

Massachusetts General Hospital - *Boston, Massachusetts*



Green Roofing in a Sensitive Environment

Founded in 1811, Massachusetts General Hospital (MGH) is the third oldest general hospital in the United States and the oldest and largest in New England. The 900-bed medical center offers sophisticated diagnostic and therapeutic care in virtually every specialty and subspecialty of medicine and surgery.

Over the decades, it became widely known for its leadership in cancer surgery and radiation therapy. When the owners of MGH envisioned constructing a new 9,000-squarefoot landscaped green roof above the MGH cancer wing in 2005 they had two chief concerns: safety and long-term durability.

The owners selected Kemper System based on their extensive track record and the superiority of their waterproofing and roofing technology to provide the system that would protect the sensitive medical equipment located in the critical care cancer wing directly underneath.

The landscaped roof design included four different gardens with extensive shrubbery, trees and grass designed to provide cancer patients, some who underwent extensive chemotherapy and radiation treatments, with a haven for relaxation and meditation to aid in the healing process.

“Safety was a huge concern on this project. You always have to get it right, but it’s even more critical when you are dealing with cancer patients at a hospital, which can’t have any type of mold, bacteria or moisture seeping into the building,” said Paul Allenstein, Kemper System’s Technical Director.

Upon completion, Kemper System provided a 20-year, no dollar limit warranty, meaning if any of the Kemper product failed during the 20-year warranty period, Kemper System would be fully responsible for repair and replacement.

"Although there are many waterproofing and roofing products on the market, many manufacturers would not guarantee a 20-year warranty that would resist future bio-deterioration inherent in green roof applications," said Darek Ciach, technical field supervisor. All Kemper System membranes are root and rot resistant and withstand heavy traffic, pooling water and ice.

The Kempertec® EP-Primer, used to prepare substrate surfaces for membrane installation, also served as an excellent temporary waterproofing system. This unique benefit allowed the project to be exposed to the harsh New England winter while the year-long project was completed in phased stages.

The owners chose the Kemperol® waterproofing and roofing membrane, a two-component with catalyst, high performance, seamless and self-terminating cold fluid applied reinforced unsaturated polyester system.

When it comes to green roofing, the seamless and self-terminating reinforced Kemper System membrane has some inherent advantages over the typical mass produced commercial systems. The monolithic edge-to-edge rot and root resistant Kemper membrane can accommodate virtually any landscaping design and provides long-term peace of mind for expensive landscaped green roof overburdens.

The cold-liquid-applied reinforced Kemper System membranes are engineered to resist degradation from UV exposure and heat intensity and are resistant to biodegradation and most common chemicals. A key challenge concerning the hospital's green roof was it included hundreds of penetrations, spaced inches apart, from sprinkler system that would be used to irrigate the landscaped roof. The Kemper system provided superior protection at flashings, seams and transitions, the areas where most waterproofing systems fail. The Kemper System product also complemented a variety of overburden assemblies.

One of the most significant benefits that Kemper System, brings to its customers is their expert technical experience. Kemper System employs a nationwide network of committed professional technical support consultants that provide expert counseling, training inspection and evaluation for their clients.

Kemper System also conducted an extensive three-day training session for the applicators to ensure the quality of the project and the product's proper installation. On

site during the entire project before, during and after membrane installation, Kemper System conducted consistent periodic inspections to ensure the project's integrity.

"It's really critical to have a system that doesn't leak and can handle ponding water because in a lot of cases you're adding constant irrigation to the roof area," said Allenstein. "When you have a system that can handle these issues you can eliminate indoor flooding and over-taxing the sewer systems because you won't have that peak run-off."

Following the project's completion, International Leak Detection, Ontario, Canada, installed a leak detection system with tiny sensors across the entire square footage of the project that detect any water that infiltrates the system prior to water seeping into the interior of the building, thereby correcting the problem before causing any water damage. The leak detection system confirmed the project's seal tight success.

The hospital's building owners were so pleased by the success of the Kemper System product that they have selected and installed a second green roof at the hospital in 2010.

Building Owner:

Mass. General Hospital
The General Hospital Corp.

Consultant (Architect, Engineer):

Cambridge Seven Associates

Contractor:

Chapman, MA

Year of completion:

2010

Surface size:

9,000 sq. ft.