold fluid-applied, single-component solution that is a modified elastomeric polymer that forms a flexible, monolithic, waterproofing membrane.

The CETCO system of waterproofing products provided the solutions necessary for challenging field conditions on a large, complex project -- delivering complete protection and validating the CETCO product line's unique ability to overcome demanding site challenges.