

NJ State House

Enkadrain®

*DIVISION 7
Drainage &
Waterproofing*

*Roof Garden / Plaza Deck
Over Parking Garage
175,000 sq. ft.
Enkadrain 9812 & 9615**

*General Contractor:
Hall Construction
Wall, NJ*

*Architect:
Dawn Engineering
Hazlet, NJ*

** Enkadrain 9812 & 9615 are
now special order drains
replaced by Enkadrain 3811R &
3615R made with recycled
polypropylene.*



The view from the New Jersey State House plaza in downtown Trenton.

Enkadrain Chosen for Extensive Green Plaza at New Jersey State House

The original construction of a plaza on top of a 4.2 acre parking garage was topped with ten inches of crushed stone — no trees, no grass, and no pavement, just a stone area for local residents to walk their dogs. Many residents were unhappy with the lack of aesthetic appeal. To top it all off, the plaza leaked because it had been built without a protection layer between the roofing / waterproofing membrane and the aggregate layer.

When the general contractor for the reconstruction project was named, the scope of the work had not yet been established. The original waterproofing membrane manufacturer was brought back in and asked to recommend some corrective measures. At this point, no products had been specified on the project.

“They had a lot of decisions to make and a variety of options to consider in

this project,” stated Mark Kennedy from Construction Sales Group. “They had leaking expansion joints, flashing problems, and drainage issues on a substantial area above occupied parking spaces. We helped them with the original design issues and the general contractor was quite detailed in their efforts to solve all of the problems the first time through.”



Enkadrain is flexible, yet lays completely flat — hard plastic drains do not.

The reconstruction design incorporated two separate layers of drainage

“This type of ‘green deck’ is known as an extensive green plaza design since a substantial amount of soil is used for traditional landscaping plants.” — Allan Wingfield, AIA

Continued on reverse side...



The redesign and reconstruction was a success and everyone, including local residents, are pleased with the results. Incorporated into the redesign are granite paved walkways, fountains and some substantial plantings, including trees.

material. One drainage course was placed between a new concrete topping slab and a soft, rubberized asphalt membrane. Enkadrain 9812 was the subsurface drainage composite chosen for this layer because of its performance characteristics and the protection fabric on the second side. Enkadrain 9812 has a 95% open, rigid HDPE drainage core molded into a square waffle pattern with geocomposite fabrics thermally bonded to both sides. The three-dimensional core channels away any incidental moisture that could leak through expansion and construction joints, while the fabric layers function to protect the membrane from puncture and stop any concrete fines from passing through when the concrete was poured directly on top of it. Enkadrain 9812 performed exceptionally well in this application because of its high flow rates, ability to lay completely flat, and its ability to withstand extreme loading.

The second drainage layer was placed directly on top of the new slab and right below two feet of soil and stone. This drainage layer was also quite important since any water that would fall on the deck must have an evacuation path. Enkadrain 9615, an extra thick, heavy-duty HDPE drainage core with a geocomposite filter fabric bonded to only one side, was chosen for its exceptional compression resistance and high flow rate. With a solid concrete parking structure below, the additional weight of the soil was not an

issue. The concrete was poured, troweled smooth, and Enkadrain 9615 was placed directly on top of it, then covered with the stone and soil.

This type of "green deck" is known as an extensive green plaza design since a substantial amount of soil is used for plants and trees that require a greater soil mass for their root structure. Intensive green roof gardens require a similar drainage layer but uses a minimal amount of soil usually from two to six inches, depending on the load bearing capacity and structural aspects of the building.



Filter fabric protects waterproofing and holds back concrete fines.

Everyone preferred Enkadrain from the beginning because of its proven performance. Proper drainage of the plaza was critical and the general contractor didn't want any problems. After reviewing test data and performance in similar projects Enkadrain was approved.



Enkadrain is safer for installers to handle than sharp, hard plastic.

"We were confident in every way that Enkadrain would perform as predicted," said Dan Whitney, East Coast Regional Sales Manager for Colbond Building Products.

For more information about these and any other products marketed and manufactured by Colbond Inc. visit www.colbond-usa.com or call 800-365-7391.

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