



Project Profile:
IDS CENTER
Minneapolis, Minnesota

Kemper waterproofing membrane ensures Crystal Court's first dry winter

The IDS Center's Crystal Court, part of the landmark IDS Tower of the Minneapolis skyline and the centerpiece of one of the world's most extensive skyway systems, is the primary gathering place in downtown Minneapolis, Minnesota. It is the one place where business and commerce converge daily in temperature-controlled comfort without having to go outside.

Over four years ago, Tom Cowhey, the IDS Center Operations Manager for the past quarter-century, asked AMBE LTD., a roofing, waterproofing and building envelope consulting firm based in Minneapolis, to determine what product would seal and waterproof the roof of the IDS Crystal Court. The Crystal Court has eight different levels with a total of 289 skylights separated by a narrow 10-inch gutter. Waterproofing these gutters between the skylights has been extremely difficult, and the yellow "wet floor" signs were never consistent with the quality and character of this icon property.

With leaks that had occurred in the Crystal Court since initial construction, the task of finding the right waterproofing and roofing system proved a major undertaking for Richard Grobovsky of AMBE LTD. The problem was how to run an inconspicuous waterproofing project directly

above the estimated 50,000 people who walk through the Crystal Court on a daily basis. Design of the waterproofing system is difficult in itself, but the safety of the general public, safe access and safe working surfaces for the roofers, and the project's appearance were all factors that required consideration.

"After visiting several different Kemper installations in New York City and seeing the waterproofing capabilities of the Kemper product at the Met Life Building, we were convinced," said Grobovsky.

Still the product was tested in two different areas of the Crystal Court prior to making any final decisions. The first test area, installed in the fall of 2004, included waterproofing the area around three skylights on the eighth level.



Specifier:
AMBE LTD.

Contractor:
Peterson Bros.

Manufacturer:
Kemper System Inc.

Representatives:
KR Kline & Associates

The second test area, completed the following summer, included approximately 12 skylights in an area of the Crystal Court known for problem leaks. Finally, in 2007, after experiencing three years of positive test results and two ownership changes, ownership gave the go-ahead to the remaining areas of the project.

AMBE LTD. decided that the flexibility and adaptability of the Kemperol® V210 resin reinforced with 165 polyester fleece was the only product they would recommend for the IDS Building's Crystal Court. The project was put out for bid and Inland American Office Management, a major real estate company whose affiliate now owns the complex, selected Peterson Bros. Roofing of St. Paul, Minnesota, to complete the project.

"When you have eight floors of skylights that are ten inches apart and very little room to walk, life safety becomes a major concern," said Grobovsky. A special safety plan was written in conjunction with the local OSHA representative, requiring all persons involved in the waterproofing project to be securely tied off at all times. Once scaffolding was erected and fall protection was implemented, all areas of the skylights were pressure washed, removing years of soot, debris and old coatings that had never adequately waterproofed the structure.

There were some minor repairs necessary where the existing lightweight concrete had become saturated with moisture. In those areas Kemperol® EP Primer and sand were used to create a slurry mixture, and the voids in the lightweight concrete were filled and allowed to cure.

Kemperol® D Primer was used to prime the existing membrane, which covered the gutter and the vertical portion of the curbs of the skylights. Kemperol® D Primer was also used on the counter-flashing metal and the structural I-beams on the vertical surfaces. All painted metal surfaces were ground to raw metal and primed with Kemperol® D Primer.

Movement of the structure was another concern in the roof system design. The steel and glass structure ranges from two to eight stories and covers over 32,000 square feet. The steel framing is attached to a 57-story tower which also creates movement.

Other factors that presented a concern were foot traffic for maintenance and cleaning and the removal of ice. All of the details were designed and reviewed by AMBE LTD., the property's management team, and Kemper System's technical department to establish a 20-year waterproofing warranty to protect the facility and the ownership.

The project commenced in early July and was completed over the course of about ten weeks.

"Application of the membrane was a challenging procedure that required patience and creativity," said Grobovsky. "A tight time frame was established, and the project was finished on time and within budget."

Careful selection, design and application of the new waterproofing and roofing membrane have provided the IDS Crystal Court with what is believed to be its first leak-free winter and spring, said Grobovsky.

When properly installed, polymeric membrane systems provide a tightly bonded, custom-fitted membrane and flashing system that can seamlessly transition from through-wall flashing, to base flashing, to plaza deck membrane, to parapet wall flashing, to fountain lining, to green roofing membrane, to planter lining, all without mechanical transitions, system breaks, material changes or other discontinuities, according to Paul Allenstein, P.E., Kemper's technical director.

The cold liquid-applied systems are monolithic, seamless, and conform to almost every configuration. The reinforced liquid resin membrane systems fully adhere directly to practically any structural surface, horizontal or vertical, thereby eliminating



water migration behind and beneath the waterproofing and roofing membrane. The seamless bonding of the membrane to the substrate surface during application also eliminates any possibility of fatigue at the laps and seams, because there aren't any.

Although cold liquid-applied waterproofing systems are usually more expensive than traditional single-ply and modified-bitumen membrane systems, the investment is justified by the potential for improved performance and can help building owners avoid costly repair and replacement expenses later.

Cold liquid-applied membranes are unaffected by standing water and ice conditions. Due to their exceptional bond strength to substrate surfaces, the membranes form full closure to field surfaces, irregular flashings and penetrations of every shape or material.

Historically, most roof failures are due to the weakness in conventional roofing and waterproofing systems' perimeter and penetration flashings, laps and seams. This is where cold liquid-applied systems can perform so much better, said Allenstein.

Many of Kemper's products are highly eco-friendly, green, odorless, solvent-free and environmentally safe. Kemper uses natural renewable resources in their products and recycled fibers in their reinforcement fleece that is embedded in all their waterproofing and roofing membranes.

"Due to the icon image of the IDS Center and Inland's long term ownership perspective, we were not interested in a short term, quick fix alternative," said Jim Durda, Vice President of Inland and General Manager of the IDS Center. "The Kemper product was the closest system out there to a forever solution while being eco-friendly."